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RS-13-062

February 25, 2013

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

Quad Cities Nuclear Power Station, Units 1 and 2
Renewed Facility Operating License Nos. DPR-29 and DPR-30
NRC Docket Nos. 50-254 and 50-265

Subject: Quad Cities Nuclear Power Station Fifth Ten-Year Interval Inservice Testing Program

This letter provides a "for information" copy of the Quad Cities Nuclear Power Station (QCNPS) Fifth Ten-Year Interval Inservice Testing (IST) Program. Submittal of the IST Program Plan is in accordance with the requirements of the American Society of Mechanical Engineers (ASME) OM Code, Subsection ISTA and consistent with the guidance provided in NUREG-1482, "Guidelines for Inservice Testing at Nuclear Power Plants," Revision 1.

The enclosed IST Program has been updated for the fifth ten-year testing interval in accordance with 10 CFR 50.55a(f)(5)(i). As required by 10 CFR 50.55a(f)(4)(ii), this updated IST Program was written to meet the requirements of the ASME OM Code 2004 Edition through 2006 Addenda. As documented within the enclosed IST Program, the relief requests included in the IST Program have previously been submitted to the NRC and approved for use.

There are no regulatory commitments contained in this letter. Should you have any questions concerning this letter, please contact Mr. Kenneth M. Nicely at (630) 657-2803.

Respectfully,

Patrick R. Simpson

Patrick R. Simpson
Manager – Licensing

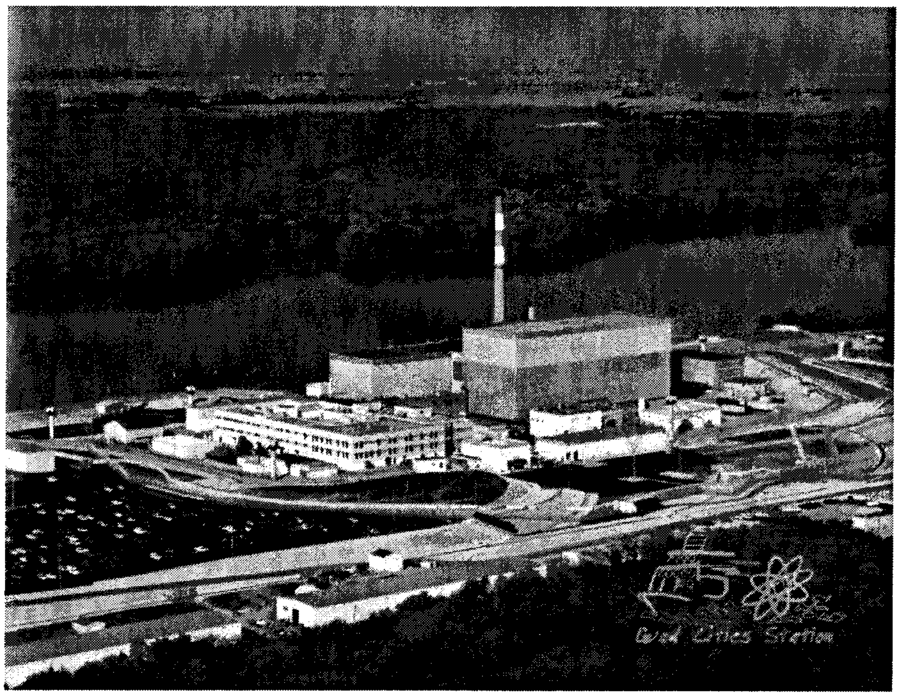
Attachment: Quad Cities Nuclear Power Station Fifth (5th) Ten-Year Interval Inservice Testing (IST) Program Plan

cc: NRC Regional Administrator, Region III
NRC Senior Resident Inspector, Quad Cities Nuclear Power Station

ATTACHMENT

Quad Cities Nuclear Power Station
Fifth (5th) Ten-Year Interval Inservice Testing (IST) Program Plan

Exelon Nuclear Generation, LLC
4300 Winfield Road
Warrenville, IL 60555



Quad Cities Nuclear Power Station
22710 206th Avenue North
Cordova, Illinois 61242

Unit	Docket Number	Commercial Service Date
One (1)	254	February 18, 1973
Two (2)	265	March 10, 1973

Fifth (5th) Ten-Year Interval

February 18, 2013 – February 17, 2023

Inservice Testing (IST) Program Plan

REVISION RECORD

Passport Revision	Effective Date	Revision Description	Sign & Date		
			Prepared: Site IST Engineer	Reviewed: Corporate IST Engineer	Approved; Engr. Programs Manager
0	*02/18/2013*	*Fifth (5th) Ten-Year Interval, Revision 0 Submittal to NRC. In compliance with 2004 Edition through 2006 Addenda except where relief is requested.*	2/15/13	2/15/13	2/18/13

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1.0 INTRODUCTION

1.1 Purpose

The purpose of this Inservice Testing (IST) Program Plan is to provide a summary description of the Quad Cities Nuclear Power Station Units 1 and 2 IST Program in order to document its compliance with the requirements of 10CFR50.55a(f) for the Fifth (5^{th}) 10-year IST interval.

1.2 Scope

This Inservice Testing Program Plan identifies all of the testing performed on the components included in the Quad Cities Nuclear Power Station Inservice Testing (IST) Program for the Fifth (5^{th}) ten-year IST interval, which began on February 18, 2013 and is scheduled to end on February 17, 2023.

The Code of Federal Regulations, 10CFR50.55a(f)(4), requires that throughout the service life of a boiling or pressurized water-cooled nuclear power facility, pumps and valves which are classified as ASME Code Class 1, Class 2, and Class 3 must meet the inservice test requirements except design and access provisions set forth in the ASME OM Code and addenda that are incorporated by reference in paragraph 10CFR50.55a(b)(3) for the initial and each subsequent 120-month interval.

Based on the start date identified above, the IST Program for the Fifth (5th) ten-year interval is required by 10CFR50.55a(f)(4)(ii) to comply with the requirements of the ASME OM Code-2004, Code for Operation and Maintenance of Nuclear Power Plants, including addenda through the OMb-2006, except where relief from such requirements has been granted in writing by the NRC.

The scope of the OM Code is defined in paragraph ISTA-1100 as applying to:

(a) pumps and valves that are required to perform a specific function in shutting down a reactor to the safe shutdown condition, in maintaining the safe shutdown condition, or in mitigating the consequences of an accident;

(b) pressure relief devices that protect systems or portions of systems that perform one or more of theses three functions

(c) dynamic restraints (snubbers) used in systems that perform one or more of these three functions, or to ensure the integrity of the reactor coolant pressure boundary

NOTE: This IST Program Plan addresses only those components included in (a) and (b) above. Dynamic restraints (snubbers) are addressed in a separate test program.

In order to determine the scope of the IST Program at Quad Cities Nuclear Power Station, an extensive scope evaluation was performed. This scope evaluation determined all of the functions required to be performed by all ASME Class 1, 2 and 3 systems in shutting down the reactor to the safe shutdown condition, in maintaining the safe shutdown condition or in mitigating the consequences of an accident. The determination of those functions was accomplished by a thorough review of licensing bases documents such as the UFSAR/FSAR, Plant Technical Specifications and Technical Specification Bases documents, etc. Next, a component-by-component review was performed to determine what function(s) each of the pumps and valves in the system was required to perform in order to support the safety function(s) of the system or subsystem. The results of these efforts are documented in the Station's IST Bases Document. In addition to a description of each component's safety function(s), the Bases Document identifies the tests and examinations that are performed on each component to provide assurance that they will be operationally ready to perform those safety function(s). The Bases Document identifies those ASME Class 1, 2, and 3 pumps and valves that are in the scope of the IST Program, including those that do and those that do not have required testing. It also identifies the ASME Class 1, 2 and 3 pumps and valves that are outside the scope of the IST Program on the basis that they are not required to perform any specific safety function.

As stated at the beginning of this Section, the scope of this IST Program Plan is to identify all of the testing performed on those components within the scope of the IST Program. This is accomplished primarily by means of the IST Pump and IST Valve Tables contained in Attachments 4.16 and 4.17. The remaining Sections and Attachments of this document provide support information to that contained in the Tables. Components that do not require testing are not included in the IST Program Plan document.

In addition to those components that are required to perform specific safety function(s), the scope evaluation often determines that there are also ASME Safety Class 1, 2 and 3 components that are not required to perform a licensing-based safety function but which, nonetheless, may be relied upon to operate to perform a function with some significance to safety. It may also identify non-ASME Safety Class pumps or valves that have a safety function or may be relied upon to operate to perform a function with some significance to safety. None of these components are required by 10CFR50.55a to be included in the IST Program. However, such components may require testing in a manner which demonstrates their ability to perform their functions commensurate with their importance to safety per the applicable portions of 10 CFR 50, Appendix A or B. One option is to include pumps or valves that fit these conditions in the IST Program as augmented components.

Quad Cities Nuclear Power Station Units 1 and 2 are licensed with Operating Mode 4 (Cold Shutdown) as the safe shutdown condition. Therefore, the scope of the IST Program must include, as a minimum, all of those ASME Class 1, 2, and 3 pumps and valves which are required to shut down the Reactor to the Cold Shutdown condition, maintain the Cold Shutdown condition, or mitigate the consequences of an accident.

1.3 Discussion

A summary listing of all the pumps and valves that are tested in accordance with the IST Program is provided in the IST Pump and IST Valve Tables contained in Attachments 4.16 and 4.17. The Pump and Valve Tables also identify each test that is performed on each component, the frequency at which the test is performed, and any Relief Request or Technical Position applicable to the test. For valves, the Valve Table also identifies any Cold Shutdown Justification or Refueling Outage Justification that is applicable to the required exercise tests. Additional information is provided for both pumps and valves. All of the data fields included in the IST Pump and Valve Tables are listed and described in Sections 2 and 3 of this document.

Following Sections 2 and 3 are several Attachments which provide information referenced in the Pump and Valve Tables.

Attachment 4.1 - *System and P&ID Listing:*

A listing of Piping and Instrumentation Diagrams (P&IDs) where a depiction of the IST Program pumps or valves may be located.

Attachment 4.2 - *General Relief Request Index:*

An index of the "General Relief Requests" that are applicable to the 5th ten-year interval IST Program.

Attachment 4.3 - *General Relief Requests*

Attachment 4.4 -	*Pump Relief Request Index:* An index of the "Pump Relief Requests" that are applicable to the 5th ten-year interval IST Program.
Attachment 4.5 -	*Pump Relief Requests*
Attachment 4.6 -	*Valve Relief Request Index:* An index of the "Valve Relief Requests" that are applicable to the 5th ten-year interval IST Program.
Attachment 4.7 -	*Valve Relief Requests*
Attachment 4.8 -	*Relief Request RAIs and SER:* The Safety Evaluation Report(s) (SER) that documents approval of the Relief Requests contained in Attachments 4.3, 4.4, and 4.5. This Attachment also includes Requests for Additional Information (RAIs) received from the NRC regarding the Relief Requests and the associated responses provided by Exelon.
Attachment 4.9 -	*Code Case Index:* An index of the ASME OM Code Cases that are being invoked for the 5th ten-year interval IST Program.
Attachment 4.10 -	*Cold Shutdown Justification Index:* An index of the "Cold Shutdown Justifications" that are applicable to the 5th ten-year interval IST Program.
Attachment 4.11 -	*Cold Shutdown Justifications*
Attachment 4.12 -	*Refuel Outage Justification Index:* An index of the "Refuel Outage Justifications" that are applicable to the 5th ten-year interval IST Program.
Attachment 4.13 -	*Refuel Outage Justifications*
Attachment 4.14 -	*Technical Position Index:* An index of the "Technical Positions" that are applicable to the 5th ten-year interval IST Program. Technical Positions provide detailed information regarding how Exelon satisfies certain ASME OM Code requirements, particularly when the Code requirement may be ambiguous or when multiple options for implementation may be available. Technical Positions do not take exception to or provide alternatives to Code requirements.
Attachment 4.15 -	*Technical Positions*
Attachment 4.16 -	*IST Pump Tables*
Attachment 4.17 -	*IST Valve Tables*

Attachment 4.18 - *Check Valve Condition Monitoring Plan Index:*

An index of the Check Valve Condition Monitoring (CVCM) Program Plans that are applicable to the 5th ten-year interval IST Program.

The CVCM program plans are maintained as living documents as part of the IST Bases Document.

This IST Program Plan is a quality-related document and is controlled and maintained in accordance with approved Exelon Corporate Engineering and Records Management procedures.

1.4 References

1.4.1 Title 10, Code of Federal Regulations, Part 50, Section 55a (10CFR50.55a)

1.4.2 ASME OM Code-2004, Code for Operation and Maintenance of Nuclear Power Plant Components, including Addenda through OMb-2006.

1.4.3 Quad Cities Nuclear Power Station Technical Specification 5.5.6

1.4.4 Exelon Corporation Administrative Procedure ER-AA-321, Administrative Requirements for Inservice Testing

1.4.5 Updated Final Safety Analysis Report (UFSAR) 3.9.6

2. INSERVICE TESTING PLAN FOR PUMPS

2.1 Pump Inservice Testing Plan

The Quad Cities Nuclear Power Station Inservice Testing Program for Pumps meets the requirements of Subsections ISTA and ISTB of the ASME OM Code-2004 with OMb-2006 addenda, with the exception of those specific applications identified in the Relief Requests contained in Attachment 3.

2.2 IST Plan Pump Table Description

The pumps included in the Quad Cities Nuclear Power Station Inservice Testing Program are listed in Attachment 14. The information contained in that table identifies those pumps required to be tested to the requirements of the ASME OM Code, the parameters measured, associated Relief Requests and comments, and other applicable information. The column headings for the Pump Table are listed below with an explanation of the content of each column.

System — The name of the plant system where the pump resides. The system name is located at the top of each table.

Pump EPN — The unique identification number for the pump, as designated on the System P&ID or Flow Diagram

Test Group — The grouping of pumps based upon their normal modes operation.
- A - Pumps operated continuously, or routinely during normal operation, cold shutdown, or refueling operations.
- B - Pumps in standby systems that are not operated routinely except for testing.
- S- Pumps that are skid-mounted and tested as part of a major component.

Description — The descriptive name for the pump [use PIMS, Passport, etc. names for consistency]

Safety Class — The ASME Code Class (i.e., 1, 2 or 3) of the pump. Safety Related Non-ASME Code Class pumps are designated "SR".
- 1 - ASME Code Class 1
- 2 - ASME Code Class 2
- 3 - ASME Code Class 3
- SR - Non-ASME Code Class, Safety Related
- NS - Non-ASME Code Class, Non-Safety Related with function important to safety

Pump Type — The pump design type:
- C - Centrifugal
- PDN - Positive Displacement – Non-Reciprocating
- PDR - Positive Displacement – Reciprocating
- VLS - Vertical Line Shaft

Pump Driver — The type of driver with which the pump is equipped.
- A - Air-motor
- D - Diesel
- M - Motor (electric)
- T - Turbine (steam)

Nominal Speed — The normal speed of the pump in revolutions per minute (rpm)

P&ID — The Piping and Instrumentation Diagram on which the pump is shown. These drawings are depicted as M-xxxx-y, where "xxxx" is the drawing number and "y" is the sheet number.

P&ID Coor.	The location on the P&ID where the pump may be found.
Test Type	Lists each of the test parameters which are required to be measured for the specific pump. These include: DP[1] - Differential Pressure N - Speed (for variable speed pumps, only) P - Discharge Pressure (for positive displacement pumps) Q[1] - Flow Rate V - Vibration (velocity) [1] Comprehensive Test parameters are indicated by a "-C" suffix
Test Freq	An abbreviation which designates the code specified frequency at which the associated test is performed: Q - Quarterly Y2 - Once every 2 years
Relief Request	Identifies the number of the Relief Request applicable to the specified test.
Tech Pos	Provides the Technical Position identification number applicable to the pump or test.
Pump Name	The descriptive name for the pump.

3. INSERVICE TESTING PLAN FOR VALVES

3.1 Valve Inservice Testing Plan

The Quad Cities Nuclear Power Station Inservice Testing Program for Valves meets the requirements of Subsections ISTA and ISTC of the ASME OM Code-2004 with OMb-2006 addenda, with the exception of those specific applications identified in the Relief Requests contained in Attachment 5.

3.2 IST Plan Valve Table Description

The valves included in the Quad Cities Nuclear Power Station Inservice Testing Program are listed in Attachment 15. The information contained in that table identifies those valves required to be tested to the requirements of the ASME OM Code, the testing methods and frequency of testing, associated Relief Requests, comments, and other applicable information. The column headings for the Valve Table are delineated below with an explanation of the content of each column.

System — The name of the plant system where the valve resides. The system name is located at the top of each table.

Valve EPN — The unique identification number for the valve, as designated on the System P&ID.

Safety Class — The Safety Class of the valve.

- 1 - ASME Code Class 1
- 2 - ASME Code Class 2
- 3 - ASME Code Class 3
- MC - ASME Code Class MC (Metal Containment)
- SR - Non-ASME Code Class, Safety Related
- NS - Non-ASME Code Class, Non-Safety Related with function important to safety

Category — The ASME Code category or categories of the valve.

- A - Seat Leakage Limited
- A/C - Seat Leakage Limited and Self-Actuating
- B - Seat Leakage Inconsequential
- B/C - Power Operated Relief Valves
- C - Self-Actuating
- D - Single Operation
- S- Valves that are skid-mounted and tested as part of a major component.

Size — The nominal size of the valve in inches.

Valve Type — The body style of the valve:

- 3W - 3-Way
- 4W - 4-Way
- BAL - Ball
- BTF - Butterfly
- CK - Check
- DIA - Diaphragm
- GA - Gate
- GL - Globe
- PLG - Plug
- RPD - Rupture Disk
- RV - Relief
- SCK - Stop-Check
- SHR - Shear (SQUIB)
- XFC - Excess Flow Check

Act. Type	The type of actuator on the valve. AO - Air Operator DF - Dual Function (Self and Power) EXP - Explosive HO - Hydraulic Operator M - Manual MO - Motor Operator SA - Self-Actuating SO - Solenoid Operator
Active/Passive	Designates whether the valve is active or passive in fulfillment of its safety function. The terms “active valves” and “passive valves” are defined in Reference 1.4.2. A - Active P - Passive
Normal Position	The normal position for the valve. AI - As-Is C - Closed CKL - Closed/Actuator Key Locked D - De-energized D/E - De-energized or Energized E - Energized LC - Locked Closed LO - Locked Open LT - Locked Throttled O - Open O/C - Open or Closed OKL - Open/Actuator Key Locked SYS - System Condition Dependent T - Throttled
Safety Position	The position required for the valve to perform its safety function. AI - As-Is C - Closed CKL - Closed/Actuator Key Locked D - De-energized D/E - De-energized or Energized E - Energized LC - Locked Closed LO - Locked Open LT - Locked Throttled O - Open O/C - Open or Closed OKL - Open/Actuator Key Locked SYS - System Condition Dependent T - Throttled
P&ID	The Piping and Instrumentation Diagram on which the pump is shown. These drawings are depicted as M-xxxx-y, where “xxxx” is the drawing number and “y” is the sheet number.
P&ID Coor.	The location on the P&ID where the pump may be found.

Test Type	The types of testing which are required to be performed on the valve based on its category and functional requirements.

BDC - Bidirectional Check Valve test (non-safety related closure test)
BDO - Bidirectional Check Valve test (non-safety related open test)
CC[1] - Check Valve Exercise Test - Closed
CO[1] - Check Valve Exercise Test - Open
CP[1] - Check Valve Partial Exercise Test
DIA - MOV Diagnostic Test (Position Indication/Stroke Time)
DT - Category D Test
EC - Exercise Test – Closed (manual valve)
EO - Exercise Test – Open (manual valve)
FC - Fail-Safe Exercise Test - Closed
FD - Fail-Safe Exercise Test – De-Energized
FO - Fail-Safe Exercise Test - Open
LT[2] - Leak Rate Test
PIC - Position Indication Verification Test - Closed
PIO - Position Indication Verification Test - Open
RT - Relief Valve Test
SC - Exercise Closed (without stroke-timing)
SD - Exercise to De-Energized Position (without stroke-timing)
SE - Exercise to Energized Position (without stroke-timing)
SO - Exercise Open (without stroke-timing)
SP - Partial Exercise (Cat. A or B)
STC - Exercise/Stroke-Time Closed
STO - Exercise/Stroke-Time Open

[1] Three letter designations should be used for Condition Monitoring Program check valve tests to differentiate between the various methods of exercising check valves. The letter following "CC", "CO" or "CP" should be:
A - Acoustics
D - Disassembly and Inspection
F - Flow Indication
M - Magnetics
R - Radiography
U - Ultrasonics
X - Manual Exercise

[2] Three letter designations should be used for leakage rate tests to differentiate between the various methods of testing. The letter following "LT" should be:
H - High Pressure
J - Appendix J
L - Low Pressure (non-Appendix J)

Test Freq	The frequency at which the associated test is performed.

AJ - Per Appendix J / RV-03
CM - Per Check Valve Condition Monitoring Program
CS - Cold Shutdown
M[*n*] - Once Every *n* Months
MOV - Per GL 96-05
Q - Quarterly
RR - Refuel Outage
R[*n*] - Once Every *n* Refuel Outages
SA - Sample Disassemble & Inspect
TS - Per Technical Specification Requirements
Y[*n*] - Once Every *n* Years

Relief Request	The number of the Relief Request applicable to the specified test.
Deferred Justification	The number of the Cold Shutdown Justification (CSJ) or Refuel Outage Justification applicable to the specified test.
Tech Pos	The Technical Position identification number applicable to the specified test.
Valve Name	The descriptive name for the valve.

4. ATTACHMENTS

4.1 System and P&ID Listing

SYSTEM CODE	SYSTEM NAME	P&ID NO		
		Unit 1	Unit 0	Unit 2
CAD	Atmosphere Air Dilution (2500)	M-642-1	N/A	M-642-2
CM	Containment Atmosphere Monitoring (2400)	CID-641-1	N/A	CID-641-2
		M-641-1		M-641-2
CR	Control Rod Drive (0300)	M-41-1	N/A	M-83-1
		M-41-2		M-83-2
		M-41-3		M-83-3
CS	Core Spray (1400)	M-36	N/A	M-78
DAP	Drywell Air Particulate Sampling (8800)	M-461-1	N/A	M-463-1
DGW	Emergency Diesel Generator Cooling Water (3900)	M-22-1	M-22-3	M-69-1
		M-22-3		M-69-3
		M-22-5		M-69-5
DO	Emergency Diesel Fuel Oil (5200)	M-29-2	M-29-2	M-29-2
FC	Fuel Pool Cooling Cleanup (1900)	M-38	N/A	M-80
FP	Fire Protection (4100)	N/A	M-27-2	N/A
FW	Feed Water (3200)	M-15-1	N/A	M-62-1
HP	High Pressure Coolant Injection (2300)	M-46-1	M-46-1	M-87-1
		M-46-2		M-87-2
		M-46-3		M-87-3
HRS	High Radiation Sampling (8900)	M-1056-1	N/A	M-1061-1
		M-1057		M-1062
IA	Instrument Air & Drywell Pneumatic (4700)	M-24-13	N/A	M-71-2
MS	Main Steam (3000)	M-13-2	N/A	M-60-2
NR	Neutron Monitoring / RBM (0700)	M-584-1	N/A	M-584-2
PC	Primary Containment (1600)	M-34-1	N/A	M-76-1
RCC	Reactor Building Closed Cooling Water (3700)	M-33-2	N/A	M-75-2
RI	Reactor Core Isolation Cooling (1300)	M-50-1	N/A	M-89-1
RH	Residual Heat Removal (1000)	M-37	M-37	M-79
		M-39-1		M-81-1
		M-39-2	M-79	M-81-2
		M-39-3		M-81-3
RT	Reactor Water Clean-Up (1200)	M-47-1	N/A	M-88-1
RW	Radwaste (2000)	M-43	N/A	M-85
		M-46-1		M-87-1

SYSTEM CODE	SYSTEM NAME	P&ID NO		
		Unit 1	Unit 0	Unit 2
RX	Nuclear Boiler And Reactor Recirculating (0200)	M-35-1	N/A	M-77-1
		M-35-2		M-77-2
		M-35-5		M-77-5
SAD[1]	Emergency Diesel Generator Starting Air (4600)	M-25-2	M-25-2	M-72-2
SA	Service Air (4600)	M-25-1	N/A	M-72-1
SC	Standby Liquid Control (1100)	M-40	N/A	M-82
SS	Safe Shutdown (2900)	M-70	M-70	M-70
VC	Control Room HVAC	M-725-3	M-725-3	M-725-3
VG	Standby Gas Treatment (7500)	M-44	M-44	M-44
WM	Make-Up Demineralizer (4300)	M-58-4	N/A	M-58-4

[1]Emergency Diesel Generator Starting Air is a subsystem of the Emergency Diesel Generator. However, Passport includes this subsystem under Service Air (SA).

4.2 General Relief Request Index

RELIEF REQUEST NUMBER	RELIEF REQUEST TITLE	APPROVAL DATE
RV-01	Use of Tolerances for OM Code Test New relief request Frequencies	02/14/2013

4.3 General Relief Requests

10CFR50.55a Relief Request: RV-01
Page 1 of 4

Relief Requested
In Accordance with 10CFR50.55a(a)(3)(ii)

"Hardship or Unusual Difficulty without Compensating Increase in Level of Quality or Safety"

1. ASME Code Components Affected

All Pumps and Valves contained within the Inservice Testing Program scope.

2. Applicable Code Edition and Addenda

ASME OM Code 2004 Edition through 2006 Addenda

3. Applicable Code Requirement

This request applies to the frequency specifications of the ASME OM Code. The frequencies for tests given in the ASME OM Code do not include a tolerance band.

ISTA-3120(a) -	"The frequency for the inservice testing shall be in accordance with the requirements of Section IST."
ISTA-3400 -	Frequency of Inservice Tests
ISTC-3150 -	Exercising Test Frequency
ISTC-3540 -	Manual Valves
ISTC-3630(a) -	Frequency
ISTC-3700 -	Position Verification Testing
ISTC-5221(c)(3) -	"At least one valve from each group shall be disassembled and examined at each refueling outage; all valves in a group shall be disassembled and examined at least once every 8 years."
Appendix I, 1-1320 -	Test Frequencies, Class 1 Pressure Relief Valves
Appendix I, 1-1330 -	Test Frequencies, Class 1 Nonreclosing Pressure Relief Devices
Appendix I, 1-1340 -	Test Frequencies - Class 1 Pressure Relief Valves that are used for Thermal Relief Application
Appendix I, I-1350 -	Test Frequencies - Class 2 and 3 Pressure Relief Valves
Appendix I, I-1360 -	Test Frequencies - Class 2 and 3 Nonreclosing Pressure Relief Devices

Appendix I, I-1370 -	Test Frequencies - Class 2 and 3 Primary Containment Vacuum Relief Valves
Appendix I, I-1380 -	Test Frequencies - Class 2 and 3 Vacuum Relief Valves Except for Primary Containment Vacuum Relief Valves
Appendix I, I-1390 -	Test Frequencies - Class 1 Pressure Relief Valves that are used for Thermal Relief Application
Appendix II, II-4000(a)(1) -	Performance Improvement Activities Interval
Appendix II, II-4000(b)(1)(e) -	Optimization of Condition Monitoring Activities Interval

4. Reason for Request

Pursuant to 10 CFR 50.55a, "Codes and standards," paragraph (a)(3)(ii), relief is requested from the frequency specifications of the ASME OM Code. The basis of the relief request is that the Code requirement presents an undue hardship without a compensating increase in the level of quality or safety.

ASME OM Code Section IST establishes the inservice test frequency for all components within the scope of the Code. The frequencies (e.g., quarterly) have always been interpreted as "nominal" frequencies (generally as defined in the Table 3.2 of NUREG 1482, Revision 1) and Owners routinely applied the surveillance extension time period (i.e., grace period) contained in the plant Technical Specifications (TS) Surveillance Requirements (SRs). The TS typically allow for a less than or equal to 25% extension of the surveillance test interval to accommodate plant conditions that may not be suitable for conducting the surveillance (SR 3.0.2). However, regulatory issues have been raised concerning the applicability of the TS "Grace Period" to ASME OM Code required inservice test frequencies irrespective of allowances provided under TS Administrative Controls (i.e., TS 5.5.6, "Inservice Testing Program," invokes SR 3.0.2 for various OM Code frequencies).

The lack of a tolerance band on the ASME OM Code inservice test frequency restricts operational flexibility. There may be a conflict where a surveillance test could be required (i.e., its Frequency could expire), but where it is not possible or not desired that it be performed until sometime after a plant condition or associated Limiting Condition for Operation (LCO) is within its applicability. Therefore, to avoid this conflict, the surveillance test should be performed when it can be and should be performed.

The NRC recognized this potential issue in the TS by allowing a frequency tolerance as described in TS SR 3.0.2. The lack of a similar tolerance applied to OM Code testing places an unusual hardship on the plant to adequately schedule work tasks without operational flexibility.

Thus, just as with TS required surveillance testing, some tolerance is needed to allow adjusting OM Code testing intervals to suit the plant conditions and other maintenance and testing activities. This assures operational flexibility when scheduling surveillance tests that minimize the conflicts between the need to complete the surveillance and plant conditions.

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5. Proposed Alternative and Basis for Use

ASME OM Code establishes component test frequencies that are based either on elapsed time periods (e.g., quarterly, 2 years, etc.) or on the occurrence of plant conditions or events (e.g., cold shutdown, refueling outage, upon detection of a sample failure, following maintenance, etc.).

a. Components whose test frequencies are based on elapsed time periods shall be tested at the frequencies specified in ASME OM Code Section IST with a specified time period between tests as shown in the following table.

Frequency	Specified Time Period Between Tests (all values are 'not to exceed'; no minimum periods are specified)
Quarterly (or every 3 months)	92 days
Semiannually (or every 6 months)	184 days
Annually (or every year)	366 days
x Years	x calendar years where 'x' is a whole number of years ≥ 2

b. The specified time period between tests may be extended as follows:

  i. For periods specified as less than 2 years, the period may be extended by up to 25% for any given test. This is consistent with QCNPS TS Section 5.5.6, "Inservice Testing Program."

  ii. Period extensions may also be applied to accelerated test frequencies (e.g., pumps in Alert Range).

  iii. For periods specified as greater than or equal to 2 years, the period may be extended by up to 6 months for any given test.

c. Components whose test frequencies are based on the occurrence of plant conditions or events (e.g., cold shutdown, refueling outage, upon detection of a sample failure, following maintenance, etc.) may not have their period between tests extended except as allowed by the ASME OM Code.

6. Duration of Proposed Alternative

The proposed alternative will be utilized for the entire Fifth 120 month interval beginning February 18, 2013.

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7. Precedent

Generic relief has not been specifically granted to apply a tolerance band to the ASME OM code required test frequencies. The NRC has previously accepted the application of TS SR 3.0.2 tolerances to selected OM Code frequencies as denoted in TS 5.5.6.

The prior NRC acceptance of the practice of applying TS tolerances to ASME OM code required test frequencies provides equivalent precedence for accepting and approving this relief request.

8. References

a. Quad Cities TS Section 1.4 - Frequency

b. Quad Cities TS Section 5.5.6 - Inservice Testing Program

c. Quad Cities TS SR 3.0.2 - Specified Frequency (25% grace Period)

d. Quad Cities TS SR 3.0.4 - Mode Entry Requirements

4.4 Pump Relief Request Index

RELIEF REQUEST NUMBER	RELIEF REQUEST TITLE	APPROVAL DATE
None	There are no Pump Relief Requests	N/A

4.5 Pump Relief Requests

There are no Pump Relief Requests

4.6 Valve Relief Request Index

RELIEF REQUEST NUMBER	**RELIEF REQUEST TITLE**	**APPROVAL DATE**
RV-02	Use of Code Case OMN-1 (MOV Testing)	02/14/2013
RV-03	Pressure Isolation Valve (PIV) Leak Test Frequency Consistent with Appendix J, Option B	02/14/2013
RV-04	High Pressure Coolant Injection System Exhaust Line Drain Pot Condenser Solenoid Valve Cannot be Stroke Timed	02/14/2013
RV-05	Class 1 Pressure Relief Valves Test Frequency from 5-Year Test Interval to Six-Year Test IST Interval with 6-Month Grace	02/14/2013
RV-06	Main Steam Safety Valve Set Point Testing Additional Testing Requirements	02/14/2013
RV-07	Main Steam Isolation Valve Technical Specification Stroke Time Limits in Lieu of ASME OM ISTC Stroke Time Limits	02/14/2013

4.7 Valve Relief Requests

10CFR50.55a Relief Request: RV-02

Relief Requested
In Accordance with 10 CFR 50.55a(a)(3)(i)

"Alternate Provides Acceptable Level of Quality and Safety"

1. ASME Code Components Affected

All Quad Cities Nuclear Power Station (QCNPS) motor-operated valves (MOVs) scoped into the Inservice Testing Program that are also included in the scope of the QCNPS MOV Testing Program.

2. Applicable Code Edition and Addenda

ASME OM Code 2004 Edition through 2006 Addenda

3. Applicable Code Requirement

ISTC-3100 requires that any MOV that has undergone maintenance that could affect its performance after the preservice test be tested in accordance with STC-3310.

ISTC-3310 requires that a new reference value be determined or the previous reference value be reconfirmed by an inservice test after a MOV has been replaced, repaired, or has undergone maintenance that could affect the valve's performance.

ISTC-3510 requires that active Category A and B MOVs be exercised nominally every 3 months.

ISTC-3521 requires that active Category A and B MOVs be exercised during cold shutdowns if it is not practicable to exercise the valves at power, or that active Category A and B MOVs be exercised during refueling outages if it is not practicable to exercise the valves during cold shutdowns.

ISTC-3700 requires that valves with remote position indicators be observed locally at least once every 2 years to verify that valve operation is accurately indicated.

ISTC-5120 requires that MOVs be stroke-time tested when exercised in accordance with ISTC-3510.

4. Reason for Request

In accordance with 10 CFR 50.55a(a)(3)(i), relief is requested from the requirements of the OM Code, Subsection ISTC-3000, excluding ISTC-3600, "Leak Testing Requirements," and the requirements of Subsection ISTC-5120. The proposed alternative provides an acceptable level of quality and safety.

QCNPS proposes to adopt the requirements of Code Case OMN-1 (as delineated in the 2004 ASME OM Code through 2006 Addenda) in lieu of the performance of stroke time testing and position indication testing as described by ASME OM ISTC 2004 through 2006 addenda. The provision to allow for motor control center testing, as contained in Section 6.1 of Code Case OMN-1, is excluded from this request.

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5. Proposed Alternative and Basis for Use

The QCNPS MOV testing program was developed as a result of NRC Generic Letter (GL) 89-10, "Safety Related Motor Operated Valve Testing and Surveillance," and GL 96-05, "Periodic Verification of Design Basis Capability of Safety Related Motor Operated Valves," utilizing Topical Report MPR-1 807, "Joint BWR, Westinghouse and Combustion Engineering Owners' Group Program on Motor-Operated Valve (MOV) Periodic Verification," Revision 2. QCNPS is currently utilizing MPR-2524-A, "Joint Owners' Group (JOG) Motor Operated Valve Periodic Verification Program Summary," (November 2006) as guidance for the MOV Program. The adoption of OMN-1 will consolidate testing between the station's IST and MOV Programs.

Section 4.2.5 "Alternatives to Stroke-Testing," of NUREG-1482, "Guidance for Inservice Testing at Nuclear Power Plants," Revision 1, states in part that as an alternative to MOV stroke-time testing, ASME-developed Code Case OMN-1, which provides periodic exercising and diagnostic testing for use in assessing the operational readiness of MOVs, may be used. Section 4.2.5 recommends that licensees implement ASME Code Case OMN-1 as an alternative to the MOV stroke-time testing. The periodic exercising and diagnostic testing requirements in OMN-1 provide an improved method for assessing the operational readiness of MOVs.

Code Case OMN-1 was revised in the 2006 Addenda to the ASME OM Code2004. Most of the revisions are enhancements such as clarification of valve remote position indication requirements and ball/plug/diaphragm valve test requirements, and the expansion of risk-informed provisions. However, there was one significant revision in Section 6.1, "Acceptance Criteria," that states that motor control center (MCC) testing is acceptable if correlation with testing at the MOV has been established. MCC diagnostic testing was not specifically addressed in the original version of OMN-1. Historically, diagnostic testing of MOVs has been conducted using at-the-valve tests. Although there may be potential benefits of testing conducted at the MCC, the ASME OM Code does not address any method for the correlation of MCC-based measurements to diagnostic test measurements conducted at-the-valve. For these reasons, QCNPS has excluded the provision for MCC testing from this relief request. Therefore, the MCC test method will not be used as an acceptance criterion to determine the operational readiness of MOVs.

The following positions describe how QCNPS interprets and complies with the various requirements of OMN-1 (ASME OMb Code-2006).

1. OMN-1, Section 3.1 allows for the use of testing that was conducted prior to the implementation of OMN-1 if it meets the requirements of the Code Case. QCNPS intends to utilize the testing credited under its GL 89-10/96-05 responses to satisfy the requirement for a one-time test to verify the capacity of each individual or group of MOV's safety-related design basis requirements.

2. OMN-1, Section 3.2 requires that each MOV be tested during the preservice test period or before implementing inservice inspection. QCNPS intends to utilize the testing credited under its GL 96-05 response to satisfy this requirement.

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3. OMN-1, Section 3.3(b) states that inservice tests shall be conducted in the as-found condition, and activities shall not be conducted if they might invalidate the as-found condition for inservice testing. QCNPS maintenance activities that would affect the as-found condition of the valve, such as motor operator preventive maintenance or stem lubrication, are typically scheduled to occur in conjunction with the performance of the MOV Periodic Verification Testing, and are performed after as-found testing. Any other activities that could affect the as-found test results are not performed until after the as-found testing has been conducted.

4. OMN-1 Section 3.3(c) requires the inservice test program to include a mix of static and dynamic MOV performance testing. QCNPS has utilized the JOG program's mix of static and dynamic MOV performance testing (i.e., MPR2524-A) to develop its current MOV testing program. Additionally, QCNPS will continue to utilize the existing engineering standards, which are consistent with the JOG standards, to justify any changes to the mix of required MOV performance testing. The use of such an evaluation will serve to ensure QCNPS continues to meet this requirement.

5. OMN-1, Section 3.3(e) requires that Remote Position Indication shall be verified locally during inservice testing or maintenance activities. QCNPS will continue to verify the operability of each MOV's position indication system as part of each MOV's diagnostic test. In addition, the function of each MOV's position indication system will be verified during the performance of maintenance activities affecting remote position indication.

6. OMN-1, Section 3.3.1(b) requires MOV inservice testing to be conducted every 2 refueling cycles or 3 years (whichever is longer), if insufficient data exists to determine inservice test frequencies. QCNPS has sufficient MOV testing data to justify its current testing frequencies, and therefore meets this requirement. If in the future, modification or replacement results in the necessity to re-baseline a valve or group of valves, the requirements of OMN-1, Section 3.3.1(b) or 3.7.2.2(c) as applicable, will be followed.

7. OMN-1, Section 6.4.4 requires that calculations for determining the MOV's functional margin are evaluated to account for potential performance-related degradation. The QCNPS MOV Program, including Exelon's Motor Operated Valve Design Database (MIDAS) Software (or similar updated product), takes into account performance-related degradation, to calculate valve margin.

8. The provision of motor control center testing contained in Section 6.1 ("Acceptance Criteria") is excluded from this request ("i.e., Motor Control Center testing is acceptable if correlation with testing at the MOV has been established").

6. Duration of Proposed Alternative

The proposed alternative identified in this relief request shall be utilized during the Fifth 10-Year IST Interval beginning February 18, 2013.

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7. Precedent

Similar relief has been approved for

1. LaSalle County Station, Units 1 and 2, Relief Request RV-02, in NRC Safety Evaluation dated September 26, 2007 (Reference 1);

2. Peach Bottom Atomic Power Station, Units 2 and 3, Relief Request GVRR-1, in NRC Safety Evaluation dated September 3, 2008 (Reference 2); and

3. Clinton Power Station, Unit 1 Relief Request No. 2201 in NRC Safety Evaluation dated June 10, 2010 (Reference 3).

8. References

1. Letter from R. Gibbs (U.S. NRC) to C. M. Crane (Exelon Generation), "Relief Requests for the LaSalle County Station, Units 1 and 2, Third 10Year Pump and Valve Inservice Testing Program (TAC Nos. MD5988, MD5989, MD5992, MD5993, MD5994, MD5995)," dated September 26, 2007.

2. Letter from H. Chernoff (U.S. NRC) to C. G. Pardee (Exelon Generation), "Peach Bottom Atomic Power Station, Units 2 and 3 - Requests for Relief Associated with the Fourth Inservice Testing Interval (TAC Nos. MD7461 and MD7462)," dated September 3, 2008.

3. Letter from S. Campbell (U.S. NRC) to M. Pacilio (Exelon Generation), "Clinton Power Station, Unit No. 1 - Safety Evaluation of Relief Request Nos. 2201, 2202 and 3201, for the Third 10-Year Inservice Testing Interval," dated June 10, 2010

10CFR50.55a Relief Request: RV-03

Relief Requested
In Accordance with 10CFR50.55a(a)(3)(i)

"Alternate Provides Acceptable Level of Quality and Safety"

1. ASME Code Component(s) Affected

Component Number	System	Code Class	Category
1(2)-1001-047-MO	RHR	1	A
1(2)-1001-050-MO	RHR	1	A
1(2)-1001-029A-MO	RHR	1	A
1(2)-1001-029B-MO	RHR	1	A
1(2)-1001-068A	RHR	1	A/C
1(2)-1001-068B	RHR	1	A/C
1(2)-1402-009A	CS	1	A/C
1(2)-1402-009B	CS	1	A/C
1(2)-1402-025A-MO	CS	1	A
1(2)-1402-025B-MO	CS	1	A

2. Applicable Code Edition and Addenda

ASME OM Code 2004 Edition through 2006 Addenda

3. Applicable Code Requirement

ISTC-3630 (Leakage Rate for Other Than Containment Isolation Valves) states that Category A valves with a leakage requirement not based on an Owner's
10 CFR 50, Appendix J program, shall be tested to verify their seat leakages are within acceptable limits. Valve closure before seat leakage testing shall be by using the valve operator with no additional closing force applied.

ISTC-3630(a) (Frequency) Tests shall be conducted at least once every 2 years.

4. Reason for Request

Pursuant to 10 CFR 50.55a, "Codes and Standards", paragraph (a)(3)(i), relief is requested from the requirement of ASME OM Code ISTC-3630(a). The basis of the relief request is that the proposed alternative would provide an acceptable level of quality and safety.

ISTC-3630 requires that leakage rate testing for Pressure Isolation Valves (PIVs) be performed at least once every 2 years. PIVs are not specifically included in the scope for performance-based testing as provided for in 10 CFR 50Appendix J Option B. While the motor-operated PIVs affected by this Relief Request are also Containment Isolation Valves (CIVs) and tested in accordance with the Appendix J Program, the check valve PIVs are not CIVs and not within the Appendix J scope. The concept behind the Option B alternative for containment isolation valves is that licensees should be allowed to adopt cost effective methods for complying with regulatory requirements. Additionally, NEI 94-01, "Industry Guideline for Implementing Performance-Based Option of 10 CFR Part 50, Appendix J," describes the risk-informed basis for the extended test intervals under Option B. That justification

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shows that for valves which have demonstrated good performance by passing their leak rate tests for two consecutive cycles, further failures appear to be governed by the random failure rate of the component. NEI 94-01 also presents the results of a comprehensive risk analysis, including the statement that "the risk impact associated with increasing [leak rate] test intervals is negligible (less than 0.1 % of total risk)." The valves identified in this relief request are all in water applications. The PIV testing is performed with water pressurized to pressures lower than function maximum pressure differential. However, the observed leakage is adjusted to the function maximum pressure differential value in accordance with ISTC-3630(b)(4). This relief request is intended to provide for a performance-based scheduling of PIV tests at QCNPS. The reason for requesting this relief is dose reduction / ALARA. Recent historical data was used to identify that PIV testing alone each refuel outage incurs a total dose of approximately 600 milliRem. Assuming all of the PIVs remain classified as good performers the extended test intervals would provide for a savings of approximately 1.2 Rem over a 4-1/2 year period.

NUREG 0933, "Resolution of Generic Safety Issues," Issue 105 (Interfacing Systems LOCA at LWRs) discussed the need for PIV leak rate testing based primarily on three pre-1980 historical failures of applicable valves industry-wide. These failures all involved human errors in either operations or maintenance. None of these failures involved inservice equipment degradation. The performance of PIV leak rate testing provides assurance of acceptable seat leakage with the valve in a closed condition. Typical PIV testing does not identify functional problems which may inhibit the valves ability to re-position from open to closed. For check valves, such functional testing is accomplished per ASME OM Code ISTC-3522 and ISTC-3520. Power-operated valves are routinely full stroke tested per ASME OM Code to ensure their functional capabilities. At QCNPS, these functional tests for motor operated PIVs are performed on a quarterly frequency. The functional testing of the PIV check valves will be monitored through a Condition Monitoring Plan in accordance with ISTC-5222, "Condition-Monitoring Program," and Mandatory Appendix II, "Check Valve Condition Monitoring Program." Performance of the separate 2 year PIV leak rate testing does not contribute any additional assurance of functional capability; it only determines the seat tightness of the closed valves.

5. Proposed Alternative and Basis for Use

QCNPS proposes to perform PIV testing at intervals ranging from every refuel to every third refuel. The specific interval for each valve would be a function of its performance and would be established in a manner consistent with the CIV process under 10 CFR 50 Appendix J, Option B. In fact, all of the MOVs listed are also classified as CIVs and are leak rate tested with air at intervals determined by 10 CFR 50 Appendix J Option B (hereto referred to as Option B). The MOV PIV testing would be scheduled to coincide with the CIV testing, at whatever interval required for Option B. A conservative control will be established such that if any valve fails either their CIV test or their PIV test, the test interval for both tests will be reduced consistent with Appendix J, Option B requirements until good performance is reestablished.

The primary basis for this relief request is the historically good performance of the PIVs. The only recorded seat leakage failures of PIVs at QCNPS were in fact determined to be a result of the test methodology and not due to any physical condition of the valves.

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Additional basis for this relief request is provided below:

- Separate functional testing of MOV PIVs and Condition Monitoring of Check Valve PIVs per ASME OM Code.
- Low likelihood of valve mispositioning during power operations (procedures, interlocks).
- Air test vs. water test - degrading seat conditions tend to be identified sooner with air testing.
- Relief valves in the low pressure (LP) piping - these relief valves may not provide Inner-System Loss of Coolant Accident (ISLOCA) mitigation for inadvertent PIV mispositioning but their relief capacity can accommodate conservative PIV seat leakage rates.
- Alarms that identify high pressure (HP) to LP leakage - Operators are highly trained to recognize symptoms of a present or incipient ISLOCA and to take appropriate actions.

6. Duration of Proposed Alternative

The proposed alternative will be utilized for the entire Fifth 120 month Interval beginning February 18, 2013.

7. Precedents

This relief request was approved for Fermi Power Station for the Third 120 month Interval. Letter from R. Pascarelli (U.S. NRC) to J. Davis (Detroit Edison), "Fermi-2 Evaluation of In-Service Testing Program Relief Requests VRR-011, VRR-012, and VRR-013," dated September 28, 2010.

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Relief Requested
In Accordance with 10 CFR 50.55a(f)(5)(iii)

"Inservice Testing Impracticality"

1. ASME Code Components Affected

Component Number	System	Code Class	Category
1(2)-2301-032-MO	HPCI	2	B

2. Applicable Code Edition and Addenda

ASME OM Code 2004 Edition through 2006 Addenda

3. Applicable Code Requirement

ISTC-5150, Solenoid-Operated Valves

4. Impracticality of Compliance.

Pursuant to 10 CFR 50.55a, "Codes and standards," paragraph (f)(5)(iii), relief is requested from the requirement of ASME OM Code ISTC-5150. The basis of the relief request is that the Code requirement is impractical.

These solenoid valves function as a backup to the exhaust line drain pot steam trap. During normal operation of the HPCI turbine using high quality steam, the drain path from the drain pot to the torus via the steam trap is adequate to remove condensate from the turbine exhaust line. However, during HPCI turbine operation with low pressure and low quality steam (e.g., during certain HPCI surveillance tests), condensate collects in the drain pot faster than it can be drained through the trap. Under these conditions, solenoid valve 1(2)-2301-032 opens automatically to drain to the gland seal condenser upon receipt of a signal from a drain pot level switch when the drain pot level reaches the high-level alarm set point. A high level condition alarms a control room annunciator.

These valves are not equipped with hand switches or position indicators and the valves are totally enclosed, so valve position cannot be verified by direct observation. Therefore, it is impractical to exercise and stroke time these valves in accordance with Code requirements.

Valve actuation may be indirectly verified by removing the HPCI system from service, filling the drain pot with water until the high level alarm is received, and observing that the high level alarm clears. It is impractical to assign a maximum limiting stroke time to these valves using this test method because the time for the alarm to clear would depend primarily on variables such as the rate of filling and the level of the drain pot when the filling is secured. The steam line drain pot is not equipped with direct level indication; therefore, the time required for the alarm to clear may vary significantly.

Failure of these valves to perform their safety function would be indicated by a drain pot high level alarm. Additionally, condensate entrapped in the steam would cause significant fluctuations in exhaust steam header pressure.

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5. Burden Caused By Compliance

Compliance with the quarterly exercising and stroke timing requirements of the Code would require either system modifications to replace these valves with ones of testable design, or to purchase non-intrusive test equipment and develop new test methods and procedures.

6. Proposed Alternative and Basis for Use

A functional verification test is conducted on the drain pot level limit switches and the associated control room annunciators at least once every 92 days. Valve actuation will be indirectly verified by removing the HPCI system from service, filling the drain pot with water until the high level alarm is received, and observing a positive draining of the HPCI drain pot as indicated by a level increase in gland seal condenser and the high level alarm clears.

The following provisions of ISTC-5153, Stroke Test Corrective Action still apply:

- If a valve fails to exhibit the required change of obturator position, the valve shall be immediately declared inoperable.
- Valves declared inoperable may be repaired, replaced, or the data may be analyzed to determine the cause of the deviation and the valve shown to be operating acceptably.
- Valve operability based upon analysis shall have the results of the analysis recorded in the record of tests (see ISTC-9120).
- Before returning a repaired or replacement valve to service, a test demonstrating satisfactory operation shall be performed.

7. Duration of Proposed Alternative

The proposed alternative will be utilized for the entire Fifth 120 month Interval beginning February 18, 2013.

8. Precedents

This relief request was previously approved for Quad Cities Nuclear Power Station Units 1 and 2 for the Fourth 120 month Interval (Relief Request RV-23A) in letter from A. Mendiola (U.S. NRC) to C. Crane (Exelon Generation), "Quad Cities Nuclear Power Station, Units 1 and 2 - Fourth 10-Year Inservice Testing Program Relief Requests," dated February 20, 2004.

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Relief Requested
In Accordance with 10 CFR 50.55a(a)(3)(i)

"Alternate Provides Acceptable Level of Quality and Safety"

1. ASME Code Component(s) Affected

Quad Cities Nuclear Power Station (QCNPS) Units 1 and 2, Main Steam Safety Valves (MSSVs): Model: 3777Q; Manufacturer: Dresser

Component Number	System	Code Class	Category
1-0203-004A	Main Steam	1	C
1-0203-004B	Main Steam	1	C
1-0203-004C	Main Steam	1	C
1-0203-004D	Main Steam	1	C
1-0203-004E	Main Steam	1	C
1-0203-004F	Main Steam	1	C
1-0203-004G	Main Steam	1	C
1-0203-004H	Main Steam	1	C
2-0203-004A	Main Steam	1	C
2-0203-004B	Main Steam	1	C
2-0203-004C	Main Steam	1	C
2-0203-004D	Main Steam	1	C
2-0203-004E	Main Steam	1	C
2-0203-004F	Main Steam	1	C
2-0203-004G	Main Steam	1	C
2-0203-004H	Main Steam	1	C

2. Applicable Code Edition and Addenda

ASME OM Code 2004 Edition through 2006 Addenda

3. Applicable Code Requirement

ASME OM Code, Appendix I, "Inservice Testing of Pressure Relief Devices in Light-Water Reactor Nuclear Power Plants," Section I-1320, "Test Frequencies, Class 1 Pressure Relief Valves," paragraph (a), "5-Year Test Interval."

4. Reason for Request

10 CFR 50.55a(f)(4) directs a licensee to meet inservice testing requirements for ASME Code Class 1 valves set forth in the ASME OM Code and addenda. QCNPS is committed to the 2004 Edition through 2006 Addenda of the ASME OM Code.

Section ISTC-3200, "Inservice Testing," states that inservice testing shall commence when the valves are required to be operable to fulfill their required function(s). Section ISTC-5240, "Safety and Relief Valves," directs that safety and relief valves meet the inservice testing requirements set forth in Appendix I of the ASME OM Code. Appendix I, Section 1-1320(a) of the ASME OM Code states that Class 1 pressure relief valves shall be tested at least once every five years, starting

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with initial electric power generation. This section also states a minimum of 20 percent of the pressure relief valves are tested within any 24 month interval and that the test interval for any individual valve shall not exceed five years. The required test ensures that the MSSVs, which are located on each of the main steam lines between the reactor vessel and the first isolation valve within the drywell, will open at the pressures assumed in the safety analysis.

The Dresser Model 3777Q MSSVs have shown acceptable test history at QCNPS as described in Section 5 below.

The physical locations of the MSSVs cause them to interfere with one another during transport of the valves in and out of containment. In order to create a transport path, QCNPS elects to remove, test and rebuild at least half of the subject valves during each refueling outage. This ensures compliance with the ASME OM Code requirements for testing Class 1 pressure relief valves within a five-year interval.

To support these replacements, four spare MSSVs are required to be certified prior to the refuel outage during which they will be installed. These spare MSSVs are certified tested immediately after refurbishment and placed into stores. In order to meet the 5 year test-to-test interval requirement, each spare MSSV requires a second recertification test just before a refuel outage to mitigate the time the valve spent in stores. Extending the testing interval to 6 years with a grace period of 6 months to coincide with a refueling outage (i.e., 6.5 years total) would allow additional time for the spare MSSVs to reside in stores after their certification tests without an additional recertification test immediately prior to installation. This extension would reduce the number of recertification test actuations of the spare MSSVs and limit the potential of disc/seat damage and subsequent seat leakage due to these additional tests.

In accordance with 10 CFR 50.55a, "Codes and standards," paragraph (a)(3)(i), EGC requests relief from the five year test interval requirements of ASME OM Code, Appendix I, Section I-1320(a) for the Dresser Model 3777Q MSSVs at QCNPS Units 1 and 2. QCNPS requests that the test interval be increased from five years to six years with a grace period of 6 months to coincide with a refueling outage (i.e., 6.5 years total). Compliance with the applicable requirements of the ASME OM Code for these MSSVs results in unnecessary recertification testing of the MSSVs just prior to a refuel outage without a compensating increase in the level of quality or safety.

5. <u>Proposed Alternative and Basis for Use</u>

QCNPS proposes that ASME Class 1 pressure relief valves (i.e., Dresser Model3777Q MSSVs) at QCNPS shall be tested at least once every 6 years with a grace period of 6 months to coincide with a refueling outage (i.e., 6.5 years total). A minimum of 20% of the pressure relief valves will be tested within any 24month interval and that this 20% shall consist of valves that have not been tested during the current 6 year interval (with a 6 month grace), if they exist. The test interval for any individual valve shall not exceed 6.5 years. This Alternative is consistent with the alternative provided in ASME Code Case OMN-17, "Alternative Rules for Testing ASME Class 1 Pressure Relief /Safety Valves," Section 1, 'Test Frequencies, Class 1 Pressure Relief Valves," Paragraph (a) "72-month Interval."

IST history for the Dresser Model 3777Q MSSVs at QCNPS from May 1997 to the present indicate good performance in that almost all tested MSSVs (i.e., 77 MSSV tests) that have been installed in either QCNPS Unit 1 or Unit 2 for two operating cycles have successfully passed the ASME OM Code and Technical Specification (TS) as-found lift set-point acceptance criteria within plus or minus 3% (the historical test data indicates 1 of 77 tests did not remain within the as-left tolerance of plus or minus 3%; however, it was found in the negative, more conservative, direction).

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QCNPS utilizes an ASME OM Code-certified off-site vendor to perform as-found and as-left testing, inspection, and refurbishment of the MSSVs. An EGC-approved and qualified procedure is used for disassembly and inspection of the MSSVs. This procedure requires that each MSSV be disassembled and inspected upon removal from service, independent of the as-found test results. The procedure identifies the critical components that are required to be inspected for wear and defects, and the critical dimensions that are required to be measured during the inspection. If components are found worn or outside of the specified tolerance(s), the components are either reworked to within the specified tolerances, or replaced. All parts that are defective, outside-of-tolerance, and all reworked/replaced components are identified, and EGC is notified of these components by the off-site vendor. The MSSV is then re-assembled, the as-left test is performed, and the MSSV is returned to QCNPS.

Based upon the unnecessary recertification testing of the MSSVs just prior to a refuel outage to comply with the ASME OM Code coupled with historical MSSV test results for Dresser Model 3777Q MSSVs, QCNPS has concluded that this alternative provides an acceptable level of quality and safety.

6. Duration of Proposed Alternative

The proposed alternative will be utilized for the entire Fifth 120 month Interval beginning February 18, 2013.

7. Precedents

A similar relief request was previously approved for Quad Cities Nuclear Power Station Units 1 and 2 for the Fourth 120 month Interval (Relief Request RV-30F) in letter from R. Gibbs (U.S. NRC) to C. Pardee (Exelon Generation), "Dresden Nuclear Power Station Units 2 and 3 - Relief Request No. RV-02C from 5-Year Test Interval for Main Steam Safety Valves and Quad Cities Nuclear Power Station, Units 1 and 2 - Relief Requests No. RV-30E and RV-30F from 5-Year Test Interval for Main Steam Safety Valves," dated June 27, 2008.

10 CFR 50.55a Relief Request: RV-06

Relief Requested
In Accordance with 10 CFR 50.55a(a)(3)(ii)

"Hardship or Unusual Difficulty Without Compensating Increase in Level of Quality or Safety"

1. ASME Code Components Affected

Component Number	System	Code Class	Category
1(2)-0203-003A	Main Steam	1	B/C
1(2)-0203-004A	Main Steam	1	C
1(2)-0203-004B	Main Steam	1	C
1(2)-0203-004C	Main Steam	1	C
1(2)-0203-004D	Main Steam	1	C
1(2)-0203-004E	Main Steam	1	C
1(2)-0203-004F	Main Steam	1	C
1(2)-0203-004G	Main Steam	1	C
1(2)-0203-004H	Main Steam	1	C

2. Applicable Code Edition and Addenda

ASME OM Code 2004 Edition through 2006 Addenda

3. Applicable Code Requirement

Appendix 1, 1-1320(c) - Requirements for Testing Additional Valves

4. Reason for Request

Pursuant to 10 CFR 50.55a, "Codes and standards," paragraph (a)(3)(ii), relief is requested from the requirement of ASME OM Code, Appendix I, 1-1320(c). The basis of the relief request is that the Code requirement presents an undue hardship without a compensating increase in the level of quality or safety.

Valve 1(2)-0203-003A is a dual function safety/relief valve manufactured by Target Rock. The remaining valves are simple safety valves. These main steam safety valves are used to terminate an abnormal pressure increase in the reactor vessel and the reactor coolant pressure boundary (i.e., they provide overpressure protection).

The physical locations of the safety valves cause them to interfere with one another during transport of the valves in and out of containment. In order to create a transport path, at least half of the subject valves are removed, tested and rebuilt during each refueling outage. This accelerated maintenance schedule provides a high level of assurance that these safety valves will perform their safety function.

Quad Cities Nuclear Power Station does not have the facilities required to perform set-point tests on large relief and safety valves. These valves are unbolted from their mounting flanges, decontaminated, and shipped to an off-site test facility. Because of the lengthy period required for

10 CFR 50.55a Relief Request: RV-06
Page 2 of 2

removal, transportation, testing and re-installation, the removal and testing of additional valves due to sample expansion would delay unit start-up from refueling outages by at least several days. This represents a significant hardship.

The sample expansion requirements of Appendix I would require two additional valves be tested if one valve failed its set-point test. Since the dual function safety/relief valve is tested each outage, and no less than four of the remaining valves are tested during each outage, the valves already being tested represent an increased sample population. Therefore, based on the sample expansion requirements already being met for one valve, and the hardship associated with pulling additional valves, no additional valves will be tested if only one valve fails the set-point test.

5. Proposed Alternative and Basis for Use

The dual function safety/relief valve, and at least half of the eight safety valves, will be removed and tested during each reactor refueling outage. If only one of the eight safety valves fails its set-point test, additional safety valves will not be tested. If more than one safety valve fails, the sample expansion criteria of Appendix I, 1320(c) will be implemented.

6. Duration of Proposed Alternative

The proposed alternative will be utilized for the entire Fifth 120 month Interval beginning February 18, 2013.

7. Precedents

This relief request was previously approved for Quad Cities Nuclear Power Station Units 1 and 2 for the Fourth 120 month Interval (Relief Request RV-30B) in letter from A. Mendiola (U.S. NRC) to C. Crane (Exelon Generation), "Quad Cities Nuclear Power Station, Units 1 and 2 - Fourth 10-Year Inservice Testing Program Relief Requests," dated February 20, 2004.

10 CFR 50.55a Relief Request: RV-07
Page 1 of 2

Relief Requested
In Accordance with 10 CFR 50.55a(a)(3)(i)

“Alternate Provides Acceptable Level of Quality and Safety”

1. ASME Code Components Affected

Component Number	System	Code Class	Category
1(2)-0203-001A	Main Steam	1	A
1(2)-0203-001B	Main Steam	1	A
1(2)-0203-001C	Main Steam	1	A
1(2)-0203-001D	Main Steam	1	A
1(2)-0203-002A	Main Steam	1	A
1(2)-0203-002B	Main Steam	1	A
1(2)-0203-002C	Main Steam	1	A
1(2)-0203-002D	Main Steam	1	A

2. Applicable Code Edition and Addenda

ASME OM Code 2004 Edition through 2006 Addenda

3. Applicable Code Requirement

ISTC-5132(b) - Stroke Test Acceptance Criteria - Valves with reference stroke times of less than or equal to 10 seconds shall exhibit no more than ± 50% change in stroke time when compared to the reference value.

4. Reason for Request

Pursuant to 10 CFR 50.55a, "Codes and standards," paragraph (a)(3)(i), relief is requested from the requirement of ASME OM Code ISTC-5132(b). The basis of the relief request is that the proposed alternative would provide an acceptable level of quality and safety.

The main steam isolation valves (MSIVs) open to admit reactor steam to the main turbine. They close to provide containment and reactor isolation.

The ISTC Code requirement bases the stroke time acceptance criteria on a fixed reference value taken from a baseline test. However, Technical Specifications (TS) Surveillance Requirement (SR) 3.6.1.3.6 in TS 3.6.1.3, "Primary Containment Isolation Valves (PCIV's)," establishes an invariable acceptable stroke time range for the MSIVs of > 3 seconds to < 5 seconds. This fixed range is more conservative and consistent than that required by ISTC-5132(b) since the range is not dependent on a baseline value that may vary by as much as ±1 second.

10 CFR 50.55a Relief Request: RV-07
Page 2 of 2

5. Proposed Alternative and Basis for Use

TS SR 3.6.1.3.6 establishes an acceptable stroke time range for the MSIVs of 3.0 seconds $\leq T_{MSIV} \leq$ 5.0 seconds. Quad Cities Nuclear Power Station (QCNPS) will utilize this range for evaluating an acceptable MSIV stroke time in lieu of establishing an acceptance band based on MSIV stroke time reference values. QCNPS has also established additional limitations on stroke time based on reactor power levels to ensure that the TS SR limits are always met. Any MSIV that fails to meet the TS SR limits will be considered inoperable and required actions will continue to be in accordance with ISTC-5133 - Stroke Test Corrective Actions.

6. Duration of Proposed Alternative

The proposed alternative will be utilized for the entire Fifth 120 month Interval beginning February 18, 2013.

7. Precedents

This relief request was previously approved for Quad Cities Nuclear Power Station Units 1 and 2 for the Fourth 120 month Interval (Relief Request RV-30C) in letter from A. Mendiola (U.S. NRC) to C. Crane (Exelon Generation), "Quad Cities Nuclear Power Station, Units 1 and 2 - Fourth 10-Year Inservice Testing Program Relief Requests," dated February 20, 2004.

4.8 Relief Request RAIs and SERs

Date	Letter Number	From	To	Subject
02/14/2013	N/A	J. S. Wiebe, U. S. NRC	M. J. Pacilio, Exelon Generation Company, LLC	Quad Cities Nuclear Power Station, Units 1 and 2 – Safety Evaluation In Support of Request For Relief Associated with the Fifth 10 Year Interval Inservice Testing Program (TAC NOS. ME7981, ME7982, ME7983, ME7984, ME7985, ME7986, ME7986, ME7987, ME7988, ME7990, ME7991, ME7992, ME7993, ME7994, And ME7995)
01/25/2013	RS-13-045	D. M. Gullot, Exelon Generation Company, LLC	U. S. NRC	Additional Information Regarding Relief Request RV-06 Associated with the Fifth Inservice Testing Interval
01/16/2013	E-Mail	C. Faria-Ocasio, U. S. NRC	K. Nicely, M. Mathews, Exelon Generation Company, LLC	Quad Cities Nuclear Power Station, Units 1 and 2 – Request for Additional Information Related to Relief Request, RV-06, From ASME OM Code Appendix I, I-1350(c), For Main Steam Safety Valve Set Point Testing Associated with the Fifth Inservice Testing (TAC NOS. ME7992 & ME7993)
12/07/2012	RS-12-210	D. M. Gullot, Exelon Generation Company, LLC	U. S. NRC	Additional Information Regarding Relief Request RV-06 Associated with the Fifth Inservice Testing Interval
12/03/2012	N/A	B, Mozafari, U. S. NRC	M. J. Pacilio, Exelon Generation Company, LLC	Quad Cities Nuclear Power Station, Units 1 and 2 – Request for Additional Information Related to Relief Request, RV-04, From ASME OM Code ISTC-5150, Solenoid-Operated Valves Associated with the Fifth Inservice Testing (TAC NOS. ME7981 & ME7982)
10/02/2012	RS-12-179	P. R. Simpson, Exelon Generation Company, LLC	U. S. NRC	Response to Request for Additional Information Regarding Relief Requests Associated with the Fifth Inservice Testing Interval
09/19/2012	E-Mail	J. Bauer, Exelon Corporate Licensing	G. Knapp, M. Rice, M. Wagner, Quad Cities Station	NRC Followup Questions on the Quad Cities IST RAI response.
09/13/2012	RS-12-149	D. M. Gullot, Exelon Generation Company, LLC	U. S. NRC	Response to Request for Additional Information Regarding Relief Requests Associated with the Fifth Inservice Testing Interval
09/12/2012	N/A	B. Mozafari, U. S. NRC	M. J. Pacilio, Exelon Generation Company, LLC	Quad Cities Nuclear Power Station, Units 1 and 2 – Request for Additional Information Related to Relief Request, RV-01, RV-03, RV-05, and RV-06(TAC NOS. ME7983, ME7984, ME7987, ME7988, ME7992, ME7993, ME7994, and ME7995)
02/15/2012	RS-12-026	D. M. Gullot, Exelon Generation Company, LLC	U. S. NRC	Submittal of Relief Requests Associated with the Fifth Inservice Testing Interval

February 14, 2013

Mr. Michael J. Pacilio
Senior Vice President
Exelon Generation Company, LLC
President and Chief Nuclear Officer (CNO)
Exelon Nuclear
4300 Winfield Road
Warrenville, IL 60555

SUBJECT: QUAD CITIES NUCLEAR POWER STATION, UNITS 1 AND 2 - SAFETY EVALUATION IN SUPPORT OF REQUEST FOR RELIEF ASSOCIATED WITH THE FIFTH 10 YEAR INTERVAL INSERVICE TESTING PROGRAM (TAC NOS. ME7981, ME7982, ME7983, ME7984, ME7985, ME7986, ME7986, ME7987 ME7988, ME7990, ME7991, ME7992, ME7993, ME7994, AND ME7995)

Dear Mr. Pacilio:

PBy letter dated February 15, 2012 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML12046A334), Exelon Generation Company, LLC (the licensee), submitted relief requests RV-01, RV-02, RV-03, RV-04, RV-05, RV-06, and RV-07, to the U.S. Nuclear Regulatory Commission (NRC). By letters dated September 13, October 8, December 7, 2012, and January 25, 2013 (ADAMS Accession Nos. ML12257A163, ML12283A083, ML12342A389, and ML13028A263, respectively), the licensee submitted additional information at the NRC staff's request needed to fully evaluate the relief. The licensee proposed alternatives to or requested relief from certain inservice testing (IST) requirements of the American Society of Mechanical Engineers (ASME) *Code for Operation and Maintenance of Nuclear Power Plants* (OM Code), for the IST program at Quad Cities Nuclear Power Station, Units 1 and 2, for the fifth 10-year IST program interval.

Specifically, pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.55a(a)(3)(i), the licensee requested to use the proposed alternatives in RV-02, RV-03, RV-05, and RV-07, on the basis that the alternatives provide an acceptable level of quality and safety. Pursuant to 10 CFR Part 50, Section 50.55a(a)(3)(ii), the licensee requested to use the proposed alternatives in RV-01 and RV-06 on the basis that the alternatives provide reasonable assurance that the components are operationally ready. Pursuant to 10 CFR Part 50, Section 50.55a(f)(5)(iii), the licensee requested relief, in RV-04, from certain Code requirements on the basis that compliance with the ASME OM Code is impractical.

The NRC staff has reviewed the subject request and concludes that the licensee has adequately addressed all of the regulatory requirements set forth in 10 CFR 50.55a(a)(3)(i) for requests RV-02, RV-03, RV-05, RV-06, and RV-07 and 10 CFR 50.55a(a)(3)(ii) for requests RV-01 and RV-04, and is in compliance with the ASME OM Code requirements. Therefore, the NRC staff authorizes alternative requests RV-01, RV-02, RV-03, RV-04, RV-05, RV-06, and RV-07, at QCNPS Units 1 and 2, for the fifth 10-year IST program interval, which begins on February 18, 2013 and is scheduled to end on February 17, 2023. All other ASME OM Code requirements for which relief was not specifically requested and approved in the subject requests remain applicable.

If you have any questions on this action, please contact the NRC Project Manager, Brenda Mozafari, at (301) 415-2020.

Sincerely,

Joel S. Wiebe

Joel S. Wiebe, Acting Chief
Plant Licensing Branch III-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-254 and 50-265

Enclosure: Safety Evaluation

cc w/encl: Distribution via Listserv

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELIEF REQUESTS RV-01, RV-02, RV-03, RV-04, RV-05, RV-06, AND RV-07

FOR THE FIFTH 10-YEAR INTERVAL INSERVICE TESTING PROGRAM

EXCELON GENERATION COMPANY, LLC

QUAD CITIES NUCLEAR POWER STATION, UNIT NOS. 1 AND 2

DOCKET NOS. 50-254 AND 50-265

1.0 INTRODUCTION

By letter dated February 15, 2012 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML12046A334), Exelon Generation Company, LLC (the licensee), submitted relief requests RV-01, RV-02, RV-03, RV-04, RV-05, RV-06, and RV-07 to the U.S. Nuclear Regulatory Commission (NRC). By letters dated September 13, October 8, December 7, 2012, and January 25, 2013 (ADAMS Accession Nos. ML12257A163, ML12283A083, . ML12342A389 and ML13028A263, respectively), the licensee submitted additional information at the NRC staff's request needed to complete the evaluation of these relief requests. The licensee proposed alternatives to or requested relief from certain inservice testing (IST) requirements of the American Society of Mechanical Engineers (ASME) *Code for Operation and Maintenance of Nuclear Power Plants* (OM Code), for the IST program at Quad Cities Nuclear Power Station (QCNPS), Units 1 and 2, for the fifth 10-year IST program interval.

Specifically, pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.55a(a)(3)(i), the licensee requested to use the proposed alternatives in RV-02, RV-03, RV-05, and RV-07 on the basis that the alternatives provide an acceptable level of quality and safety. Pursuant to 10 CFR Part 50, Section 50.55a(a)(3)(ii), the licensee requested to use the proposed alternatives in RV-01 and RV-06 on the basis that the alternatives provide reasonable assurance that the components are operationally ready. Pursuant to 10 CFR Part 50, Section 50.55a(f)(5)(iii), the licensee requested relief in RV-04 from certain Code requirements on the basis that compliance with the ASME OM Code is impractical.

2.0 REGULATORY EVALUATION

In 10 CFR 50.55a(f), "Inservice Testing Requirements," the regulation requires, in part, that IST of certain ASME Code Class 1, 2, and 3 components must meet the requirements of the ASME OM Code and applicable addenda, except where alternatives have been authorized or relief has been requested by the licensee and granted by the NRC pursuant to paragraphs (a)(3)(i), (a)(3)(ii), or (f)(6)(i) of 10 CFR 50.55a.

In proposing alternatives or requesting relief, a licensee must demonstrate that: (1) the proposed alternative provides an acceptable level of quality and safety (10 CFR 50.55a(a)(3)(i)); (2) compliance would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety (10 CFR 50.55a(a)(3)(ii)); or (3) conformance is impractical for the facility (10 CFR 50.55a(f)(5)(iii)). Section 50.55a allows the NRC to authorize alternatives to and grant relief from ASME OM Code requirements upon making necessary findings.

The QCNPS, Units 1 and 2, fifth 10-year IST interval will begin on February 18, 2013, and is scheduled to end on February 17, 2023. The applicable ASME OM Code edition and addenda for QCNPS Unit Nos. 1 and 2, is the 2004 Edition through the 2006 Addenda.

The NRC's findings with respect to authorizing the alternatives, RV-01, RV-02, RV-03, RV-04, RV-05, RV-06, and RV-07 are given below:

3.0 TECHNICAL EVALUATION

3.1.1 Licensee's Alternative Request RV-01

This request applies to the frequency specifications of the ASME OM Code. The frequencies for tests given in the ASME OM Code include the following but does not include a tolerance band:

ISTA-3120, "Inservice Test Interval," (a) states, "The frequency for inservice testing shall be in accordance with the requirements of Section IST."

ISTB-3400, "Frequency of Inservice Tests," states, "An inservice test shall be run on each pump as specified in Table ISTB-3400-1."

Table ISTB-3400-1, "Inservice Test Frequency," notes that Group A and Group B pump tests are to be conducted quarterly and comprehensive pump tests are to be conducted biennially.

ISTC-3510, "Exercising Test Frequency," states, "Active Category A, Category B, and Category C check valves shall be exercised nominally every 3 months, except as provided by ISTC-3520, ISTC-3540, ISTC-3550, ISTC-3570, ISTC-5221, and ISTC-5222. Power-operated valves shall be exercise tested once per fuel cycle."

ISTC-3540, "Manual Valves," states, "Manual valves shall be full-stroke exercised at least once every 2 years, except where adverse conditions may require the valve to be tested more frequently to ensure operational readiness. Any increased testing frequency shall be specified by the Owner. The valve shall exhibit the required change of obturator position."

ISTC- 3630, "Leakage Rate for Other Than Containment Isolation Valves," (a) "Frequency," states, "Tests shall be conducted at least once every 2 years."

ISTC-3700, "Position Verification Testing," states, in part, "Valves with remote position indicators shall be observed locally at least once every 2 years to verify that valve operation is accurately indicated."

ISTC-5221"Valve Obturator Movement," (c)(3), states, "At least one valve from each group shall be disassembled and examined at each refueling outage; all valves in each group shall be disassembled and examined at least once every 8 years."

Mandatory Appendix I, "Inservice Testing of Pressure Relief Devices in Light-Water Reactor Nuclear Power Plants," I-1320, "Test Frequencies, Class 1 Pressure Relief Valves," (a), "5-Year Test

Interval," states, in part, "Class 1 pressure relief valves shall be tested at least once every 5 years, starting with initial electric power generation."

Mandatory Appendix I, I-1330, "Test Frequency, Class 1 Nonreclosing Pressure Relief Devices," states, "Class 1 nonreclosing pressure relief devices shall be replaced every 5 years unless historical data indicates a requirement for more frequent replacement."

Mandatory Appendix I, I-1340, "Test Frequency, Class 1 Pressure Relief Valves That Are Used for Thermal Relief Application," states, "Tests shall be performed in accordance with I-1320, Test Frequencies, Class 1 Pressure Relief Valves."

Mandatory Appendix I, I-1350, "Test Frequency, Classes 2 and 3 Pressure Relief Valves," (a), "10-Year Test Interval," states, in part, "Class 2 and 3 pressure relief valves, with the exception of PWR main steam safety valves, shall be tested every ten years, starting with initial electric power generation."

Mandatory Appendix I, I-1360, "Test Frequency, Classes 2 and 3 Nonreclosing Pressure Relief Devices," states, "Classes 2 and 3 nonreclosing pressure relief devices shall be replaced every 5 years, unless historical data indicates a requirement for more frequent replacement."

Mandatory Appendix I, I-1370, "Test Frequency, Classes 2 and 3 Primary Containment Vacuum Relief Valves," states, "(a) Tests shall be performed on all Classes 2 and 3 containment vacuum relief valves at each refueling outage or every 2 years, whichever is sooner, unless historical data requires more frequent testing. (b) Leak tests shall be performed on all Classes 2 and 3 containment vacuum relief valves at a frequency designated by the Owner in accordance with Table ISTC-3500-1."

Mandatory Appendix I, I-1380, "Test Frequency, Classes 2 and 3 Vacuum Relief Valves, Except for Primary Containment Vacuum Relief Valves," states, "All Classes 2 and 3 vacuum relief valves shall be tested every 2 years, unless performance data suggest the need for a more appropriate test interval."

Mandatory Appendix I, I-1390, "Test Frequency, Classes 2 and 3 Pressure Relief Devices That Are Used for Thermal Relief Application," states, "Tests shall be performed on all Classes 2 and 3 relief devices used in thermal relief application every 10 years, unless performance data indicate more frequent testing is necessary. In lieu of tests the Owner may replace the relief devices at a frequency of every 10 years, unless performance data indicate more frequent replacements are necessary."

Mandatory Appendix II, "Check Valve Condition Monitoring Program," II-4000, "Condition-Monitoring Activities," (a), "Performance Improvement Activities," (1), states, in part, "If sufficient information is not currently available to complete the analysis required in II-3000, or if this analysis is inconclusive, then the following activities shall be performed at sufficient intervals over an interim period of the next 5 years or two refueling outages, whichever is less, to determine the cause of failure or the maintenance patterns."

Mandatory Appendix II, II-4000, (b), "Optimization of Condition-Monitoring Activities," (1)(e), states, "Identify the interval of each activity. Interval extensions shall be limited to one fuel cycle per extension. Intervals shall not exceed the maximum intervals shown in Table II-4000-1. All valves in a group sampling plan must be tested or examined again, before the interval can be extended again, or until the maximum interval would be exceeded. The requirements of ISTA-3120, Inservice Test Interval, do not apply."

3.1.2 Reason for Request

The ASME OM Code Section IST establishes the IST frequency for all components within the scope of the Code. The frequencies (e.g., quarterly) have always been interpreted as "nominal" frequencies (generally as defined in the Table 3.2 of NUREG-1482, Revision 1) and owners routinely applied the surveillance extension time period (i.e., grace period) contained in the plant technical specification (TS) surveillance requirements (SRs). The TSs typically allow for a less than or equal to 25 percent extension of the surveillance test interval to accommodate plant conditions that may not be suitable for conducting a TS surveillance (SR 3.0.2). However, regulatory issues have been raised concerning the applicability of the TS "grace period" to ASME OM Code-required IST frequencies irrespective of allowances provided under TS Administrative Controls (i.e., TS 5.5.6, "Inservice Testing Program," invokes SR 3.0.2 for various OM Code frequencies).

The lack of a tolerance band on the ASME OM Code IST frequency restricts operational flexibility. There may be a conflict where IST could be required (i.e., the frequency could expire), but where it is not possible or not desired that it be performed until after a plant condition or associated limiting condition for operation is within its applicability. Therefore, to avoid this conflict, the IST should be performed when it can and should be performed.

The NRC recognized this potential issue in the TSs by allowing a frequency tolerance as described in TS SR 3.0.2. The lack of a similar tolerance applied to the ASME OM Code testing places an unusual hardship on the plant to adequately schedule work tasks without operational flexibility.

Thus, just as with TS-required surveillance testing, some tolerance is needed to allow adjusting ASME OM Code testing intervals to suit the plant conditions and other maintenance and testing activities. This assures operational flexibility when scheduling IST that minimize the conflicts between the need to complete the testing and plant conditions.

3.1.3 Proposed Alternative

The licensee proposed to adopt the wording of ASME Board of Nuclear Codes and Standards (BNCS)-Approved OM Code Case OMN-20, repeated below, for determining acceptable tolerances for pump and valve test frequencies. This Code Case was approved by the ASME OM Code Standards Committee in February 2012. The proposed alternative will be utilized for the entire fifth 10-year interval and will apply to the various frequency specifications of the ASME OM Code for all pumps and valves contained within the IST Program scope.

BNCS-Approved OMN-20

The IST and earlier editions and addenda of ASME OM Code specify component test frequencies based either on elapsed time periods (e.g., quarterly, two years, etc.) or based on the occurrence of plant conditions or events (e.g., cold shutdown, refueling outage, upon detection of a sample failure, following maintenance, etc.).

(a) Components, whose test frequencies are based on elapsed time periods, shall be tested at the frequencies specified in Section IST with a specified time period between tests as shown in the table below. The specified time period between tests may be reduced or extended as follows:

(b) The specified time period between tests may be reduced or extended as follows:

(1) For periods specified as less than two years, the period may be extended by up to 25 percent for any given test.

(2) For periods specified as greater than or equal to two years, the period may be extended by up to six months for any given test.

(3) All periods specified may be reduced at the discretion of the Owner (i.e., there is no minimum period requirement).

Period extension is to facilitate test scheduling and considers plant operating conditions that may not be suitable for performance of the required testing (e.g., performance of the test would cause an unacceptable increase in the plant risk profile due to transient conditions or other ongoing surveillance, test or maintenance activities). Period extensions are not intended to be used repeatedly, merely as an operational convenience, to extend test intervals beyond those specified.

Period extensions may also be applied to accelerated test frequencies (e.g., pumps in Alert Range) and other less than 2-year test frequency not specified in the table.

Period extensions may not be applied to the test frequency requirements specified in Subsection ISTD, *Preservice and Inservice Examination and Testing of Dynamic Restraints (Snubbers) in Light-water Reactor Nuclear Power Plants*, as Subsection ISTD contains its own rules for period extensions.

Frequency	Specified Time Period Between Tests
Quarterly (or every 3 months)	92 days
Semiannually (or every 6 months)	184 days
Annually (or every year)	366 days
x Years	x calendar years where 'x' is a whole number of years ≥ 2

(c) Components whose test frequencies are based on the occurrence of plant conditions or events may not have their period between tests extended except as allowed by ASME OM Code 2004 Edition through OMb-2006 Addenda and earlier and addenda of ASME OM Code.

3.1.4 NRC Staff Evaluation

Historically, licensees have applied and the NRC staff has accepted the standard TS definitions for IST intervals (including allowable interval extensions) to ASME OM Code required testing (Reference NUREG-1482, Revision 1, Section 3.1.3). Recently, the NRC staff reconsidered the allowance of the TS testing intervals and interval extensions, for IST not associated with TS SRs. As noted in Regulatory Issue Summary (RIS) 2012-10, "NRC Staff Position on Applying Surveillance Requirements 3.0.2 and 3.0.3 to Administrative Controls Program Tests," the NRC staff determined that programmatic test frequencies can't be extended in accordance with

TS SR 3.0.2. This includes all IST described in the ASME OM Code not specifically required by the TS SRs.

Following this development, the NRC staff sponsored and co-authored an ASME OM Code inquiry and Code Case to modify the ASME OM Code to include TS-like test interval definitions and interval extension criteria. The resultant BNCS-Approved Code Case OMN-20, as shown above, was approved by the ASME Operation and Maintenance Standards Committee on February 15, 2012, with the NRC representative voting in the affirmative on this proposed Code Case. The licensee proposed to adopt the language of the BNCS-Approved Code Case OMN-20 in its entirety.

Requiring the licensee to meet the ASME OM Code requirements, without an allowance for defined frequency and frequency extensions for IST of pumps and valves, results in a hardship without a compensating increase in the level of quality and safety. Based on the prior acceptance by the NRC staff of the similar SR test interval definitions and interval extension criteria, the staff finds that implementation of the test interval definitions and interval extension criteria contained in the ASME BNCS-Approved OM Code Case OMN-20 is acceptable. Allowing usage of Code Case OMN-20 provides reasonable assurance of operational readiness of pumps and valves subject to the ASME OM Code IST.

3.2.1 <u>Licensee's Alternative Request RV-02</u>

This request applies to the motor-operated valves (MOVs) scoped into the IST program as referenced in the following ASME OM Code Sections:

ISTA-3130, "Application of Code Cases," (b), states that, "Code Cases shall be applicable to the edition and addenda specified in the test plan."

ISTC-3100, "Preservice Testing," (a), states that, "Any valve that has undergone maintenance that could affect its performance after the preservice test shall be tested in accordance with ISTC-3310."

ISTC-3310, "Effects of Valve Repair, Replacement, or Maintenance on Reference Values," states, in part, "When a valve or its control system has been replaced, repaired, or has undergone maintenance that could affect the valve's performance, a new reference value shall be determined or the previous reference value be reconfirmed by an inservice test run before it is returned to service or immediately if not removed from service."

ISTC-3510, "Exercising Test Frequency," states, in part, "Active Category A, Category B, and Category C check valves shall be exercised nominally every 3 months."

ISTC-3521, "Category A and Category B Valves," notes that active Category A and B valves should be exercised during cold shutdowns if it is not practicable to exercise the valves at power or that active Category A and B valves should be exercised during refueling outages, if it not practicable to exercise the valves during cold shutdowns.

ISTC-3700, "Position Verification Testing," states, in part, "Valves with remote position indicators shall be observed locally at least once every 2 years to verify that valve operation is accurately indicated."

ISTC-5120, "Motor-Operated Valves: Valve Stroke Testing," (a), states that, "Active valves shall have their stroke times measured when exercised in accordance with ISTC-3500."

In ASME OM Code Case OMN-1, "Alternative Rules for Preservice and Inservice Testing of Active Electric Motor-Operated Valve Assemblies in Light-Water Reactor (LWR) Power Plants," (2006 Addenda) it provides periodic exercising and diagnostic testing for use in assessing the operational readiness of MOVs. Regulatory Guide (RG) 1.192 allows licensees to implement ASME Code Case OMN-1, Revision 0, in accordance with the provisions in the RG 1.192as an alternative to the ASME OM Code provisions for MOV stroke-time testing in the ASME OM Code 1995 Edition through 2000 Addenda.

3.2.2 Reason for Request

The licensee proposes to adopt the requirements of Code Case OMN-1, (as delineated in the 2004 ASME OM Code through 2006 Addenda of the ASME OM Code) in lieu of the performance of stroke time testing and position indication testing as described by ASME OM Code, Subsection ISTC, 2004 Edition through the 2006 Addenda as the proposed alternative would provide an acceptable level of quality and safety. The provisions to allow for motor control center (MCC) testing, as contained in Section 6.1 of Code Case OMN-1(2006 Addenda) are excluded from this request.

3.2.3 Proposed Alternative

The QCNPS MOV testing program was developed as a result of NRC Generic Letter (GL) 89-10, "Safety Related Motor Operated Valve Testing and Surveillance," and GL 96-05, "Periodic Verification of Design Basis Capability of Safety Related Motor Operated Valves," utilizing Topical Report MPR-1807, "Joint BWR, Westinghouse and Combustion Engineering Owners' Group Program on Motor-Operated Valve (MOV) Periodic Verification," Revision 2. QCNPS is currently utilizing MPR-2524-A, "Joint Owners' Group (JOG) Motor Operated Valve Periodic Verification Program Summary," (November 2006) as guidance for the MOV program. The adoption of OMN-1 will consolidate testing between the QCNPS's IST and MOV programs.

Section 4.2.5 "Alternatives to Stroke-Testing," of NUREG-1482, "Guidelines for Inservice Testing at Nuclear Power Plants," Revision 1, notes that Code Case OMN-1, which provides periodic exercising and diagnostic testing for use in assessing the operational readiness of MOVs, may be used. Section 4.2.5 recommends that licensees implement ASME Code Case OMN-1 as an alternative to the MOV stroke-time testing. The periodic exercising and diagnostic testing requirements in OMN-1 provide an improved method for assessing the operational readiness of MOVs.

Code Case OMN-1 was revised in the 2006 Addenda to the ASME OM Code. Most of the revisions are enhancements such as clarification of valve remote position indication requirements and ball/plug/diaphragm valve test requirements, and the expansion of risk-informed provisions. However, there was one significant revision in Section 6.1, "Acceptance Criteria," that notes that MCC testing is acceptable if correlation with testing at the MOV has been established. MCC diagnostic testing was not specifically addressed in the original version of OMN-1. Historically, diagnostic testing of MOVs has been conducted using at-the-valve tests. Although there may be potential benefits of testing conducted at the MCC, the ASME OM Code does not address any method for the correlation of MCC-based measurements to diagnostic test measurements conducted at-the-valve. For these reasons, QCNPS has excluded the provision for MCC testing from this relief request. Therefore, the MCC test method will not be used as an acceptance criterion to determine the operational readiness of MOVs.

The following positions describe how QCNPS interprets and complies with the various requirements of OMN-1 (ASME OMb Code-2006):

1. OMN-1, Section 3.1, allows for the use of testing that was conducted prior to the implementation of OMN-1 if it meets the requirements of the Code Case. QCNPS intends to utilize the testing credited under its GL 89-10/96-05 responses to satisfy the requirement for a one-time test to verify the capacity of each individual or group of MOV's safety-related design basis requirements.

2. OMN-1, Section 3.2, requires that each MOV be tested during the preservice test period or before implementing inservice inspection. QCNPS intends to utilize the testing credited under its GL 96-05 response to satisfy this requirement.

3. OMN-1, Section 3.3(b), notes that IST's shall be conducted in the as-found condition, and activities shall not be conducted if they might invalidate the as-found condition for inservice testing. QCNPS maintenance activities that would affect the as-found condition of the valve, such as motor operator preventive maintenance or stem lubrication, are typically scheduled to occur in conjunction with the performance of the MOV periodic verification testing, and are performed after as-found testing. Any other activities that could affect the as-found test results are not performed until after the as-found testing has been conducted.

4. OMN-1, Section 3.3(c), requires that the inservice test program include a mix of static and dynamic MOV performance testing. QCNPS has utilized the mix of static and dynamic MOV performance testing in the JOG program (i.e., MPR-2524-A) to develop the current MOV testing program. Additionally, QCNPS will continue to utilize the existing engineering standards, which are consistent with the JOG standards, to justify any changes to the mix of required MOV performance testing. The use of such an evaluation will serve to ensure that QCNPS continues to meet this requirement.

5. OMN-1, Section 3.3(e), requires that Remote Position Indication shall be verified locally during IST or maintenance activities. QCNPS will continue to verify the operability of the position indication system for each MOV as part of the diagnostic test. In addition, the function of the position indication system for each MOV will be verified during the performance of maintenance activities affecting remote position indication.

6. OMN-1, Section 3.3.1(b), requires MOV IST to be conducted every two refueling cycles or three years (whichever is longer), if insufficient data exists to determine inservice test frequencies. QCNPS has sufficient MOV testing data to justify its current testing frequencies, and therefore meets this requirement. If in the future, modification or replacement results in the necessity to re-baseline a valve or group of valves, the requirements of Section 3.3.1(b) or 3.7.2.2(c), as applicable, will be followed.

7. Section 6.4.4 requires that calculations for determining the functional margin of the MOV are evaluated to account for potential performance-related degradation. The QCNPS MOV program, including Exelon's Motor-Operated Valve Design Database (MIDAS) Software (or similar updated product), takes into account performance-related degradation, to calculate valve margin.

8. The provisions of MCC testing, contained in Section 6.1 ("Acceptance Criteria") are excluded from this request ("i.e., MCC testing is acceptable if correlation with testing at the MOV has been established").

3.2.2 NRC Staff Evaluation

Application of code cases is addressed in 10 CFR 50.55a(b)(6) through references to RG 1.192, which lists acceptable and conditionally acceptable code cases for implementation in IST programs. Table 2 of RG 1.192 conditionally approves the use of Code Case OMN-1 and states that the code is applicable to the 2000 Addenda and earlier editions and addenda of the Code.

Code Case OMN-1 was revised in the 2006 Addenda to the ASME OM Code. Most of the revisions are enhancements such as clarification of valve remote position indication requirements and ball/plug/diaphragm valve test requirements, and the expansion of risk-informed provisions. However, there was one significant revision in Section 6.1, "Acceptance Criteria," that states that MCC testing is acceptable if correlation with testing at the MOV has been established. MCC diagnostic testing was not specifically addressed in the original version of OMN-1. Historically, diagnostic testing of MOVs has been conducted using at-the-valve tests. Although there may be potential benefits of testing conducted at the MCC, the ASME OM Code does not address any method for the correlation of MCC-based measurements to diagnostic test measurements conducted at-the-valve. The licensee has excluded the provision for MCC testing from this alternative request. Therefore, the MCC test method will not be used as an acceptance criterion to determine the operational readiness of MOVs at the QCNPS.

There are recognized weaknesses in the stroke-time testing requirements for MOVs in the ASME OM Code, and the use of Code Case OMN-1 (2006 Addenda) by the licensee resolves these weaknesses. Code Case OMN-1 (2006 Addenda) permits licensees to replace stroke-time and position verification testing of MOVs with a program of exercising MOVs every refueling outage (not to exceed two years) and diagnostically testing on longer intervals. The NRC staff considers the proposed alternative to be acceptable because Code Case OMN-1 (2006 Addenda) provides a superior method than the stoke-time method required by the ASME OM Code for assessing the operational readiness of MOVs. The NRC staff has recommended that licensees implement Code Case OMN-1 as an alternative to the MOV stroke-time and position verification testing provisions in the ASME OM Code.

There are no significant differences between the version of Code Case OMN-1 that is currently approved for use in RG 1.192, and the Code Case OMN-1 (2006 Addenda). The NRC staff has determined that there is no technical reason for prohibiting the use of Code Case OMN-1 (2006 Addenda). This is consistent with the NRC staff position in NUREG-1482, Revision 1, and RG 1.192.

The NRC staff also considered Section 4.2.5, "Alternatives to Stroke-Testing," of NUREG-1482, Revision 1, in its review of the licensee's proposed alternative. Section 4.2.5 notes that as an alternative to MOV stroke-time testing, ASME developed Code Case OMN-1, which provides periodic exercising and diagnostic testing for use in assessing the operational readiness of MOVs, which may be used. Section 4.2.5 recommends that licensees implement ASME Code Case OMN-1 as an alternative to the MOV stroke-time testing. The periodic exercising and diagnostic testing requirements in OMN-1 provide an improved method for assessing the operational readiness of MOVs.

Since there are no significant differences between the version of Code Case OMN-1 that is currently approved for use in RG 1.192 and the version of Code Case OMN-1, in the 2006 Addenda of the ASME OM Code, the NRC staff finds that Code Case OMN-1 (2006 Addenda), with the conditions specified in RG 1.192 and the exclusion of MCC diagnostic testing, provides an acceptable level of quality and safety for testing of MOVs and is an acceptable alternative for use in QCPNS, Unit 1 and Unit 2, IST programs.

3.3.1 Licensee's Alternative Request RV-03

This request applies to the pressure isolation valve (PIV) leak test frequency referenced in the following requirements:-

ISTC-3630, "Leakage Rate for Other Than Containment Isolation Valves (CIV)," states, in part, "Category A valves with a leakage requirement not based on an Owner's 10 CFR 50, Appendix J, program, shall be tested to verify their seat leakages are within acceptable limits. Valve closure before seat leakage testing shall be by using the valve operator with no additional closing force applied."

ISTC-3630(a), "Frequency," states, "Tests shall be conducted at least once every 2 years."

ISTC-3630(b), "Differential Test Pressure" (4), states, in part, "Leakage tests involving pressure differential lower than function pressure differentials are permitted in those types of valves in which service pressure will tend to diminish the overall leakage channel opening, as by pressing the disk into or onto the seat with greater force."

ISTC-3522, "Exercising Requirements: Category C Check Valves," states, in part, "Category C check valves shall be exercised as follows: (a) During operation at power, each check valve shall be exercised or examined in a manner that verifies obturator travel by using the methods in ISTC-5221. Each check valve exercise test shall include open and close tests. Open and close tests need only be performed at an interval when it is practicable to perform both tests. (b) If exercising is not practicable during operation at power, it shall be performed during cold shutdowns. (c) If exercising is not practicable during operation at power and cold shutdowns, it shall be performed during refueling outages. "

ISTC-5222, "Condition-Monitoring Program," states, in part, "As an alternative to the testing or examination requirements of paragraphs ISTC-3510, ISTC-3520, ISTC-3530, ISTC-3550, and ISTC-5221, the Owner may establish a condition-monitoring program. The program shall be implemented in accordance with Mandatory Appendix II, Check Valve Condition Monitoring Program."

The ASME OM Code Mandatory Appendix II, "Check Valve Condition Monitoring Program," states, "This Appendix establishes the requirements for implementing and maintaining a check valve condition monitoring program as defined in ISTC-5222."

The licensee requested to use an alternative leak rate testing schedule for the following Category A and A/C Pressure Isolation Valves (PIVs):

1(2)-1001-047- MO – RHR - Gate Valve – Category A – CIV and PIV
1(2)-1001-050- MO - RHR - Gate Valve – Category A – CIV and PIV
1(2)-1001-029A-MO- RHR - Gate Valve – Category A – CIV and PIV
1(2)-1001-029B-MO- RHR - Gate Valve – Category A – CIV and PIV
1(2)-1001-068A-MO- RHR - Check Valve – Category A/C - PIV
1(2)-1001-068B-MO- RHR - Check Valve – Category A/C - PIV
1(2)-1402-009A- Core Spray (CS) – RHR - Check Valve – Category A/C - PIV
1(2)-1402-009B- Core Spray (CS) – RHR - Check Valve – Category A/C - PIV
1(2)-1402-025A-MO- Core Spray (CS) – Gate Valve – Category A – CIV and PIV
1(2)-1402-025B-MO – Core Spray (CS) – Gate Valve – Category A– CIV and PIV

3.3.2 Reason for Request

ISTC-3630 requires that leakage rate testing for PIVs be performed at least once every 2 years. PIVs are not specifically included in the scope for performance-based testing as provided for in 10 CFR Part 50, Appendix J, Option B (hereafter referred to as Option B). While the motor-operated PIVs affected by this request are also CIVs and tested in accordance with the 10 CFR 50 Appendix J (Appendix J)pProgram, the check valve PIVs are not CIVs and not within the Appendix J scope. The concept behind the Option B alternative for CIVs is that licensees should be allowed to adopt cost-effective methods for complying with regulatory requirements.

Additionally, Nuclear Energy Institute (NEI) 94-01, "Industry Guideline for Implementing Performance-Based 10 CFR Part 50, Appendix J," describes the risk-informed basis for the extended test intervals under Option B. That justification shows that for valves which have demonstrated good performance by passing their leak rate tests for two consecutive cycles, further failures appear to be governed by the random failure rate of the component. NEI 94-01 also presents the results of a comprehensive risk analysis, including the statement that "the risk impact associated with increasing [leak rate] test intervals is negligible (less than 0.1 % of total risk)."

The valves identified in this relief request are all in water applications and testing is performed with water pressurized to pressures lower than maximum function pressure differential. However, the observed leakage is adjusted to the maximum function pressure differential value in accordance with ISTC-3630(b)(4). This request is intended to provide for performance-based scheduling of PIV tests at QCNPS.

NUREG 0933, "Resolution of Generic Safety Issues," Issue 105 [Interfacing Systems Loss of Coolant Accident (LOCA) at Light Water Reactors (LWRs)] discussed the need for PIV leak rate testing based primarily on three pre-1980 historical failures of applicable valves industry-wide. These failures all involved human errors in either operations or maintenance. None of these failures involved inservice equipment degradation. The performance of PIV leak rate testing provides assurance of acceptable seat leakage with the valve in a closed condition. Typical PIV testing does not identify functional problems which may inhibit the valves ability to re-position from open to closed. For check valves, such functional testing is accomplished per ASME OM Code ISTC-3522. Power-operated valves are routinely full stroke tested per the ASME OM Code to ensure their functional capabilities. At QCNPS, these functional tests for motor operated PIVs are performed on a quarterly frequency. The functional testing of the PIV check valves will be monitored through a Condition Monitoring Plan in accordance with ISTC-5222, "Condition-Monitoring Program", and Mandatory Appendix II, "Check Valve Condition Monitoring Program". Performance of the separate 2-year PIV leak rate testing does not contribute any additional assurance of functional capability; it only determines the seat tightness of the closed valves.

3.3.3 Proposed Alternative and Basis for Use

The licencess proposes to perform PIV leak rate testing at intervals ranging from every refueling to every third refueling. The specific interval for each valve would be a function of its performance and would be established in a manner consistent with the CIV process under 10 CFR 50 Appendix J, Option B. All of the MOVs listed in this request are also classified as CIVs and are leak rate tested with air at intervals determined by Option B. The MOV PIV testing would be scheduled to coincide with the CIV testing at whatever interval is required for Option B. A controlled procedure will be established such that if any valve fails either the CIV or PIV test, the test interval for both tests will be reduced consistent with Option B requirements until good performance is reestablished.

The primary basis for this request is the historically good performance of the PIVs. The only recorded seat leakage failures of the PIVs listed in this request were determined to be a result of the test methodology and not due to any physical condition of the valves.

The additional basis for this request is provided below:

- Separate functional testing of MOV PIVs and condition monitoring of check valve PIVs per ASME OM Code will continue.

- There is a low likelihood of valve mispositioning during power operations due to procedures and valve interlocks.

- Degrading seat conditions tend to be identified sooner with air testing versus water testing.

- Dose reduction/ALARA: Recent historical data used to identify that PIV testing alone during each refuel outage incurs a total dose of approximately 600 MilliRem (Rem). Assuming all of the PIVs remain classified as good performers,the extended test intervals would provide for a savings of approximately 1.2 Rem over a 4-1/2 year period.

Additionally, the licensee provided the following in its October 8, and December 7, 2012, letters:

> Test intervals for Type A/C valves may be increased based upon completion of two consecutive periodic as-found Type C tests where the result of each test is within a licensee's allowable administrative limits. Elapsed time between the first and last tests in a series of consecutive tests, where the valves have passed the tests used to determine performance, shall be 24 months or the nominal test interval (e.g., refueling cycle), prior to implementing Option B. Intervals for Type C testing may be increased to a specific value in a range of frequencies from 30 months up to a maximum of 60 months (as limited by Regulatory Guide 1.163, "Performance Based Containment Leak-Test Program"). Test intervals for Type C tests are determined in accordance with Section 11.0 of NEI 94-01.
>
> The functional capability of check valves 1(2)-1001-068A/B is demonstrated by the opening and closing of the valves using a valve actuator each refueling outage. This test is separate and distinct from the PIV testing; therefore, there is no need for a Condition Monitoring Plan for these valves.
>
> The functional capability of the 1(2)-1402-009A/B check valves is verified through periodic testing. The valves open function is verified by injecting Core Spray into the reactor vessel. The testing frequency is Cold Shutdown in accordance with the ASME OM Code, Subsection ISTC-3522. The close function is verified during the performance of the PIV seat leakage pressure test where valve closure function is verified by the capability to build pressure against the valve disc. The intent of the Condition Monitoring Plan for these check valves is solely to align the closure test frequency to the same frequency as the PIV seat leakage pressure test.

3.3.4 NRC Staff Evaluation

The PIVs are defined as two valves in a series within the reactor coolant pressure boundary which separate the HP reactor coolant system from an attached LP system. Failure of a PIV could result in an over-pressurization event which could lead to a system rupture and possible release of fission products to the environment. This type of failure event was analyzed under NUREG/CR-5928, "Interfacing System LOCA (ISLOCA) Research Program," (Accession No. ML072430731). The purpose of NUREG/CR-5928 was to quantify the risk associated with an ISLOCA event. NUREG/CR-5928 analyzed BWR and PWR designs.

Option B references specific guidance concerning acceptable leakage rate test methods, procedures, and analyses that may be used to implement a performance-based leakage test program. The guidance and acceptance criteria are provided in RG 1.163, "Performance-Based Containment Leak-Test Program" (ADAMS Accession No. ML003740058). RG 1.163 endorsed NEI Topical Report 94-01, Revision 0, "Industry Guideline For Implementing Performance-Based Option of 10 CFR Part 50, Appendix J" dated July 26, 1995, with the limitation that "Type C Tests" intervals could not be extended beyond 60 months. "Type C Tests," per 10 CFR Part 50, Appendix J, are tests intended to measure CIV leakage rates. On June 8, 2012, NEI 94-01, Revision 3, was reviewed and endorsed by the NRC staff (ADAMS Accession No. ML121030286). Revision 3 of NEI 94-01 allowed the extension of Type C test intervals up to 75 months.

The licensee has proposed an alternative test in lieu of the requirements in the ASME OM Code Section ISTC-3630(a) for all 20 of the PIVs listed in the request. Specifically, the licensee proposed to verify the leakage rate of PIVs using the Option B performance-based schedule. Valves would initially be tested at the required interval schedule which is currently every refueling outage (RFO) or two years. Valves that have demonstrated good performance for two consecutive cycles may have their test interval extended from every RFO to every third RFO (i.e., six years). Any PIV leakage test failure would require the component to return to the initial interval of every RFO or two years until it can be reclassified as a good performer per the performance evaluation of Option B. The leakage test interval for these PIVs shall not exceed 60 months with a 15-month grace period based on the performance (i.e., a total of 75 months). The specific interval for each valve will be a function of its performance and will be established in a manner consistence with the CIV process under Option B.

Twelve of the PIVs listed in this request [1(2)-1001-047/050/029A/029B-MO, and 1(2)-1402-25A/025B-MO] are also classified as CIVs and are leak rate tested at intervals determined by Option B. If any of these 12 valves fail either their CIV or PIV test, the test interval for both tests will be reduced to every refueling outage, until the valve can be reclassified as a good performer per the Option B requirements. Upon completion of two successful tests, the component leakage test interval can be extended once again.

Currently, all 20 PIVs in this request are being leak tested every RFO or two years and have maintained a history of good performance. In addition, the licensee routinely functionally tests and/or performs a performance indicator test on each of the PIV check valves and full stroke tests the other PIVs in accordance with ASME OM Code requirements, to ensure their functional capabilities. Based on excellent valve maintenance history, coupled with stroking each valve every RFO and the low risk factor, as noted in NUREG/CR-5928, the proposed alternative provides an acceptable level of quality and safety.

3.4.1 <u>License's Relief Request RV-04</u>

This request applies to the following ASME OM Code Subsections:

ISTC-3500, "Valve Testing Requirements," states, "Active and passive valves in the categories defined in ISTC-1300 shall be tested in accordance with the paragraphs specified in Table ISTC-3500-1 and the applicable requirements of ISTC-5100 and ISTC-5200."

ISTC-3510, "Exercising Test Frequency," states, "Active Category A, Category B, and Category C check valves shall be exercised nominally every 3 months, except as provided by ISTC-3520, ISTC3540, ISTC-3550, ISTC-3560, ISTC-5221, and ISTC-5222. Power-operated relief valves shall be exercise tested once per fuel cycle."

ISTC-3560, "Fail-Safe Valves," states, "Valves with fail-safe actuators shall be tested by observing the operation of the actuator upon loss of valve actuating power in accordance with the exercising frequency of ISTC-3510."

ISTC-5150, "Solenoid- Operated Valves"

ISTC-5151, "Valve Stroke Testing" for Solenoid-Operated Valves (SOVs), states, in part, "Active valves shall have their stroke times measured when exercised in accordance with ISTC-3500."

ISTC-5152, "Stoke Test Acceptance Criteria" for SOVs, states, in part, "Test results shall be compared to reference values established in accordance with ISTC-3300, ISTC-3310, or ISTC-3320."

ISTC-5153, "Stroke Test Corrective Action" for SOVs, states, in part, "If a valve fails to exhibit the required change of obturator position or exceeds the limiting values of full-stroke time, the valve shall be immediately declared inoperable. Valves with measured stroke times that do not meet the acceptance criteria of ISTC-5152 shall be immediately retested or declared inoperable."

3.4.2 Reason for Request

The licensee requested an alternative testing to ISTC-5151, ISTC-5152, and ISTC-5153, which requires that solenoid-operated valves have their stroke-times measured and compared to reference values. The alternative testing was requested for high-pressure coolant injection (HPCI) system valves 1-2301-032-SO and 2-2301-032-SO. These are Code Class 2, Category B, valves.

These solenoid valves 1(2)-2301-032-SO function as a backup to the exhaust line drain pot steam trap. During normal operation of the HPCI turbine using high quality steam, the drain path from the drain pot to the torus via the steam trap is adequate to remove condensate from the turbine exhaust line. However, during HPCI turbine operation with low pressure and low quality steam (e.g., during certain HPCI surveillance tests), condensate collects in the drain pot faster than it can be drained through the trap. Under these conditions, solenoid valves 1(2)-2301-032-SO open automatically to drain to the gland seal condenser upon receipt of a signal from a drain pot high level switch when the drain pot level reaches the high level alarm set point. The high level condition alarms a control room annunciator.

These valves are not equipped with hand switches or position indicators. Valve actuation may be indirectly verified by removing the HPCI system from service, filling the drain pot with water until the high level alarm is received, and observing that the high level alarm clears. It would be extremely difficult to assign a maximum limiting stroke time to these valves using this test method because the time for the alarm to clear would depend primarily on variables such as the rate of filling and the level of the drain pot when filling is secured. The steam line drain pot is not equipped with direct level indication; therefore, the time required for the alarm to clear may vary significantly.

Failure of these valves to perform their safety function would be indicated by a drain pot high level alarm. Additionally, condensate entrapped in the steam would cause significant fluctuations in exhaust steam header pressure.

Compliance with the quarterly exercising and stroke timing requirements of the ASME OM Code would require ether system modification to replace these valves with ones of testable design, or to purchase non-intrusive test equipment and develop new test methods and procedures.

The station design does not include remote light indication for the 1(2)-2301-032-SO valves. These valves are completely enclosed such that the valve position cannot be verified by direct observation. Due to the absence of a visible valve stem and light indication, "switch to light" stroke-timing cannot be performed. In addition, there are no known reliable non-intrusive test methods for measuring stroke-times for these valves.

In order to perform stroke timing of these valves, a design change would have to be implemented. The modification would include: (1) changing the valve design to include position limit switches, (2) routing light indication cabling from the plant through containment boundaries to the control room, and (3) installing position indication lights in the main control room panels. It is estimated that this modification would cost in excess of $300,000 per unit. This remote valve indication would be installed solely for meeting the ASME OM Code requirements and would serve no other operational purpose.

A quarterly exercise of the 1(2)-2301-032-SO valves is currently performed and its associated level switches operate as proven by the receipt of the "HPCI TURBINE EXH DRAIN POT HIGH LEVEL" alarm (i.e., water level increase) and reset (i.e., water level decrease due to the open exercise of valves 1(2)-2301-032-SO). During this same evolution, the valve solenoid is also verified as actuated (i.e., valve solenoid is magnetized) by use of a test probe. This testing approach provides adequate assurance that the valves function as required.

A review of the work and the IST history of these valves did not identify any cases of these valves failing to stroke-open since they were added to the IST program scope in November 1994.

The licensee has a preventive maintenance activity to replace these valves once every fifth refueling outage (i.e., approximately every 10 years). This activity was last performed on May 11, 2007, on Unit 1, and on April 3, 2008, on Unit 2, and no defects were noted.

3.4.3 Proposed Alternative

A functional verification test will be conducted on the drain pot level switches and the associated control room annunciators at least once every 92 days. Valve actuation will be indirectly verified by removing the HPCI system from service, filling the drain pot with water until the high level alarm is received, and observing a positive draining of the HPCI drain pot as indicated by a level increase in the gland seal condenser and the clearing of the high level alarm.

The following provisions of ISTC-5153, "Stroke Test Corrective Action" still apply:

- If a valve fails to exhibit the required change of obturator position, the valve shall be immediately declared inoperable.
- Valves declared inoperable may be repaired, replaced, or the data may be analyzed to determine the cause of the deviation and the valve shown to be operating acceptably.
- Valve operability based upon analysis shall have the results of the analysis recorded in the record of the tests.

- Before returning a repaired or replacement valve to service, a test demonstrating satisfactory operation shall be performed.

3.4.4 NRC Staff Evaluation

Solenoid valves 1-2301-032-SO and 2-23011-032-SO are not equipped with position indication or remote light indication and the valves are totally enclosed, so valve position cannot be verified by direct observation. Due to the absence of a visible valve stem and light indication, "switch to light" stroke timing cannot be performed. In addition, there are no reliable non-intrusive test methods for measuring stroke times for these valves. Therefore, it is not feasible to exercise and stroke time these valves in accordance with the requirements of the ASME OM Code. Compliance with the ASME OM Code requirements would require major system modifications.

In lieu of the ASME OM Code-required stroke-time test for 1-2301-032-SO and 2-23011-032-SO, the licensee proposed to perform a functional verification test. Valve actuation and operability will be indirectly verified by a test proposed by the licensee. This test will involve removing the HPCI system from service and filling the drain pot with water until the high level alarm is received. Valve actuation will be verified by positive draining of the HPCI drain pot via a level increase in the gland seal condenser and clearing of the high level alarm. Failure of these valves to perform their safety function can be indicated by a drain pot high level alarm during operation with low-pressure steam. A failure of either of these valves to open would not keep HPCI from fulfilling its required safety function. Additionally, condensate trapped in the steam would be detected by significant fluctuations in the exhaust steam header pressure.

The licensee exercises the 1-2301-032-SO and 2-23011-032-SO valves quarterly by performing HPCI pump testing and verifying that the level switches associated with these valves can operate. This is verified through the receipt of the "HPCI Turbine Exhaust Drain Pot High Level" alarm (i. e., water level increase) and reset (i.e., water level decrease due to open exercise of valves 1-2301-032-SO and 2-23011-032-SO). This testing provides adequate assurance that these valves function as required. During the same evolution, the solenoid in each valve is verified to have actuated by the use of a test probe.

The licensee performed a review of the work and inservice testing of these solenoid valves and did not identify any failure to stroke open since these were added to the IST program scope in November 1994. The licensee also has a preventive maintenance program to replace these valves once every fifth refueling outage (i.e., approximately every 10 years). The Unit 1 valve, 1-2301-032-SO, was last replaced on May 11, 2007, and the Unit 2 valve, 2-2301-032-SO, was replaced on April 2, 2008. No defects were noted with either valve that was replaced.

Additionally, the licensee will continue to use the stroke-test corrective action provisions of ISTC-5153 as follows:

- If a valve fails to exhibit the required change of obturator position, the valve shall be immediately declared inoperable.

- Valves declared inoperable may be repaired, replaced, or the data may be analyzed to determine the cause of the deviation and the valve shown to be operating acceptably.

-
- Valve operability based upon analysis shall have the results of the analysis recorded in the record of the tests.

- Before returning a repaired or replacement valve to service, a test demonstrating satisfactory operation shall be performed.

Imposition of the Code requirements would result in a burden on the licensee in that modification to the valves, valve replacement, or the purchase of more advance testing equipment would be necessary to comply with Code requirements, which would represent a hardship or unusual difficulty without a compensating increase in the level of quality and safety.

The NRC staff finds that the proposed functional verification test and high water level alarms in the control room, and history of good performance of these valves, coupled with replacement of these valves every 10 years provide reasonable assurance of the operational readiness of valves, 1-2301-032-SO and 2-23011-032-SO.

3.5.1 Licensee's Alternative Request RV-05

This request applies to the following ASME OM Code, Subsections:

ISTC-3200, "Inservice Testing," states, "Inservice testing in accordance with this Subsection shall commence when the valves are required to be operable to fulfill their required function(s) (See ISTA-1100)."

ISTC-5240, "Safety and Relief Valves," states, "Safety and relief valves shall meet the inservice test requirements of Mandatory Appendix I."

Mandatory Appendix I, Paragraph I-1320 (a), states, "Class 1 pressure relief valves shall be tested at least once every 5 years, starting with initial electric power generation. No maximum limit is specified for the number of valves to be tested within each interval; however, a minimum of 20 % of the valves from each valve group shall be tested within any 24-month interval. This 20 % shall consist of valves that have not been tested during the current 5-year interval, if they exist. The test interval for any individual valve shall not exceed 5 years."

ASME OM Code Case OMN-17, "Alternate Rules for Testing ASME Class 1 Pressure Relief/Safety Valves" from the 2009 Edition of ASME OM Code, allows an extended test interval of six years, for testing these relief valves, plus an additional six months grace period provided the licensee disassembles and inspects each valve after as-found set-pressure testing to verify that valve parts are free of defects resulting from time-related degradation or service-induced wear.

Alternative testing is requested for the following Class 1, Category C, Main Steam Safety Valves (MSSVs):

1-0203-004A
1-0203-004B
1-0203-004C

1-0203-004D
1-0203-004E
1-0203-004F
1-0203-004G
1-0203-004H
2-0203-004A
2-0203-004B
2-0203-004C
2-0203-004D
2-0203-004E
2-0203-004F
2-0203-004G
2-0203-004H

3.5.2 Reason for Request

Testing per Mandatory Appendix I, Paragraph I-1320, ensures that the MSSVs, which are located on each of the main steam lines between the reactor vessel and the first isolation valve within the drywell, will open at the pressures assumed in the safety analyses.

The physical locations of the MSSVs cause them to interfere with one another during transport of the valves in and out of containment. In order to create a transport path, the licensee elects to remove, test, and rebuild at least half of the subject valves during each refueling outage. This ensures compliance with the ASME OM Code requirements for testing Class 1 pressure relief valves within a 5-year interval.

To support these replacements, four spare MSSVs are required to be certified prior to the refuel outage during which they will be installed. These spare MSSVs are certified tested immediately after refurbishment and placed into stores. In order to meet the 5-year test-to-test interval requirement, each spare MSSV requires a second recertification test just before a refuel outage to mitigate the time the valve spent in stores. Extending the testing interval to six years with a grace period of six months to coincide with a refueling outage (i.e., 6.5 years total) will allow additional time for the spare MSSVs to reside in stores after their certification tests without an additional recertification test immediately prior to installation. This extension would reduce the number of recertification test actuations of the spare MSSVs and limit the potential of disc/seat damage and subsequent seat leakage due to these additional tests.

3.5.3 Proposed Alternative

As an alternative to the ASME OM Code required a 5-year test interval per Mandatory Appendix I, Paragraph I-1320(a), the licensee proposed that the Class 1 pressure relief valves (i.e., Dresser Model 3777Q MSSVs) at QCNPS Units 1 and 2 shall be tested at least every six years with a grace period of six months to coincide with a refueling outage (i.e., 6.5 years total). ASME Code Case OMN-17 requires a minimum of 20 percent of the pressure relief valves to be tested within any 24-month interval and that this 20 percent shall consist of valves that have not been tested during the current 6-year interval (with a 6-month grace period), if they exist. The licensee removes at least 50 percent of the four MSSVs in each Unit. The test interval for any individual valve shall not exceed 6.5 years. This alternative is consistent with the alternative provided in ASME Code Case OMN-17.

The IST history for the Dresser Model 3777Q MSSVs at QCNPS, Units 1 and 2, from May 1997, to the present, indicate a good performance in that almost all the tested MSSVs (i.e., 77 MSSV tests) that have been installed in either QCNPS, Unit 1 or Unit 2, for two operating cycles have successfully passed the ASME OM Code and TS as-found lift set-point acceptance criteria within ± 3 percent (the historical test data indicates one of 77 tests did not remain within the as-left tolerance of ± 3 percent; however, it was found in the negative, more conservative, direction). The licensee stated that MSSV test data prior to 1997 is not indicative of the current MSSV performance. Since 1997, changes in refurbishment methods, testing methods, and improvements in reducing main steam system vibration (through the Acoustic Side Branch modification) have had a positive impact on MSSV performance.

After as-found set pressure testing, the MSSVs shall be disassembled and inspected to verify that parts are free of defects resulting from time-related degradation or service-induced wear. Each valve shall have been disassembled and inspected prior to the implementation of ASME OM Code Case OMN-17.

The licensee utilizes an ASME OM Code-certified offsite vendor to perform as-found and as-left testing, inspection, and refurbishment of the MSSVs. A licensee approved and qualified procedure is used for disassembly and inspection of the MSSVs. This procedure requires that each MSSV be disassembled and inspected upon removal from service, independent of the as-found test results. The procedure identifies the critical components that are required to be inspected for wear and defects, and the critical dimensions that are required to be measured during the inspection. If components are found worn or outside of the specified tolerance(s), the components are either reworked to within the specified tolerances, or replaced. All parts that are defective, outside-of-tolerance, and all reworked/replaced components are identified, and the licensee is notified of these components by the offsite vendor. The MSSV is then reassembled, the as-left test is performed, and the MSSV is returned to QCNPS.

3.5.4 NRC Staff Evaluation

ASME OM Code, Mandatory Appendix I requires that Class 1 safety relief valves (SRVs) be tested at least once every five years. However, Mandatory Appendix I does not require that SRVs be disassembled and inspected prior to the start of the five year test interval. In lieu of the 5-year test interval, the licensee proposed to implement ASME OM Code Case OMN-17, which allows a test interval of six years plus a 6-month grace period. The ASME Committee on OM developed Code Case OMN-17 and published it in the 2009 Edition of OM Code. OMN-17 imposes a special maintenance requirement to disassemble and inspect each SRV to verify that parts are free from defects resulting from time-related degradation or maintenance-induced wear prior to the start of the extended test interval. The purpose of this maintenance requirement is to reduce the potential for SRV set-point drift.

Code Case OMN-17 has not been added to Regulatory Guide 1.192, "Operation and Maintenance Code Case Acceptability, ASME OM Code," or included in 10 CFR 50.55a by reference. However, the NRC has allowed licensees to use OMN-17 provided all requirements in the Code Case are met. Consistent with the special maintenance requirement in Code Case

OMN-17, each MSSV will be refurbished to a like-new condition prior to the start of each 6.5-year test interval. Critical components will be inspected for wear and defects, and the critical dimensions will be measured during the inspection.

Components will be reworked to within the specified tolerance or replaced if found to be worn or outside of specified tolerances. Furthermore, Code Case OMN-17 is performance-based, in that it requires SRVs to be tested more frequently if test failures occur. For example, OMN-17 requires that two additional valves be tested when a valve in the initial test group exceeds the set pressure acceptance criteria. All remaining valves in the group are required to be tested if one of the additional valves tested exceeds its set pressure acceptance criteria. Therefore, the SRV test frequency would be equivalent to the current test frequency, if test failures occur.

The licensee has provided test data to show that the subject valves have historically exhibited very limited susceptibility to time-related degradation or set-point drift. The licensee has also committed to implement a disassembly and inspection program in conjunction with the extended test interval, as required by ASME OM Code Case OMN-17.

Based on the historical performance of the set-point testing of QCNPS, Units 1 and 2, MSSVs and the licensee's commitments to disassemble and inspect the MSSVs prior to use, the NRC staff finds that implementation of the ASME OM Code Case, OMN-17, for the testing of the designated MSSVs, in lieu of the requirements of ASME OM Code 2004 Edition through OMb-2006, Mandatory Appendix I, Section 1320 of the OM Code, provides an acceptable level of quality and safety.

3.6.1 Licensee's Alternative Request RV-06

This request applies to the following ASME Code and requirements:

Mandatory Appendix I, Paragraph I-1310, "General," (e), "Acceptance Criteria," states, "The Owner, based upon system and valve design basics or technical specification, shall establish and document acceptance criteria for tests required by this Appendix."

Mandatory Appendix I, Paragraph I-1320 (c), "Requirements for Testing Additional Valves," states, in part, "Additional valves shall be tested in accordance with the following requirements: (1) For each valve tested for which the as-found set-pressure (first test actuation) exceeds the greater of the ± tolerance limit of the Owner-established set-pressure acceptance criteria of I-1310(e) or ±3% of valve nameplate set-pressure, two additional valves shall be tested from the same valve group. (2) If the as-found set-pressure of any of the additional valves tested in accordance with I-1320(c)(1) exceeds the criteria noted therein, then all remaining valves of that same valve group shall be tested."

ASME OM Code Case OMN-17 (1)(c), "Test Frequencies, Class 1 Pressure Relief Valves: Requirements for Testing Additional Valves," requires the same expansion of the test group sample as Mandatory Appendix I, Paragraph I-1320 (c) when valve set-pressure criteria is exceeded.

Alternative testing is requested for the following Class 1, Category C, MSSVs:

1-0203-004A
1-0203-004B
1-0203-004C
1-0203-004D
1-0203-004E
1-0203-004F
1-0203-004G
1-0203-004H
2-0203-004A
2-0203-004B
2-0203-004C
2-0203-004D
2-0203-004E
2-0203-004F
2-0203-004G
2-0203-004H

3.6.2 Reason for Request

These MSSVs are used to terminate an abnormal pressure increase in the reactor vessel and the reactor coolant pressure boundary (i.e., they provide overpressure protection).

The physical locations of the safety valves cause them to interfere with one another during transport of the valves in and out of containment. In order to create a transport path, at least half of the subject valves are removed, tested, and rebuilt during each refueling outage. This accelerated maintenance schedule provides a high level of assurance that these safety valves will perform their safety function.

The licensee does not have the facilities required to perform set-point tests on large relief and safety valves. These valves are unbolted from their mounting flanges, decontaminated, and shipped to an off-site test facility. Because of the lengthy period required for removal, transportation, testing, and re-installation, the removal and testing of additional valves due to sample expansion would delay unit start-up from refueling outages by at least several days. This represents a significant hardship.

The sample expansion requirements of Mandatory Appendix I, or Code Case OMN-17, require two additional valves be tested if one valve failed its set-point test. Since no less than four of the safety valves are tested during each outage, the valves already being tested represent an increased (>20 percent of group) sample population. Therefore, based on the larger initial sample size (four vs. a minimum of two required), accelerated maintenance schedule, and the hardship associated with pulling additional valves, no additional valves will be tested if only one valve fails the set-point test. This methodology also should help ensure that 100 percent of the MSSV population is tested within the required test interval. This alternative request is intended to decrease the likelihood of an unplanned scope expansion of MSSV testing and maintenance and corresponding restart delays by preemptively removing and testing 50 percent of the MSSVs during each refuel outage.

3.6.3 Proposed Alternative

At least half of the eight safety valves will be removed and tested during each reactor refueling outage. If only one of the four safety valves removed for testing fails its set-point test, additional safety valves will not be tested. If more than one safety valve fails its as-found initial set-point test, the sample expansion criteria of Code Case OMN-17(1)(c) will be implemented, based on the NRC's authorization of alternative request RV-05.

3.6.4 NRC Staff Evaluation

Mandatory Appendix I, paragraph I-1320 of the ASME OM Code, requires that Class 1 valves be tested at least once every five years and that a minimum of 20 percent of the valves from a valve group be tested within a 24-month period. Code Case OMN-17(1)(a) from the ASME OM Code 2009 Edition, requires that Class 1 valves be tested at least once every six years with a six month grace period and that a minimum of 20 percent of the valves from a valve group be tested within a 24 month period. For each valve tested per Mandatory Appendix I or OMN-17 that fails its set-pressure test, an additional two valves must be tested. The licensee proposes to test, rebuild, and retest at least four of the eight safety valves each refueling outage. The minimum number of safety valves that the licensee proposes to test exceeds the number of valves that would be required to be tested per the ASME OM Code requirements. The ASME OM Code requires 20 percent of the eight safety valves, or two safety valves to be tested every 24 months, while the licensee proposes to test at least 50 percent of the safety valves each outage. In fact, the number of valves that the licensee proposes to test (at least four) equals the number of valves that would be required to be tested if one valve in the Code-required sample of two valves failed the test. The licensee proposes that if only one valve fails the test, the sample size will not be increased, but if a second valve fails, the size will be expanded as required by Code Case OMN-17(1)(c)(2), based on the NRC's authorization of alternative request RV-05. The licensee's proposal will test the subject valves at an equal or higher rate than that required by the ASME OM Code.

The NRC staff finds that the proposed alternative testing of the MSSVs noted in this request, provides reasonable assurance of adequate valve operation and readiness because it provides a test method equal to or higher than that required by the OM Code. The NRC staff finds that the licensee's proposed alternative provides an acceptable level of quality and safety.

3.7.1 Licensee's Alternative Request RV-07

This request applies to the following:

ISTC-5132(b), "Stroke Test Acceptance Criteria," states, "Valves with reference stroke times of less than or equal to 10 seconds shall exhibit no more than ±50% change in stroke time when compared to the reference value."

ISTC-5133, "Stroke Test Corrective Action," states, in part, "Valves declared inoperable may be repaired, replaced, or the data may be analyzed to determine the cause of the deviation and the valve shown to be operating acceptably."

TS SR 3.6.1.3.6 in TS 3.6.1.3, "Primary Containment Isolation Valves," requires an acceptable stroke time range for the main steam isolation valves (MSIVs) of > 3 seconds to < 5 seconds.

3.7.2 Reason for Request

The main steam isolation valves (MSIVs) open to admit reactor steam to the main turbine. They close to provide containment and reactor isolation.

The ISTC Code requirement 5132(b) bases the stroke-time acceptance criteria on a fixed reference value taken from a baseline test. However, TS SR 3.6.1.3.6 establishes an invariable stroke time range for the MSIVs of > 3 seconds to < 5 seconds. This fixed range is more conservative and consistent than that required by ISTC-5132(b) since the range is not dependent on a baseline value that may *vary* by as much as ±1 second."

3.7.3 Proposed Alternative

"TS SR 3.6.1.3.6 establishes an acceptable stroke-time range for the MSIVs of 3.0 seconds ≤ Tmsiv ≤ 5.0 seconds. QCNPS will utilize this range for evaluating an acceptable MSIV stroke time in lieu of establishing an acceptance band based on MSIV stroke time reference values. QCNPS has also established additional limitations on stroke time based on reactor power levels to ensure that the TS SR limits are always met. Any MSIV that fails to meet the TS SR limits will be considered inoperable and required action will continue to be in accordance with the QCNPS TSs and ISTC-5133,

3.7.4 NRC Staff Evaluation

In lieu of the Code-required stroke-time acceptance criteria based on a fixed reference value taken from a baseline test, the licensee proposes to use the TS SR 3.6.1.3.6 acceptable stroke-time range of greater than or equal to three seconds and less than or equal to five seconds for the MSIVs.

The TS provides the minimum system, subsystem, and component operability requirements for safe operation. The licensee's proposed acceptance stroke-time range specified in TS SR 3.6.1.3.6 is more conservative than the ASME OM Code-required acceptance criterion of plus or minus 50 percent change in stroke-time when compared to the reference value. Assuming a nominal reference value of four seconds for the MSIVs, the Code acceptance criterion would result in an acceptance band of two2 to six seconds, which is outside the TS acceptance band.

The NRC staff finds that the proposed alternative testing acceptance criteria for the MSIVs is more conservative than the ASME OM Code-required testing, provides reasonable assurance of adequate valve operation and readiness, and ensures that the MSIVs meet the operability requirements for safe operation. Therefore, the NRC staff determines that the proposed alternative testing acceptance criteria provided in the QCNPS TSs in lieu of the criteria required by ISTC-5132(b) is acceptable, and that the licensee's proposed alternative provides an acceptable level of quality and safety.

4.0 CONCLUSION

As set forth above, the NRC staff determines that for alternative requests RV-02, RV-03, RV-05, RV-06, and RV-07, the proposed alternatives provide an acceptable level of quality and safety. For proposed alternatives RV-01 and RV-04, the proposed alternatives provide reasonable assurance that the components are operationally ready. Accordingly, the NRC staff concludes that the licensee has adequately addressed all of the regulatory requirements set forth in 10 CFR 50.55a(a)(3)(i) for requests RV-02, RV-03, RV-05, RV-06, and RV-07 and 10 CFR 50.55a(a)(3)(ii) for requests RV-01 and RV-04, and is in compliance with the ASME OM Code requirements. Therefore, the NRC staff authorizes alternative requests RV-01, RV-02, RV-03, RV-04, RV-05, RV-06, and RV-07, at QCNPS Units 1 and 2, for the fifth 10-year IST program interval, which begins on February 18, 2013 and is scheduled to end on February 17, 2023. All other ASME OM Code requirements for which relief was not specifically requested and approved in the subject requests remain applicable.

Principle Contributors: Robert Wolfgang, NRR; John Billerbeck, NRR; Gurjendra Bedi, NRR; John Huang, NRR; Mike Farnan, NRR

Date of issuance: February 14, 2013

requirements for which relief was not specifically requested and approved in the subject requests remain applicable.

If you have any questions on this action, please contact the NRC Project Manager, Brenda Mozafari, at (301) 415-2020.

Sincerely,

/ ***RA*** /

Joel S. Wiebe, Acting Chief
Plant Licensing Branch III-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-254 and 50-265

Enclosure: Safety Evaluation

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Exelon Generation

RS-13-045

10 CFR 50.55a

January 25, 2013

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

Quad Cities Nuclear Power Station, Units 1 and 2
Renewed Facility Operating License Nos. DPR-29 and DPR-30
NRC Docket Nos. 50-254 and 50-265

Subject: Additional Information Regarding Relief Request RV-06 Associated with the Fifth Inservice Testing Interval

Reference: Letter from D. M. Gullott (Exelon Generation Company, LLC) to U.S. NRC, "Submittal of Relief Requests Associated with the Fifth Inservice Testing Interval," dated February 15, 2012

In the referenced letter, Exelon Generation Company, LLC (EGC) requested NRC approval of relief requests associated with the fifth 10-year inservice testing (IST) program interval for Quad Cities Nuclear Power Station (QCNPS). EGC's submittal included relief request RV-06, which is related to main steam safety valve testing. In an email dated January 16, 2013, the NRC requested additional information that is needed to complete the review of relief request RV-06. In response to this request, EGC is providing the attached information.

There are no regulatory commitments contained in this letter. Should you have any questions concerning this letter, please contact Mr. Kenneth M. Nicely at (630) 657-2803.

Respectfully,

David M. Gullott
Manager – Licensing

Attachment: Response to Request for Additional Information

cc: NRC Regional Administrator, Region III
NRC Senior Resident Inspector, Quad Cities Nuclear Power Station

ATTACHMENT
Response to Request for Additional Information

NRC Request

Request RV-06 states, in Section 5, "If more than one safety valve fails, the sample expansion criteria of Appendix I, 1350(c) will be implemented." Section I-1350 of Mandatory Appendix I is for Class 2 and 3 pressure relief valves. Section I-1320 is for Class 1 pressure relief valves. Also, Request RV-05 is requesting the use of Code Case OMN-17. Please discuss whether, if RV-05 is approved, Code Case OMN-17, primarily Paragraph (1)(c)(2), would also apply to Request RV-06.

Response

The original Relief Request RV-06 transmitted in Reference 1 contained an incorrect code reference (i.e., I-1350 should have been I-1320, which refers to Class 1 relief valves). This error was corrected in a revised relief request that was submitted to the NRC in Reference 2.

Relief Request RV-05 requests relief from test frequency requirements for Class 1 pressure relief valves, based on the guidance of ASME Code Case OMN-17. Upon approval of RV-05, Exelon Generation Company, LLC would also apply Code Case OMN-17, Paragraph (1)(c)(2), to Request RV-06. It is noted that that the requirements of Code Case OMN-17, Paragraph (1)(c)(2), and ASME OM Code, Appendix I, I-1320(c)(2) are functionally equivalent.

References

1. Letter from D. M. Gullott (Exelon Generation Company, LLC) to U.S. NRC, "Submittal of Relief Requests Associated with the Fifth Inservice Testing Interval," dated February 15, 2012

2. Letter from D. M. Gullott (Exelon Generation Company, LLC) to U.S. NRC, "Response to Request for Additional Information Regarding Relief Requests Associated with the Fifth Inservice Testing Interval," dated September 13, 2012

NRR-PMDAPEm Resource

From: Faria-Ocasio, Carolyn
Sent: Wednesday, January 16, 2013 1:07 PM
To: ken.nicely@exeloncorp.com; Mitchel.Mathews@exeloncorp.com
Cc: Dudek, Michael; Wolfgang, Robert; DiFrancesco, Nicholas
Subject: Quad Cities RAI for Relief Request RV-06, (TAC NOS. ME7992 & ME7993)

SUBJECT: QUAD CITIES NUCLEAR POWER STATION, UNITS 1 AND 2 - REQUEST FOR ADDITIONAL INFORMATION RELATED TO RELIEF REQUEST, RV-06, FROM ASME OM CODE APPENDIX I, I-1350(C), FOR MAIN STEAM SAFETY VALVE SET POINT TESTING ASSOCIATED WITH THE FIFTH INSERVICE TESTING (TAC NOS. ME7992 & ME7993)

By letter to the Nuclear Regulatory Commission (NRC) dated February 15, 2012 (Agencywide Documents Access and Management System Accession No. ML12046A334), Exelon Generation Company, LLC submitted a relief request from requirements of the American Society of Mechanical Engineers Operation and Maintenance Code, specifically Appendix I, I-1350(c)'s requirements for Main Steam Safety Valve Set Point Testing for the Quad Cities Nuclear Power Station, Units 1 and 2. The NRC staff has been reviewing the submittal and has determined that the following additional information is needed to complete its review:

> Request RV-06 states, in Section 5, "If more than one safety valve fails, the sample expansion criteria of Appendix I, 1350(c) will be implemented." Section I-1350 of Mandatory Appendix I is for Class 2 and 3 pressure relief valves. Section I-1320 is for Class 1 pressure relief valves. Also, Request RV-05 is requesting the use of Code Case OMN-17. Please discuss whether, if RV-05 is approved, Code Case OMN-17, primarily Paragraph (1)(c)(2), would also apply to Request RV-06.

The NRC staff considers that timely responses to requests for additional information help ensure sufficient time is available for staff review and contribute toward the NRC's goal of efficient and effective use of staff resources. If circumstances result in the need to revise the requested response date, please contact me at (301) 415-4050.

I am placing a copy of this email in ADAMS as a publicly-available, official agency record.

Thanks,

Carolyn M. Faría
Project Manager, Plant Licensing Branch III-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
301-415-4050

Hearing Identifier: NRR_PMDA
Email Number: 582

Mail Envelope Properties (Carolyn.Faria-Ocasio@nrc.gov20130116130600)

Subject: Quad Cities RAI for Relief Request RV-06, (TAC NOS. ME7992 & ME7993)
Sent Date: 1/16/2013 1:06:51 PM
Received Date: 1/16/2013 1:06:00 PM
From: Faria-Ocasio, Carolyn

Created By: Carolyn.Faria-Ocasio@nrc.gov

Recipients:
"Dudek, Michael" <Michael.Dudek@nrc.gov>
Tracking Status: None
"Wolfgang, Robert" <Robert.Wolfgang@nrc.gov>
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Tracking Status: None
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Tracking Status: None

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Recipients Received:

Exelon Generation

4300 Winfield Road
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RS-12-210

10 CFR 50.55a

December 7, 2012

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

Quad Cities Nuclear Power Station, Units 1 and 2
Renewed Facility Operating License Nos. DPR-29 and DPR-30
NRC Docket Nos. 50-254 and 50-265

Subject: Additional Information Regarding Relief Request RV-04 Associated with the Fifth Inservice Testing Interval

References:
1. Letter from D. M. Gullott (Exelon Generation Company, LLC) to U.S. NRC, "Submittal of Relief Requests Associated with the Fifth Inservice Testing Interval," dated February 15, 2012
2. Letter from B. Mozafari (U.S. NRC) to M. J. Pacilio (Exelon Generation Company, LLC), "Quad Cities Nuclear Power Station, Units 1 and 2 – Request for Additional Information Related to Relief Request, RV-04, from ASME OM Code ISTC-5150, Solenoid-Operated Valves Associated with the Fifth Inservice Testing (TAC Nos. ME7981 and ME7982)," dated December 3, 2012

In Reference 1, Exelon Generation Company, LLC (EGC) requested NRC approval of relief requests associated with the fifth 10-year inservice testing (IST) program interval for Quad Cities Nuclear Power Station (QCNPS). EGC's submittal included relief request RV-04, which is related to High Pressure Coolant Injection system exhaust line drain pot to gland seal condenser solenoid valves. In Reference 2, the NRC requested additional information that is needed to complete review of relief request RV-04. In response to this request, EGC is providing the attached information, which addresses NRC Requests 1, 2, and 3. During a telephone discussion with the NRC on December 6, 2012, it was agreed that EGC would defer the response to NRC Request 4 because additional clarification is needed from the NRC regarding the specific information being requested.

There are no regulatory commitments contained in this letter. Should you have any questions concerning this letter, please contact Mr. Kenneth M. Nicely at (630) 657-2803.

Respectfully,

David M. Gullott
Manager – Licensing

Attachment: Response to Request for Additional Information

cc: NRC Regional Administrator, Region III
NRC Senior Resident Inspector, Quad Cities Nuclear Power Station

ATTACHMENT
Response to Request for Additional Information

NRC Request 1

In relief request RV-04, Section 4.0, "Impractically of Compliance", the first paragraph, first sentence states, "Pursuant to 10 CFR 50.55a, "Codes and Standards," paragraph (f)(5)(iii), relief is requested from the requirement of ASME, Code of Operation and Maintenance, paragraph ISTC-5150." ISTC-5150 contains paragraphs ISTC-5151, ISTC-5152, ISTC-5153, and references requirements ISTC-3500, ISTC-3300, ISTC-3310, and ISTC-3320. Clarify from which paragraphs of the ISTC of the ASME OM Code is relief being requested.

Response

As stated in proposed Relief Request RV-04, the affected High Pressure Coolant Injection (HPCI) system solenoid operated valves (i.e., 1(2)-2301-032-SO) are not equipped with position indicators and the valves are completely enclosed. Therefore, valve position cannot be verified by direct observation. Due to the design limitations of the system and valves, the following requirements of ISTC-5150, "Solenoid-Operated Valves," related to stroke timing cannot be met.

- ISTC-5151, "Valve Stroke Testing," paragraphs (a), (b), and (c)
- ISTC-5152, "Stroke Test Acceptance Criteria," paragraphs (a), (b), and (c)
- ISTC-5153, "Stroke Test Corrective Action," paragraph (b)

Accordingly, relief is requested from these specific parts of ISTC-5150.

NRC Request 2

Section 5.0, "Burden Caused by Compliance," states "Compliance with the quarterly exercising and stroke timing requirements of the Code would require either system modifications to replace these valves with ones of testable design, or to purchase non-intrusive test equipment and develop new test methods and procedures." Justify why modifying the system by replacing these valves with a testable design, or purchasing non-intrusive test equipment, is not feasible (i.e., cost, planning or new method and procedure).

Response

The station design does not include remote light indication for the 1(2)-2301-032-SO valves. These valves are completely enclosed such that the valve position cannot be verified by direct observation. Due to the absence of a visible valve stem and light indication, "switch to light" stroke timing cannot be performed. In addition, there are no known reliable non-intrusive test methods for measuring stroke times for this valve configuration.

In order to perform stroke timing of these valves, a design change would have to be implemented. The modification would include: (1) changing the valve design to include position limit switches, (2) routing light indication cabling from the plant through containment boundaries to the control room, and (3) installing position indication lights in the main control room panels. It is estimated that this modification would cost in excess of $300,000 per unit. This remote valve indication would be installed solely for meeting the American Society of Mechanical Engineers (ASME) Operation and Maintenance (OM) Code requirements and would serve no other operational purpose.

A quarterly exercise of the 1(2)-2301-032-SO valves is currently performed and its associated level switches operate as proven by the receipt of the "HPCI TURBINE EXH DRAIN POT HIGH LEVEL" alarm (i.e., water level increase) and reset (i.e., water level decrease due to the open exercise of valves 1(2)-2301-032-SO). During this same evolution, the valve solenoid is also verified actuated (i.e., valve solenoid is magnetized) by use of a test probe. This testing approach provides adequate assurance that the valves function as required.

NRC Request 3

Section 6.0, "Proposed Alternative and Basis for Use," does not provide any operational history (i.e., maintenance and reliability data) or note any failures of solenoid-operated valves 1(2)-2301-032-SO. Provide details of operational history and information regarding any failure of these valves. Also, describe how often the internals for these valves have been replaced or repaired, and note any defects identified during maintenance activities for the fourth 10-year inservice testing interval.

Response

A quarterly exercise of the 1(2)-2301-032-SO valves is currently performed and its associated level switch operate as proven by the receipt of the "HPCI TURBINE EXH DRAIN POT HIGH LEVEL" alarm (i.e., water level increase) and reset (i.e., water level decrease due to the open exercise of valves 1(2)-2301-032-SO). During this same evolution, the valve solenoid is also verified actuated (i.e., valve solenoid is magnetized) by use of a test probe. This testing approach provides adequate assurance that the valves function as required.

A review of the work and inservice testing (IST) history of these valves did not identify any cases of these valves failing to stroke open since they were added to the IST program scope in November 1994.

The station has a preventive maintenance activity to replace these valves once every fifth refueling outage (i.e., approximately every 10 years). This activity was last performed on May 11, 2007, on Unit 1, and on April 3, 2008, on Unit 2. No defects were noted.

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

December 3, 2012

Mr. Michael J. Pacilio
Senior Vice President
Exelon Generation Company, LLC
President and Chief Nuclear Officer (CNO)
Exelon Nuclear
4300 Winfield Road
Warrenville, IL 60555

SUBJECT: QUAD CITIES NUCLEAR POWER STATION, UNITS 1 AND 2 - REQUEST FOR ADDITIONAL INFORMATION RELATED TO RELIEF REQUEST, RV-04, FROM ASME OM CODE ISTC-5150, SOLENOID-OPERATED VALVES ASSOCIATED WITH THE FIFTH INSERVICE TESTING (TAC NOS. ME7981 AND ME7982)

Dear Mr. Pacilio:

By letter to the U.S. Nuclear Regulatory Commission (NRC) dated February 15, 2012 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML12046A334), Exelon Generation Company, LLC submitted a relief request from requirements of the American Society of Mechanical Engineers Operation and Maintenance Code. Specifically, Code ISTC-5150, Solenoid-Operated Valves for the Quad Cities Nuclear Power Station, Units 1 and 2.

The NRC staff is reviewing your submittal and has determined that additional information is required to complete the review. The specific information requested is addressed in the enclosure to this letter. During a discussion with your staff on November 15, 2012, it was agreed that you would provide a response by December 10, 2012.

The NRC staff considers that timely responses to requests for additional information help ensure sufficient time is available for staff review and contribute toward the NRC's goal of efficient and effective use of staff resources. If circumstances result in the need to revise the requested response date, please contact Carolyn Faria at (301) 415-4050.

Sincerely,

Brenda Mozafari, Senior Project Manager
Plant Licensing Branch III-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-254 and 50-265

Enclosure: Request for Additional Information

cc w/encl: Distribution via Listserv

REQUEST FOR ADDITIONAL INFORMATION

REGARDING QUAD CITIES NUCLEAR POWER STATION, UNITS 1 AND 2

RELIEF REQUEST REGARDING ASME OM CODE 2004 EDITION

DOCKET NOS. 50-254 AND 50-265

By letter to the U.S. Nuclear Regulatory Commission (NRC) dated February 15, 2012 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML12046A334), Exelon Generation Company, LLC submitted a relief request from requirements of the American Society of Mechanical Engineers (ASME) Operation and Maintenance Code. Specifically, Code ISTC-5150, Solenoid-Operated Valves for the Quad Cities Nuclear Power Station, Units 1 and 2. The NRC staff has been reviewing the submittal and has determined that the following additional information is needed to complete its review.

1. In relief request RV-04, Section 4.0, "Impractically of Compliance," the first paragraph, first sentence states, "Pursuant to 10 CFR 50.55a, "Codes and Standards," paragraph (f)(5)(iii), relief is requested from the requirement of ASME, Code of Operation and Maintenance, paragraph ISTC-5150." ISTC-5150 contains paragraphs ISTC-5151, ISTC-5152, ISTC-5153, and references requirements ISTC-3500, ISTC-3300, ISTC-3310, and ISTC-3320. Clarify from which paragraphs of the ISTC of the ASME OM Code is relief being requested.

2. Section 5.0, "Burden Caused by Compliance," states "Compliance with the quarterly exercising and stroke timing requirements of the Code would require either system modifications to replace these valves with ones of testable design, or to purchase non-intrusive test equipment and develop new test methods and procedures." Justify why modifying the system by replacing these valves with a testable design, or purchasing non-intrusive test equipment, is not feasible (i.e., cost, planning or new method and procedure).

3. Section 6.0, "Proposed Alternative and Basis for Use," does not provide any operational history (i.e., maintenance and reliability data) or note any failures of solenoid-operated valves 1(2)-2301-032-SO. Provide details of operational history and information regarding any failure of these valves. Also, describe how often the internals for these valves have been replaced or repaired, and note any defects identified during maintenance activities for the fourth 10-year inservice testing interval.

4. Provide the details about chances of failures of solenoid-operated valves 1(2)-2301-032-SO during normal and emergency operations (i.e. operational history).

Exelon Generation

RS-12-179

10 CFR 50.55a

October 8, 2012

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

Quad Cities Nuclear Power Station, Units 1 and 2
Renewed Facility Operating License Nos. DPR-29 and DPR-30
NRC Docket Nos. 50-254 and 50-265

Subject: Response to Request for Additional Information Regarding Relief Requests Associated with the Fifth Inservice Testing Interval

References:
1. Letter from D. M. Gullott (Exelon Generation Company, LLC) to U.S. NRC, "Submittal of Relief Requests Associated with the Fifth Inservice Testing Interval," dated February 15, 2012
2. Letter from D. M. Gullott (Exelon Generation Company, LLC) to U.S. NRC, "Response to Request for Additional Information Regarding Relief Requests Associated with the Fifth Inservice Testing Interval," dated September 13, 2012

In Reference 1, Exelon Generation Company, LLC (EGC) requested NRC approval of relief requests associated with the fifth 10-year inservice testing (IST) program interval for Quad Cities Nuclear Power Station (QCNPS). Additional information was submitted in Reference 2 to support the NRC's review.

During a conference call with the NRC on September 24, 2012, the NRC requested additional information that is needed to complete the review of the relief requests. In response to this request, EGC is providing the attached information.

There are no regulatory commitments contained in this letter. Should you have any questions concerning this letter, please contact Mr. Kenneth M. Nicely at (630) 657-2803.

Respectfully,

Patrick R. Simpson
Manager – Licensing

Attachment: Response to Request for Additional Information

cc: NRC Regional Administrator, Region III
NRC Senior Resident Inspector, Quad Cities Nuclear Power Station

ATTACHMENT
Response to Request for Additional Information

NRC Request 1

In Exelon Generation Company, LLC's (EGC's) submittal dated September 13, 2012, the table provided in response to Request for Additional Information (RAI) RV-03-1 states that for several components, the proposed testing frequency for the 5th interval is "24 months up to 60 months with 15 month grace based on performance." What is the basis for the proposed 15 month grace?

Response

Quad Cities Nuclear Power Station (QCNPS) Technical Specification 5.5.12, "Primary Containment Leakage Rate Testing Program," states, in part:

> This program shall establish the leakage testing of the primary containment as required by 10 CFR 50.54(o) and 10 CFR 50, Appendix J, Option B, as modified by approved exemption. This program shall be in accordance with the guidelines contained in Regulatory Guide 1.163, "Performance-Based Containment Leak-Testing Program," dated September 1995...

Regulatory Guide 1.163 endorses NEI 94-01, "Industry Guideline for Implementing Performance-Based Option of 10 CFR Part 50, Appendix J," Revision 0, dated July 26, 1995, as an acceptable method for complying with the provisions of Option B to 10 CFR 50, Appendix J, with certain exceptions. Sections 10.1 and 11.3 of NEI 94-01 allow an extension of up to 25 percent of the test interval (not to exceed 15 months).

NRC Request 2

In EGC's submittal dated September 13, 2012, the table provided in response to RAI RV-03-1 indicates that the exercise closed test for valves 1(2)-1402-009A/B will be conducted in accordance with the Condition Monitoring Plan. Provide details about condition monitoring being used for these valves.

Response

The functional capability of the 1(2)-1402-009A/B check valves is verified through periodic testing. The valves open function is verified by injecting Core Spray into the reactor vessel. The frequency is Cold Shutdown in accordance with the American Society of Mechanical Engineers Code for Operation and Maintenance of Nuclear Power Plants (ASME OM Code) ISTC-3522. The close function is verified during the performance of the pressure isolation valve (PIV) seat leakage pressure test where valve closure function is verified by the capability to build pressure against the valve disc. The intent of the Condition Monitoring Plan is solely to align the closure test frequency to the same frequency as the PIV seat leakage pressure test.

NRC Request 3

Page 12 of EGC's original submittal of the relief requests, dated February 15, 2012, states "...would provide for a savings of approximately 1.2 Rem over a 4-1/2 year period." What is the basis for 4-1/2 years in view of the fact that the normal fuel cycles are 24 months, and two fuel cycles would be 4 years?

Response

The nominal fuel cycle length at QCNPS is 24 months. However, since refueling outages may be scheduled slightly beyond 24 months, 4-1/2 years was used to provide a bounding timeframe to encompass two refueling outages.

From: Bauer, Joseph A.:(GenCo-Nuc)
Sent: Wednesday, September 19, 2012 1:12 PM
To: Knapp, Gary E:(GenCo-Nuc); Rice, Mathew:(GenCo-Nuc); Wagner, Mark E.:(GenCo-Nuc)
Cc: Nicely, Ken M.:(GenCo-Nuc); Simpson, Patrick R.:(GenCo-Nuc); Gullott, David M.:(GenCo-Nuc)
Subject: NRC Followup Questions on the Quad Cities IST RAI Response

Follow Up Flag: Follow up
Flag Status: Red

Attachments: RS-12-149.pdf; RS-12-026.pdf
Gary and Mac,

The NRC (Pete Hernandez - PM) called this morning and had 3 followup questions to our IST RAI response (I've attached the RAI response and initial submittal for convenience). We may decide we need a clarification call with the NRC if the below is not clear to you.

1. For RAI RV-03-1 on page 4; last valve on the table (1402-009A/B: for Frequency, we specify "24 month up to 60 months with 15 month grace.." The NRC indicated it should be "24 month up to 60 month with a maximum of 9 month grace."
2. For RAI RV-03-2 on page 5, we state that the functionality of check valves 1402A/B is demonstrated by two items (and we list them). The NRC asked if there are any other criteria that we will use to demonstrate their functionality and appeared to want to know what "guidance" document we were using.
   a. A secondary issue was noted on page 5 (last paragraph of the RV-03-2 response). The NRC was asking if there was a more definitive time table for testing. (If you recall, this was a question we had during the TVT but decided that it was "clear enough."
3. The third question was on the original submittal. On page 12 of 24, at the bottom of the 1st paragraph, we stated, "....would provide for a savings of approximately 1.2 Rem over a 4-1/2 period." The NRC was wondering where 4-1/2 years came from in view of the fact that our fuel cycles are 24 months (the NRC thought it would be a multiple of 2 years (i.e., either 4 or 6 years).

The NRC indicated that question number 1 could be handled in the Safety Evaluation and did not require a response on the docket. They asked that questions 2 and 3 be responded to on the docket.

Ken Nicely will arrange a near-term internal call to discuss our responses.

Thanks,
Joe

Joseph A. Bauer
Corporate Licensing Department
Description: Macintosh
4300 Winfield Road, Suite 400
Warrenville, IL 60555
Office: 630 657 2804 | Mobile: 630 939 9538 | Fax: 630 657 4327
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Exelon Generation

4300 Winfield Road
Warrenville, IL 60555
630 657 2000 Office

RS-12-149

10 CFR 50.55a

September 13, 2012

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555-0001

Quad Cities Nuclear Power Station, Units 1 and 2
Renewed Facility Operating License Nos. DPR-29 and DPR-30
NRC Docket Nos. 50-254 and 50-265

Subject: Response to Request for Additional Information Regarding Relief Requests Associated with the Fifth Inservice Testing Interval

References:
1) Letter from D. Gullott (Exelon Generation Company, LLC) to NRC, "Submittal of Relief Requests Associated with the Fifth Inservice Testing Interval," dated February 15, 2012
2) Letter from B. Mozafari (NRC) to M. J. Pacilio, (Exelon Generation Company, LLC), "Quad Cities Nuclear Power Station, Units 1 and 2 – Request for Additional Information Related to Relief Request RV-01, RV-03, RV-05, AND RV-06 (TAC NOS. ME7983, ME7984, ME7987, ME7988, ME7992, ME7993, ME7994, AND ME7995)," dated September 12, 2012

In Reference 1 Exelon Generation Company, LLC (EGC), requested NRC approval of relief requests associated with the fifth 10-year inservice testing (IST) program interval for Quad Cities Nuclear Power Station (QCNPS). During review of the subject relief requests, the NRC concluded that additional information would be needed to complete their review as documented in Reference 2. The response to this request for additional information is provided in Attachment 1. Attachment 2 includes an updated relief request RV-01, which was revised to address concerns raised in Reference 2. Attachment 3 includes an updated relief request RV-06, which removes the dual function Target Rock component since relief for this component is not required given it is a population of one. The revised RV-06 also corrects an incorrect code reference and clarifies the basis for the relief request. As noted in Reference 2, it was agreed that EGC would provide a response to this request for additional information by September 17, 2012.

There are no regulatory commitments contained in this letter.

Should you have any questions concerning this letter, please contact Mr. Joseph A. Bauer at (630) 657-2804.

Respectfully,

David M. Gullott
Manager – Licensing
Exelon Generation Company, LLC

Attachment 1 – Response to Request for Additional Information
Attachment 2 – Revised Relief Request RV-01
Attachment 3 – Revised Relief Request RV-06

ATTACHMENT 1

Response to Request for Additional Information

ATTACHMENT 1

Response to Request for Additional Information
10-Year Inservice Testing Program Interval

RAI RV-01-1:

The alternative identified in Section 5 for relief request (RR) RV-01 is based on, but reads differently than, the code case for inservice test (IST) frequency approved by the American Society of Mechanical Engineers (ASME) Operations and Maintenance (OM) Code Standards Committee. (This code case was approved for use by the ASME OM Standards Committee and the ASME Board of Nuclear Codes and Standards and is currently identified by ASME according to its Record Number 10-1992. This code case will carry a conventional number (OMN-xx) when it is published with the next OM Code edition.)

Describe whether it is Exelon's intent to adopt all of the language of the approved Code Case 10-1992, for the fifth inservice testing interval at QCNPS, as an alternative to the current IST frequency requirements listed in the QCNPS, technical specifications and the guidance provided in NRC NUREG-1482, Revision 1.

Response:

Since this question was issue, the ASME OM Code Committee has assigned OMN-19 to this Code Case. The draft of Code Case OMN-19 was used in the development of this relief request. EGC will adopt the language of approved ASME Code Case OMN-19 for the fifth inservice testing interval. A revised RV-01 relief request is provided in Attachment 2, which reflects the approved ASME Code Case OMN-19 and replaces the original RV-01 in its entirety.

RAI RV-03-1:

In the noted reference for RR RV-03, Section 4, "Reason for Request," the second paragraph, third sentence, states that "While the motor-operated Pressure Indicating Valves (PIVs) affected by this relief request are also containment isolation valves (CIVs) and tested in accordance with the Appendix J program, the check valve PIVs are not CIVs and not within the Appendix J scope." The RR does not provide any details (i.e., CIVs, PIVs, or check valve etc.) for the components listed in Section 1 of the RR.

(a) Please specify whether the listed valves are CIVs, PIVs, or check valves.

(b) Please provide the current frequency used at QCNPS for (1) functional testing and/or position indicator testing of the PIVs, and (2) leak rate testing of the PIVs.

ATTACHMENT 1

Response to Request for Additional Information
10-Year Inservice Testing Program Interval

<u>Response:</u>

The following table provides the information requested in items (a) and (b) above:

Component	Valve Type	CIV, PIV, Both	Current Testing for 4th Interval		Proposed Testing for 5th Interval	
			Test	Frequency	Test	Frequency
1(2)-1001-047-MO	Gate	Both	Stroke Time Closed	Cold Shutdown	Exercise Closed	Cold Shutdown
					Exercise Open	Cold Shutdown
			Appendix J LLRT	App J Option B - 24 months up to 60 months with 15 month grace based on performance	Appendix J LLRT	App J Option B - 24 months up to 60 months with 15 month grace based on performance
			PIV Seat Leakage	2 Yrs	PIV Seat Leakage	Similar to App J Option B - 24 months up to 60 months with 15 month grace based on performance
			GL 96-05 Diagnostic Test	IAW GL 96-05	OMN-1 Diagnostic Test	IAW OMN-1
			Position Indication Test	2 Yrs	Position Indication Test (PIT) will be performed as part of Diagnostic Test per OMN-1	
1(2)-1001-050-MO	Gate	Both	Stroke Time Closed	Cold Shutdown	Exercise Closed	Cold Shutdown
					Exercise Open	Cold Shutdown
			Appendix J LLRT	App J Option B - 24 months up to 60 months with 15 month grace based on performance	Appendix J LLRT	App J Option B - 24 months up to 60 months with 15 month grace based on performance
			PIV Seat Leakage	2 Yrs	PIV Seat Leakage	Similar to App J Option B - 24 months up to 60 months with 15 month grace based on performance

ATTACHMENT 1

Response to Request for Additional Information
10-Year Inservice Testing Program Interval

Component	Valve Type	CIV, PIV, Both	Current Testing for 4th Interval		Proposed Testing for 5th Interval	
			Test	Frequency	Test	Frequency
			GL 96-05 Diagnostic Test	IAW GL 96-05	OMN-1 Diagnostic Test	IAW OMN-1
			Position Indication Test	2 Yrs	Position Indication Test (PIT) will be performed as part of Diagnostic Test per OMN-1	
1(2)-1001-029A/B-MO	Gate	Both	Stroke Time Open	Quarterly	Exercise Closed	< 24 months (Per OMN-1)
			Stroke Time Closed	Quarterly	Exercise Open	< 24 months (Per OMN-1)
			Appendix J LLRT	App J Option B - 24 months up to 60 months with 15 month grace based on performance	Appendix J LLRT	App J Option B - 24 months up to 60 months with 15 month grace based on performance
			PIV Seat Leakage	2 Yrs	PIV Seat Leakage	Similar to App J Option B - 24 months up to 60 months with 15 month grace based on performance
			GL 96-05 Diagnostic Test	IAW GL 96-05	OMN-1 Diagnostic Test	IAW OMN-1
			Position Indication Test	2 Yrs	Position Indication Test (PIT) will be performed as part of Diagnostic Test per OMN-1	
1(2)-1001-068A/B	Check	PIV	Exercise Open	Cold Shutdown	Exercise Open	Refuel
			Exercise Closed	Cold Shutdown	Exercise Closed	Refuel
			Position Indication (PIT)	2 Yrs	Position Indication (PIT)	2 Yrs
			PIV Seat Leakage	2 Yrs	PIV Seat Leakage	Similar to App J Option B - 24 months up to 60 months with 15 month grace based on performance

ATTACHMENT 1

Response to Request for Additional Information
10-Year Inservice Testing Program Interval

Component	Valve Type	CIV, PIV, Both	Current Testing for 4^{th} Interval		Proposed Testing for 5^{th} Interval	
			Test	Frequency	Test	Frequency
1(2)-1402-025A/B-MO	Gate	Both	Stroke Time Open	Quarterly	Stroke Time Open	< 24 months (Per OMN-1)
			Stroke Time Closed	Quarterly	Stroke Time Closed	< 24 months (Per OMN-1)
			Appendix J LLRT	App J Option B - Currently at 60 months with 15 month grace	Appendix J LLRT	App J Option B - 24 months up to 60 months with 15 month grace based on performance
			PIV Seat Leakage	2 Yrs	PIV Seat Leakage	Similar to App J Option B - 24 months up to 60 months with 15 month grace based on performance
			IAW OMN-1	GL 96-05 Diagnostic Test	IAW GL 96-05	OMN-1 Diagnostic Test
			Position Indication Test	2 Yrs	Position Indication Test (PIT) will be performed as part of Diagnostic Test per OMN-1	
1(2)-1402-009A/B	Check	PIV	Exercise Open	Cold Shutdown	Exercise Open	Cold Shutdown
			Exercise Closed	2 Yrs	Exercise Closed	IAW Condition Monitoring Plan
			PIV Seat Leakage	2 Yrs	PIV Seat Leakage	Similar to App J Option B - 24 months up to 60 months with 15 month grace based on performance

<u>RAI RV-03-2:</u>

In the "Reason for Request," section of the noted reference, the third paragraph, fifth and sixth sentences state that "The functional testing of the PIV check valves will be monitored through a Condition Monitoring Plan in accordance with ISTC-5222, "Condition-Monitoring Program," and Mandatory Appendix II, "Check Valve Condition Monitoring Program." Performance of the separate 2-year PIV leak rate testing does not contribute any additional assurance of functional capability; it only determines the seat tightness of the closed valves.

The use of a "Check Valve Conditioning Program," allows for testing of a check valve (group of one valve) extension of up to once in a 10-year interval. Please describe if allowing check valve testing once every 10 years, along with the proposed extension of leak rate testing (based on the Nuclear Energy Institute 94-01 "Industry Guideline for Implementing Performance Based Option of 10 CPR Part 50, Appendix J", to once every 54 months in lieu of 18 months) assures functional capability and operational readiness of these valves.

Response:

The functional capability of check valves 1(2)-1001-068A/B is demonstrated by the opening and closing of the valves using a valve actuator each refuel outage. This test is separate and distinct from the PIV testing; therefore, there is no need for a Condition Monitoring Plan for these valves.

The functional capability of check valves 1(2)-1402-009A/B is demonstrated by:

1. The injection of Core Spray Flow into the Reactor Vessel on a Cold Shutdown frequency verifies the valves capability of opening.

2. The capability of building pressure against the valve during Pressure Isolation Valve Seat Leakage Testing verifies the valves are closed.

These tests provide reasonable assurance of operational readiness.

Note that NEI 94-01 is not the sole basis for this relief request given NEI 94-01 does not address seat leakage testing with water. This document was cited as an approach similar to the requested alternative method.

If the proposed alternative is approved and the valves exhibit good performance, there is the possibility that the PIV test frequency could be extended so that the test would not be required each refuel outage. However, since these valves can only be verified for closure by establishing pressure against the valve disc; current code requirements in ISTC-3522 would require a closure test every refuel negating the intended dose and resource savings.

It is not intended to extend check valve testing to once every 10 years by means of a Condition Monitoring Plan. The use of a Condition Monitoring Plan is intended to align the frequency for the closure exercise testing with the pressure isolation valve test. By use of a Condition Monitoring Plan, the check valve closure test, based on performance, would be verified concurrently with the PIV seat leakage test. The frequency of the check valve closure test would then be the same as the PIV seat leakage test since closure performance and seat leakage performance are linked. The PIV seat leakage test would not pass if the valve failed to close.

RAI RV-03-3:

In the noted reference, Section 5, "Proposed Alternative and Basis for Use," the second paragraph, states that "the primary basis for this relief request is historically good performance *of the PIVs."*

(a) Please provide the historical data of good performance that supports this statement.

(b) Please provide an explanation for how many successful PIV leakage tests will be required before the test frequency can be extended?

Response to Item (a):

The following tables present test data that demonstrate acceptable historical PIV performance for the Residual Heat Removal (RHR) and Core Spray (CS) systems.

Note that for the following PIVs: RHR Shutdown Cooling Suction (MO 1(2)-1001-47, MO 1(2)-1001-50), Core Spray Injection (MO 1(2)-1402-25A/B), and RHR Injection (MO 1(2)-1001-29A/B), PIV data is not available prior to 2006. A 2005 self assessment performed on the IST program identified deficiencies in how the station conducted PIV tests on certain Motor Operated PIVs. The assessment concluded that the station inappropriately credited Appendix J Type C tests to verify the seat tightness of these valves. These deficiencies were entered into the Corrective Action Program and measures were taken to align the PIV testing with the OM Code requirements. The following table denotes three test failure; these failures occurred at low test pressure (approximately 100 lbs).

RHR Shutdown Cooling Suction PIVs

Valve	Date of Test	Measured Value (gpm)	Required Action Limit (gpm)	Comments
1-1001-047-MO	5/10/2007	2	5	
1-1001-047-MO	5/7/2009	0.39	5	
1-1001-047-MO	5/15/2011	0.1216	5	
1-1001-050-MO	5/10/2007	0.6	5	
1-1001-050-MO	5/7/2009	No Measurable Leakage	5	
1-1001-050-MO	5/15/2011	No Measurable Leakage	5	
1-1001-050-MO	5/27/2011	No Measurable Leakage	5	
2-1001-047-MO	4/1/2006	0.0777	5	
2-1001-047-MO	3/7/2008	0.04	5	
2-1001-047-MO	3/23/2010	3.063	5	
2-1001-047-MO	3/23/2012	0.282	5	
2-1001-050-MO	4/1/2006	No Measurable Leakage	5	
2-1001-050-MO	3/7/2008	No Measurable Leakage	5	
2-1001-050-MO	3/23/2010	No Measurable Leakage	5	
2-1001-050-MO	3/23/2012	0.744	5	

ATTACHMENT 1

Response to Request for Additional Information
10-Year Inservice Testing Program Interval

Core Spray Injection PIVs

Valve	Date of Test	Measured Value (gpm)	Required Action Limit (gpm)	Comments
1-1402-025A-MO	5/12/2007	No Measurable Leakage	5	
1-1402-025A-MO	5/12/2009	0.086	5	
1-1402-025A-MO	5/15/2011	0.22	5	
1-1402-025B-MO	5/12/2007	No Measurable Leakage	5	
1-1402-025B-MO	4/28/2009	2.18	5	
1-1402-025B-MO	5/15/2011	0.003	5	
2-1402-025A-MO	3/27/2006	No Measurable Leakage	5	
2-1402-025A-MO	3/5/2008	No Measurable Leakage	5	
2-1402-025A-MO	4/4/2010	No Measurable Leakage	5	
2-1402-025A-MO	3/21/2012	0.0013	5	
2-1402-025B-MO	4/5/2006	No Measurable Leakage	5	
2-1402-025B-MO	3/11/2008	No Measurable Leakage	5	
2-1402-025B-MO	3/21/2010	No Measurable Leakage	5	
2-1402-025B-MO	3/31/2012	0.0011	5	

RHR LPCI Injection PIVs

Valve	Date of Test	Measured Value (gpm)	Required Action Limit (gpm)	Comments
1-1001-029A-MO	5/14/2007	No Measurable Leakage	5	
1-1001-029A-MO	5/7/2009	No Measurable Leakage	5	
1-1001-029A-MO	5/21/2011	2.89	5	
1-1001-029B-MO	5/13/2007	No Measurable Leakage	5	
1-1001-029B-MO	4/29/2009	No Measurable Leakage	5	
1-1001-029B-MO	5/23/2011	No Measurable Leakage	5	
2-1001-029A-MO	4/3/2006	0.2	5	
2-1001-029A-MO	3/10/2008	No Measurable Leakage	5	
2-1001-029A-MO	3/29/2010	0.097	5	
2-1001-029A-MO	3/23/2012	1.146	5	
2-1001-029B-MO	4/4/2006	No Measurable Leakage	5	
2-1001-029B-MO	3/13/2008	No Measurable Leakage	5	
2-1001-029B-MO	3/18/2010	No Measurable Leakage	5	
2-1001-029B-MO	3/30/2012	0.0081	5	

ATTACHMENT 1

Response to Request for Additional Information
10-Year Inservice Testing Program Interval

Core Spray PIVs

Valve EPN	Date of Test	Measured Value (gpm)	Required Action Limit (gpm)	Comments
1-1402-009A	7/15/1994	No Measurable Leakage	1	
1-1402-009A	3/30/1996	No Measurable Leakage	5	
1-1402-009A	11/19/1998	0.69	5	
1-1402-009A	10/18/2000	1.2	5	
1-1402-009A	4/1/2005	No Measurable Leakage	5	
1-1402-009A	5/12/2007	1.1	5	
1-1402-009A	5/12/2009	1.43	5	
1-1402-009A	5/15/2011	0.9226	5	
1-1402-009B	7/15/1994	No Measurable Leakage	1	
1-1402-009B	3/13/1996	2.86	5	
1-1402-009B	10/22/2000	7.364	5	Valve not seated properly.
1-1402-009B	10/24/2000	4.87	5	Retest
1-1402-009B	11/5/2002	4.8	5	
1-1402-009B	3/21/2005	1.43	5	
1-1402-009B	5/12/2007	3.16	5	
1-1402-009B	4/28/2009	2.18	5	
1-1402-009B	5/15/2011	5.368	5	Valve not seated properly.
1-1402-009B	5/25/2011	4.46	5	Retest
1-1402-009B	5/27/2011	No Measurable Leakage	5	Retest with high pressure.
2-1402-009A	7/2/1995	0.25	5	
2-1402-009A	4/10/1997	No Measurable Leakage	5	
2-1402-009A	2/21/1999	No Measurable Leakage	5	
2-1402-009A	1/31/2000	No Measurable Leakage	5	
2-1402-009A	2/17/2002	44.3	5	Valve not seated properly.
2-1402-009A	2/19/2002	No Measurable Leakage	5	Retest following seating of valve.
2-1402-009A	3/27/2006	No Measurable Leakage	5	
2-1402-009A	3/5/2008	No Measurable Leakage	5	
2-1402-009A	4/4/2010	No Measurable Leakage	5	
2-1402-009A	3/21/2012	0.000461	5	
2-1402-009B	7/2/1995	No Measurable Leakage	5	
2-1402-009B	4/10/1997	0.125	5	
2-1402-009B	2/25/1999	0.68	5	
2-1402-009B	1/31/2000	No Measurable Leakage	5	
2-1402-009B	2/15/2002	No Measurable Leakage	5	

ATTACHMENT 1

Response to Request for Additional Information
10-Year Inservice Testing Program Interval

Valve EPN	Date of Test	Measured Value (gpm)	Required Action Limit (gpm)	Comments
2-1402-009B	2/17/2002	No Measurable Leakage	5	
2-1402-009B	2/25/2004	No Measurable Leakage	5	
2-1402-009B	3/9/2004	No Measurable Leakage	5	
2-1402-009B	4/5/2006	0.19	5	
2-1402-009B	3/11/2008	0.35	5	
2-1402-009B	3/21/2010	0.7	5	
2-1402-009B	3/31/2012	No Measurable Leakage	5	

RHR PIVs

Valve	Date of Test	Measured Value (gpm)	Required Action Limit (gpm)	Comments
1-1001-068A	7/18/1994	No Measurable Leakage	1	
1-1001-068A	2/10/1996	No Measurable Leakage	5	
1-1001-068A	11/20/1998	No Measurable Leakage	5	
1-1001-068A	4/2/2005	No Measurable Leakage	5	
1-1001-068A	5/14/2007	No Measurable Leakage	5	
1-1001-068A	5/7/2009	No Measurable Leakage	5	
1-1001-068A	5/21/2011	0.278	5	
1-1001-068B	7/18/1994	No Measurable Leakage	1	
1-1001-068B	3/31/1996	No Measurable Leakage	5	
1-1001-068B	4/2/2005	1.35	5	
1-1001-068B	5/13/2007	0.33	5	
1-1001-068B	4/29/2009	No Measurable Leakage	5	
1-1001-068B	5/23/2011	0.346	5	
2-1001-068A	7/2/1995	No Measurable Leakage	5	
2-1001-068A	4/17/1997	No Measurable Leakage	5	
2-1001-068A	2/20/1999	1.3	5	
2-1001-068A	1/26/2000	No Measurable Leakage	5	
2-1001-068A	2/22/2002	No Measurable Leakage	5	
2-1001-068A	4/3/2006	No Measurable Leakage	5	
2-1001-068A	3/10/2008	No Measurable Leakage	5	
2-1001-068A	3/29/2010	No Measurable Leakage	5	
2-1001-068A	3/23/2012	No Measurable Leakage	5	
2-1001-068B	7/2/1995	No Measurable Leakage	5	
2-1001-068B	4/10/1997	No Measurable Leakage	5	
2-1001-068B	2/25/1999	No Measurable Leakage	5	

Valve	Date of Test	Measured Value (gpm)	Required Action Limit (gpm)	Comments
2-1001-068B	2/1/2000	No Measurable Leakage	5	
2-1001-068B	2/15/2002	No Measurable Leakage	5	
2-1001-068B	4/4/2006	No Measurable Leakage	5	
2-1001-068B	3/13/2008	0.33	5	
2-1001-068B	3/18/2010	No Measurable Leakage	5	
2-1001-068B	3/30/2012	0.29	5	

Response to Item (b):

The extension of test frequencies will be consistent with the guidance provided for Appendix J, Type C leak rate tests as detailed in paragraph 10.2.3.2, "Extended Test Interval," of NEI 94-01 "Nuclear Energy Institute - Industry Guideline for Implementing Performance Based Option of 10 CFR Part 50, Appendix J," which states:

Test intervals for Type C valves may be increased based upon completion of two consecutive periodic as-found Type C tests where the result of each test is within a licensee's allowable administrative limits. Elapsed time between the first and last tests in a series of consecutive passing tests used to determine performance shall be 24 months or the nominal test interval (e.g., refueling cycle) for the valve prior to implementing Option B to Appendix J. Intervals for Type C testing may be increased to a specific value in a range of frequencies from 30 months up to a maximum of 60 months (as limited by Regulatory Guide 1.163, "Performance Based Containment Leak-Test Program"). Test intervals for Type C valves are determined in accordance with Section 11.0 of NEI 94-01.

RAI RV-05-1:

Please define the length of time QCNPS has between refueling outages (e.g., 18 months or 24 months).

Response:

The length of time between refueling outages at QCNPS is 24 months.

RAI RV-05-2:

Please describe the historical cumulative radiation exposure for removal and replacement of the main steam safety valves (MSSVs), and the expected radiation exposure using the proposed alternative method.

Response:

The proposed relief has no impact on cumulative radiation exposure (i.e., the number of MSSVs removed and replaced each refueling is unaffected). However, as noted in the relief request, to support replacement activities four spare MSSVs are required to be certified prior to the refuel outage during which they will be installed. These spare MSSVs are initially certified tested immediately after refurbishment and placed into storage. In order to meet the five year test-to-test interval requirement, each spare MSSV requires a second certification test immediately prior to a refuel outage to mitigate the time the valve spent in storage. The proposed relief extends the testing interval from five to six years (with a grace period of six months) allowing additional time for the spare MSSVs to reside in storage after the initial certification test, negating the need for recertification immediately prior to installation. Quad Cities does not have the facilities to perform MSSV certification testing. The proposed relief request reduces the number of recertification tests and reduces the potential for disc/seat damage due to these additional tests.

RAI RV-05-3:

The request describes IST results for the MSSVs from 1997 to the present. Please provide the IST results for the MSSVs, prior to 1997, if available.

Response:

While MSSV test data is available prior to 1997, performance in this timeframe is not indicative of the current MSSV performance. Since that time, changes in refurbishment methods, testing methods, and improvements in reducing main steam system vibration (through the Acoustic Side Branch modification) have had a positive impact on MSSV performance. Therefore the MSSV performance prior to 1997 is not relevant to this relief request.

RAI RV-05-4:

The request states that, "This alternative is consistent with the alternative provided in ASME Code Case OMN-17, 'Alternative Rules for Testing ASME Class 1 Pressure Relief/Safety Valves,' Section 1, 'Test Frequencies, Class 1 Pressure Relief Valves,' Paragraph (a) 72-month Interval." Please confirm that the alternative complies with paragraph (b) of Code Case OMN-17.

Response:

Paragraph (b) of Code Case OMN-17 states:

(b) Replacement With Pretested Valves. The Owner may satisfy testing requirements by installing pretested valves to replace valves that have been in service, provided that

(1) for replacement of a partial complement of valves, the valves removed from service shall be tested prior to resumption of electric power generation and shall be subjected to the maintenance specified in subpara. (d); or
(2) for replacement of a full complement of valves, the valves removed from service shall be tested within 24 mo of removal from the system.

Quad Cities removes a partial complement of MSSVs each refueling outage and ships them to an ASME OM Code-certified vendor to perform as-found testing prior to resumption of electric power generation. The vendor also performs the inspection, refurbishment, and as-left testing that meet the maintenance requirements specified in subparagraph (d) of OMN-17. For these reasons, the proposed alternative complies with paragraph (b) of Code Case OMN-17.

RAI RV-06-1:

It is stated in the alternative request that the removal and testing of additional valves due to sample expansion would delay unit startup from refueling outages by at least several days, and that this represents a significant hardship. Please describe why this would represent a significant hardship.

Response:

The information provided below provides additional detail regarding the impact of a typical refuel outage schedule in the event that expanded testing is required. The MSSV work starts approximately on the second day of a refueling outage. It takes three to four days to remove the valves from the Drywell and prepare them for shipment. The valves are shipped to an off-site vendor facility for as-found testing. Shipping and testing of the valves typically takes two to three days. The as-found results are then reported and scope expansion is determined. If scope expansion requires the remaining four MSSVs to be replaced, this will take approximately six to eight days (including removal and installation activities) provided sufficient resources and valve access are readily available. During a typical outage, this additional work scope would be at or near 'critical path' and result in a corresponding push to unit restart. In the event the remaining four MSSVs would be required to be replaced, then an approximate 6.4 REM and 876 resource-hours would be required to complete the evolution. This estimate was calculated using the dose and resource-hour data from the previous six refueling outages. The relief request is intended to decrease the likelihood of an unplanned scope expansion and corresponding restart delays by preemptively removing and testing 50% of the MSSVs during each refuel outage.

RAI RV-06-2:

The proposed alternative states that the dual function safety/relief valve, and at least half of the eight MSSVs, would be removed and tested during each reactor refueling outage. Proposed alternative RV-05 is requesting to only remove and test a minimum of 20 percent of the MSSVs during each reactor refueling outage. Please describe why the number of MSSVs to be removed and tested differs in the two alternative requests.

Response:

RV-06 presents the actual station practice for MSSV testing, which includes the removal of at least half of the eight MSSVs each refueling outage (for a total of four valves). The proposed alternative for RV-05 (i.e., test frequency extension from five year to six year 'test-to-test') is quoting OMN-17, noting a minimum of 20% of the pressure relief valves will be tested within any 24-month interval. Testing at least half of the eight MSSVs each refueling outage continues to meet the "minimum of 20 percent of the MSSVs" requirement of OMN-17 as stated in RV-05.

ATTACHMENT 2

Revised Relief Request RV-01

1. **ASME Code Components Affected**

All Pumps and Valves contained within the Inservice Testing Program scope.

2. **Applicable Code Edition and Addenda**

ASME OM Code 2004 Edition through 2006 Addenda

3. **Applicable Code Requirement**

This request applies to the frequency specifications of the ASME OM Code. The frequencies for tests given in the ASME OM Code do not include a tolerance band.

ISTA-3120(a) -	"The frequency for the inservice testing shall be in accordance with the requirements of Section IST."
ISTB-3400 -	Frequency of Inservice Tests
ISTC-3510 -	Exercising Test Frequency
ISTC-3540 -	Manual Valves
ISTC-3630(a) -	Frequency
ISTC-3700 -	Position Verification Testing
ISTC-5221(c)(3) -	"At least one valve from each group shall be disassembled and examined at each refueling outage; all valves in a group shall be disassembled and examined at least once every 8 years."
Appendix I, I-1320 -	Test Frequencies, Class 1 Pressure Relief Valves
Appendix I, I-1330 -	Test Frequencies, Class 1 Nonreclosing Pressure Relief Devices
Appendix I, I-1340 -	Test Frequencies - Class 1 Pressure Relief Valves that are used for Thermal Relief Application
Appendix I, I-1350 -	Test Frequencies - Class 2 and 3 Pressure Relief Valves

Appendix I, I-1360 -	Test Frequencies - Class 2 and 3 Nonreclosing Pressure Relief Devices
Appendix I, I-1370 -	Test Frequencies - Class 2 and 3 Primary Containment Vacuum Relief Valves
Appendix I, I-1380 -	Test Frequencies - Class 2 and 3 Vacuum Relief Valves Except for Primary Containment Vacuum Relief Valves
Appendix I, I-1390 -	Test Frequencies - Class 1 Pressure Relief Valves that are used for Thermal Relief Application
Appendix II, II-4000(a)(1) -	Performance Improvement Activities Interval
Appendix II, II-4000(b)(1)(e) -	Optimization of Condition Monitoring Activities Interval

4. <u>Reason for Request</u>

Pursuant to 10 CFR 50.55a, "Codes and standards," paragraph (a)(3)(ii), relief is requested from the frequency specifications of the ASME OM Code. The basis of the relief request is that the Code requirement presents an undue hardship without a compensating increase in the level of quality or safety.

ASME OM Code Section IST establishes the inservice test frequency for all components within the scope of the Code. The frequencies (e.g., quarterly) have always been interpreted as "nominal" frequencies (generally as defined in the Table 3.2 of NUREG 1482, Revision 1) and Owners routinely applied the surveillance extension time period (i.e., grace period) contained in the plant Technical Specifications (TS) Surveillance Requirements (SRs). The TS typically allow for a less than or equal to 25% extension of the surveillance test interval to accommodate plant conditions that may not be suitable for conducting the surveillance (SR 3.0.2). However, regulatory issues have been raised concerning the applicability of the TS "Grace Period" to ASME OM Code required inservice test frequencies irrespective of allowances provided under TS Administrative Controls (i.e., TS 5.5.6, "Inservice Testing Program," invokes SR 3.0.2 for various OM Code frequencies).

The lack of a tolerance band on the ASME OM Code inservice test frequency restricts operational flexibility. There may be a conflict where a surveillance test could be required (i.e., its Frequency could expire), but where it is not possible or not desired that it be performed until sometime after a plant condition or associated Limiting Condition for Operation (LCO) is within its applicability. Therefore, to avoid this conflict, the surveillance test should be performed when it can be and should be performed.

The NRC recognized this potential issue in the TS by allowing a frequency tolerance as described in TS SR 3.0.2. The lack of a similar tolerance applied to OM Code testing places an unusual hardship on the plant to adequately schedule work tasks without operational flexibility.

Thus, just as with TS required surveillance testing, some tolerance is needed to allow adjusting OM Code testing intervals to suit the plant conditions and other maintenance and testing activities. This assures operational flexibility when scheduling surveillance tests that minimize the conflicts between the need to complete the surveillance and plant conditions.

5. Proposed Alternative and Basis for Use

IST and earlier editions and addenda of ASME OM Code specify component test frequencies based either on elapsed time periods (e.g., quarterly, 2 years, etc.) or based on the occurrence of plant conditions or events (e.g., cold shutdown, refueling outage, upon detection of a sample failure, following maintenance, etc.).

a) Components whose test frequencies are based on elapsed time periods shall be tested at the frequencies specified in Section IST with a specified time period between tests as shown in the table below. The specified time period between tests may be reduced or extended as follows:

   1) For periods specified as less than 2 years, the period may be extended by up to 25% for any given test.

   2) For periods specified as greater than or equal to 2 years, the period may be extended by up to 6 months for any given test.

   3) All periods specified may be reduced at the discretion of the owner (i.e., there is no minimum period requirement).

Period extension is to facilitate test scheduling and considers plant operating conditions that may not be suitable for performance of the required testing (e.g., performance of the test would cause an unacceptable increase in the plant risk profile due to transient conditions or other ongoing surveillance, test or maintenance activities). Period extensions are not intended to be used repeatedly merely as an operational convenience to extend test intervals beyond those specified.

Period extensions may also be applied to accelerated test frequencies (e.g., pumps in Alert Range) and other less than two year test frequencies not specified in the table below.

Period extensions may not be applied to the test frequency requirements specified in Subsection ISTD, Preservice and Inservice Examination and Testing of Dynamic Restraints (Snubbers) in Light-water Reactor Nuclear Power Plants, as Subsection ISTD contains its own rules for period extensions.

Frequency	Specified Time Period Between Tests
Quarterly (or every 3 months)	92 days
Semiannually (or every 6 months)	184 days
Annually (or every year)	366 days
x Years	x calendar years where 'x' is a whole number of years ≥ 2

b) Components whose test frequencies are based on the occurrence of plant conditions or events may not have their period between tests extended except as allowed by ASME OM Code 2004 Edition through OMb-2006 Addenda and earlier editions and addenda of ASME OM Code.

6. Duration of Proposed Alternative

The proposed alternative will be utilized for the entire Fifth 120 month Interval beginning February 18, 2013.

7. Precedent

Generic relief has not been specifically granted to apply a tolerance band to the ASME OM code required test frequencies. The NRC has previously accepted the application of TS SR 3.0.2 tolerances to selected OM Code frequencies as denoted in TS 5.5.6.

The prior NRC acceptance of the practice of applying TS tolerances to ASME OM code required test frequencies provides equivalent precedence for accepting and approving this relief request.

8. References

a. Quad Cities TS Section 1.4 – Frequency
b. Quad Cities TS Section 5.5.6 – Inservice Testing Program
c. Quad Cities TS SR 3.0.2 – Specified Frequency (25% Grace Period)
d. Quad Cities TS SR 3.0.4 – Mode Entry Requirements

ATTACHMENT 3

Revised Relief Request RV-06

10 CFR 50.55a Request Number RV-06

Relief Requested
In Accordance with 10 CFR 50.55a(a)(3)(ii)
Hardship or Unusual Difficulty Without Compensating
Increase in Level of Quality or Safety

1. ASME Code Components Affected

Component Number	System	Code Class	Category
1-0203-004A	Main Steam	1	C
1-0203-004B	Main Steam	1	C
1-0203-004C	Main Steam	1	C
1-0203-004D	Main Steam	1	C
1-0203-004E	Main Steam	1	C
1-0203-004F	Main Steam	1	C
1-0203-004G	Main Steam	1	C
1-0203-004H	Main Steam	1	C
2-0203-004A	Main Steam	1	C
2-0203-004B	Main Steam	1	C
2-0203-004C	Main Steam	1	C
2-0203-004D	Main Steam	1	C
2-0203-004E	Main Steam	1	C
2-0203-004F	Main Steam	1	C
2-0203-004G	Main Steam	1	C
2-0203-004H	Main Steam	1	C

2. Applicable Code Edition and Addenda

ASME OM Code 2004 Edition through 2006 Addenda

3. Applicable Code Requirement

Appendix I, I-1320(c) – Requirements for Testing Additional Valves

4. Reason for Request

Pursuant to 10 CFR 50.55a, "Codes and standards," paragraph (a)(3)(ii), relief is requested from the requirement of ASME OM Code, Appendix I, I-1320(c). The basis of the relief request is that the Code requirement presents an undue hardship without a compensating increase in the level of quality or safety.

These main steam safety valves are used to terminate an abnormal pressure increase in the reactor vessel and the reactor coolant pressure boundary (i.e., they provide overpressure protection).

The physical locations of the safety valves cause them to interfere with one another during transport of the valves in and out of containment. In order to create a transport path, at least half of the subject valves are removed, tested and rebuilt during each refueling outage. This accelerated maintenance schedule provides a high level of assurance that these safety valves will perform their safety function.

Quad Cities Nuclear Power Station does not have the facilities required to perform set-point tests on large relief and safety valves. These valves are unbolted from their mounting flanges, decontaminated, and shipped to an off-site test facility. Because of the lengthy period required for removal, transportation, testing and re-installation, the removal and testing of additional valves due to sample expansion would delay unit start-up from refueling outages by at least several days. This represents a significant hardship.

The sample expansion requirements of Appendix I would require two additional valves be tested if one valve failed its set-point test. Since no less than four of the safety valves are tested during each outage, the valves already being tested represent an increased (>20% of group) sample population. Therefore, based on the larger initial sample size (4 vs. a minimum of 2 required), accelerated maintenance schedule, and the hardship associated with pulling additional valves, no additional valves will be tested if only one valve fails the set-point test. This methodology also ensures that 100% of the population is tested every five years.

5. Proposed Alternative and Basis for Use

At least half of the eight safety valves will be removed and tested during each reactor refueling outage. If only one of the four safety valves removed for testing fails its set-point test, additional safety valves will not be tested. If more than one safety valve fails its as-found initial setpoint test, the sample expansion criteria of Appendix I, 1320(c)(2) will be implemented.

6. Duration of Proposed Alternative

The proposed alternative will be utilized for the entire Fifth 120 month Interval beginning February 18, 2013.

7. Precedents

This relief request was previously approved for Quad Cities Nuclear Power Station Units 1 and 2 for the Fourth 120 month Interval (Relief Request RV-30B) in letter from A. Mendiola (U.S. NRC) to C. Crane (Exelon Generation), "Quad Cities Nuclear Power Station, Units 1 and 2 – Fourth 10-Year Inservice Testing Program Relief Requests," dated February 20, 2004.

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

September 12, 2012

Mr. Michael J. Pacilio
Senior Vice President
Exelon Generation Company, LLC
President and Chief Nuclear Officer (CNO)
Exelon Nuclear
4300 Winfield Road
Warrenville, IL 60555

SUBJECT: QUAD CITIES NUCLEAR POWER STATION, UNITS 1 AND 2 - REQUEST FOR ADDITIONAL INFORMATION RELATED TO RELIEF REQUEST RV-01, RV-03, RV-05, AND RV-06 (TAC NOS. ME7983, ME7984, ME7987, ME7988, ME7992, ME7993, ME7994, AND ME7995)

Dear Mr. Pacilio:

By letter to the U.S. Nuclear Regulatory Commission (NRC) dated February 15, 2012 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML12046A334), Exelon Generation Company, LLC submitted "Relief Requests Associated with Fifth Inservice Testing Interval," for Quad Cities Nuclear Power Station, Units 1 and 2.

The NRC staff is reviewing your submittal and has determined that additional information is required to complete the review. The specific information requested is addressed in the enclosure to this letter. During a request for additional information (RAI) clarification call with Dave Gullott of your staff on August 10, 2012, it was agreed that you would provide a response by September 17, 2012.

The NRC staff considers that timely responses to requests for additional information help ensure sufficient time is available for staff review and contribute toward the NRC's goal of efficient and effective use of staff resources. If circumstances result in the need to revise the requested response date, please contact me at (301) 415-1055.

Sincerely,

Nichole Sm for

Brenda Mozafari, Senior Project Manager
Plant Licensing Branch III-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-254 and 50-265

Enclosure:
Request for Additional Information
cc w/encl: Listserv

REQUEST FOR ADDITIONAL INFORMATION

QUAD CITIES NUCLEAR POWER STATION, UNITS 1 AND 2

RELIEF REQUEST RV-01, RV-03, RV-05, AND RV-06

DOCKET NOS. 50-254 AND 50-265

TAC NOS. ME7983, ME7984, ME7987, ME7988,

ME7992, ME7993, ME7994, AND ME7995

In reviewing the Exelon Generation Company's (Exelon's) submittal to the U.S. Nuclear Regulatory Commission (NRC), dated February 15, 2012 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML12046A334), related to submittal of "Relief Requests: Associated with Fifth Inservice Testing Interval," for the Quad Cities Nuclear Power Station, Units 1 and 2 (QCNPS), the NRC staff has determined that the following information is needed in order to complete its review:

RAI RV-01-1:
The alternative identified in Section 5 for relief request (RR) RV-01 is based on, but reads differently than, the code case for inservice test (IST) frequency approved by the American Society of Mechanical Engineers (ASME) Operations and Maintenance (OM) Code Standards Committee. (This code case was approved for use by the ASME OM Standards Committee and the ASME Board of Nuclear Codes and Standards and is currently identified by ASME according to its Record Number 10-1992. This code case will carry a conventional number (OMN-xx) when it is published with the next OM Code edition.)

Describe whether it is Exelon's intent to adopt all of the language of the approved Code Case 10-1992, for the fifth inservice testing interval at QCNPS, as an alternative to the current IST frequency requirements listed in the QCNPS, technical specifications and the guidance provided in NRC NUREG-1482, Revision 1.

RAI RV-03-1:
In the noted reference for RR RV-03, Section 4, "Reason for Request," the second paragraph, third sentence, states that "While the motor-operated Pressure Indicating Valves (PIVs) affected by this relief request are also containment isolation valves (CIVs) and tested in accordance with the Appendix J program, the check valve PIVs are not CIVs and not within the Appendix J scope." The RR does not provide any details (i.e., CIVs, PIVs, or check valve etc.) for the components listed in Section 1 of the RR.

(a) Please specify whether the listed valves are CIVs, PIVs, or check valves.

(b) Please provide the current frequency used at QCNPS for (1) functional testing and/or position indicator testing of the PIVs, and (2) leak rate testing of the PIVs.

RAI RV-03-2:
In the "Reason for Request," section of the noted reference, the third paragraph, fifth and sixth sentences state that "The functional testing of the PIV check valves will be monitored through a Condition Monitoring Plan in accordance with ISTC-5222, "Condition-Monitoring Program," and Mandatory Appendix II, "Check Valve Condition Monitoring Program." Performance of the separate 2-year PIV leak rate testing does not contribute any additional assurance of functional capability; it only determines the seat tightness of the closed valves.

The use of a "Check Valve Conditioning Program," allows for testing of a check valve (group of one valve) extension of up to once in a 10-year interval. Please describe if allowing check valve testing once every 10 years, along with the proposed extension of leak rate testing (based on the Nuclear Energy Institute 94-01 "Industry Guideline for Implementing Performance Based Option of 10 CPR Part 50, Appendix J", to once every 54 months in lieu of 18 months) assures functional capability and operational readiness of these valves.

RAI RV-03-3:
In the noted reference, Section 5, "Proposed Alternative and Basis for Use," the second paragraph, states that "the primary basis for this relief request is historically good performance of the PIVs."

(a) Please provide the historical data of good performance that supports this statement.

(b) Please provide an explanation for how many successful PIV leakage tests will be required before the test frequency can be extended?

RAI RV-05-1:
Please define the length of time QCNPS has between refueling outages (e.g., 18 months or 24 months).

RAI RV-05-2:
Please describe the historical cumulative radiation exposure for removal and replacement of the main steam safety valves (MSSVs), and the expected radiation exposure using the proposed alternative method.

RAI RV-05-3:
The request describes IST results for the MSSVs from 1997 to the present. Please provide the IST results for the MSSVs, prior to 1997, if available.

RAI RV-05-4:
The request states that, "This alternative is consistent with the alternative provided in ASME Code Case OMN-17, 'Alternative Rules for Testing ASME Class 1 Pressure Relief/Safety Valves,' Section 1, 'Test Frequencies, Class 1 Pressure Relief Valves,' Paragraph (a) 72-month Interval." Please confirm that the alternative complies with paragraph (b) of Code Case OMN-17.

RAI RV-06-1:

It is stated in the alternative request that the removal and testing of additional valves due to sample expansion would delay unit startup from refueling outages by at least several days, and that this represents a significant hardship. Please describe why this would represent a significant hardship.

RAI RV-06-2:

The proposed alternative states that the dual function safety/relief valve, and at least half of the eight MSSVs, would be removed and tested during each reactor refueling outage. Proposed alternative RV-05 is requesting to only remove and test a minimum of 20 percent of the MSSVs during each reactor refueling outage. Please describe why the number of MSSVs to be removed and tested differs in the two alternative requests.

Mr. Michael J. Pacilio
Senior Vice President
Exelon Generation Company, LLC
President and Chief Nuclear Officer (CNO)
Exelon Nuclear
4300 Winfield Road
Warrenville, IL 60555

SUBJECT: QUAD CITIES NUCLEAR POWER STATION, UNITS 1 AND 2 - REQUEST FOR ADDITIONAL INFORMATION RELATED TO RELIEF REQUEST RV-01, RV-03, RV-05, AND RV-06 (TAC NOS. ME7983, ME7984, ME7987, ME7988, ME7992, ME7993, ME7994, AND ME7995)

Dear Mr. Pacilio:

By letter to the U.S. Nuclear Regulatory Commission (NRC) dated February 15, 2012 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML12046A334), Exelon Generation Company, LLC submitted "Relief Requests Associated with Fifth Inservice Testing Interval," for Quad Cities Nuclear Power Station, Units 1 and 2.

The NRC staff is reviewing your submittal and has determined that additional information is required to complete the review. The specific information requested is addressed in the enclosure to this letter. During a request for additional information (RAI) clarification call with Dave Gullott of your staff on August 10, 2012, it was agreed that you would provide a response by September 17, 2012.

The NRC staff considers that timely responses to requests for additional information help ensure sufficient time is available for staff review and contribute toward the NRC's goal of efficient and effective use of staff resources. If circumstances result in the need to revise the requested response date, please contact me at (301) 415-1055.

Sincerely,

/ RA N.DiFrancesco for /

Brenda Mozafari, Senior Project Manager
Plant Licensing Branch III-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation
Docket Nos. 50-254 and 50-265

Enclosure:
Request for Additional Information
cc w/encl: Listserv

DISTRIBUTION:
PUBLIC
LPL3-2 R/F
RidsNrrLASRohrer Resource
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RidsNrrPMQuadCities Resource
RidsOgcRp Resource
RidsRgn3MailCenter Resource

ADAMS Accession No. ML 12240A056

OFFICE	LPL3-2/PM	LPL3-2/LA	LPL3-2/BC	LPL3-2/PM
NAME	NDiFrancesco	SRohrer	MDudek	BMozafari NDiFrancesco for
DATE	8/27/12	8/27/12	9/12/12	9/12/12

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February 15, 2012

10 CFR 50.55a

RS-12-026

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555-0001

Quad Cities Nuclear Power Station, Units 1 and 2
Renewed Facility Operating License Nos. DPR-29 and DPR-30
NRC Docket Nos. 50-254 and 50-265

Subject: Submittal of Relief Requests Associated with the Fifth Inservice Testing Interval

The purpose of this letter is to request approval of proposed relief requests in accordance with 10 CFR 50.55a, "Codes and standards." The attached relief requests are associated with the Fifth 10-Year Inservice Testing (IST) Program Interval for Quad Cities Nuclear Power Station (QCNPS). The Fifth 10-Year Interval begins on February 18, 2013 and is required by 10 CFR 50.55a(f)(4) to comply with the requirements of the American Society of Mechanical Engineers (ASME) Operation and Maintenance (OM) Code (2004 Edition through 2006 Addenda).

The QCNPS IST Fifth 10-year Interval will be in effect from February 18, 2013 to February 17, 2023. Accordingly, we request approval of the enclosed relief requests by February 18, 2013.

Should you have any questions concerning this letter, please contact Joseph A. Bauer at 630-657-2804.

Respectfully,

David M. Gullott
Manager – Licensing
Exelon Generation Company, LLC

Attachment: Quad Cities Nuclear Power Station Inservice Testing Program Fifth 10-Year Interval Proposed Relief Requests

cc: Regional Administrator – NRC Region III
NRC Senior Resident Inspector – Quad Cities Nuclear Power Station

ATTACHMENT

Quad Cities Nuclear Power Station
Inservice Testing Program Fifth 10-Year Interval
Proposed Relief Requests

Designator	Description	Comments
RV-01	Use of Tolerances for OM Code Test Frequencies	New relief request
RV-02	Use of Code Case OMN-1 (MOV Testing)	New relief request
RV-03	Pressure Isolation Valve (PIV) Leak Test Frequency Consistent with Appendix J, Option B	New relief request
RV-04	High Pressure Coolant Injection System Exhaust Line Drain Pot to Gland Seal Condenser Solenoid Valve Cannot be Stroke Timed	Approved for Fourth IST Interval
RV-05	Class 1 Pressure Relief Valves Test Frequency from 5-Year Test Interval to Six-Year Test Interval with 6-Month Grace	Approved for Fourth IST Interval
RV-06	Main Steam Safety Valve Set Point Testing, Additional Testing Requirements	Approved for Fourth IST Interval
RV-07	Main Steam Isolation Valve Technical Specification Stroke Time Limits in Lieu of ASME OM ISTC Stroke Time Limits	Approved for Fourth IST Interval

1. **ASME Code Components Affected**

All Pumps and Valves contained within the Inservice Testing Program scope.

2. **Applicable Code Edition and Addenda**

ASME OM Code 2004 Edition through 2006 Addenda

3. **Applicable Code Requirement**

This request applies to the frequency specifications of the ASME OM Code. The frequencies for tests given in the ASME OM Code do not include a tolerance band.

ISTA-3120(a) -	"The frequency for the inservice testing shall be in accordance with the requirements of Section IST."
ISTB-3400 -	Frequency of Inservice Tests
ISTC-3510 -	Exercising Test Frequency
ISTC-3540 -	Manual Valves
ISTC-3630(a) -	Frequency
ISTC-3700 -	Position Verification Testing
ISTC-5221(c)(3) -	"At least one valve from each group shall be disassembled and examined at each refueling outage; all valves in a group shall be disassembled and examined at least once every 8 years."
Appendix I, I-1320 -	Test Frequencies, Class 1 Pressure Relief Valves
Appendix I, I-1330 -	Test Frequencies, Class 1 Nonreclosing Pressure Relief Devices
Appendix I, I-1340 -	Test Frequencies - Class 1 Pressure Relief Valves that are used for Thermal Relief Application
Appendix I, I-1350 -	Test Frequencies - Class 2 and 3 Pressure Relief Valves

Appendix I, I-1360 -	Test Frequencies - Class 2 and 3 Nonreclosing Pressure Relief Devices
Appendix I, I-1370 -	Test Frequencies - Class 2 and 3 Primary Containment Vacuum Relief Valves
Appendix I, I-1380 -	Test Frequencies - Class 2 and 3 Vacuum Relief Valves Except for Primary Containment Vacuum Relief Valves
Appendix I, I-1390 -	Test Frequencies - Class 1 Pressure Relief Valves that are used for Thermal Relief Application
Appendix II, II-4000(a)(1) -	Performance Improvement Activities Interval
Appendix II, II-4000(b)(1)(e) -	Optimization of Condition Monitoring Activities Interval

4. **Reason for Request**

Pursuant to 10 CFR 50.55a, "Codes and standards," paragraph (a)(3)(ii), relief is requested from the frequency specifications of the ASME OM Code. The basis of the relief request is that the Code requirement presents an undue hardship without a compensating increase in the level of quality or safety.

ASME OM Code Section IST establishes the inservice test frequency for all components within the scope of the Code. The frequencies (e.g., quarterly) have always been interpreted as "nominal" frequencies (generally as defined in the Table 3.2 of NUREG 1482, Revision 1) and Owners routinely applied the surveillance extension time period (i.e., grace period) contained in the plant Technical Specifications (TS) Surveillance Requirements (SRs). The TS typically allow for a less than or equal to 25% extension of the surveillance test interval to accommodate plant conditions that may not be suitable for conducting the surveillance (SR 3.0.2). However, regulatory issues have been raised concerning the applicability of the TS "Grace Period" to ASME OM Code required inservice test frequencies irrespective of allowances provided under TS Administrative Controls (i.e., TS 5.5.6, "Inservice Testing Program," invokes SR 3.0.2 for various OM Code frequencies).

The lack of a tolerance band on the ASME OM Code inservice test frequency restricts operational flexibility. There may be a conflict where a surveillance test could be required (i.e., its Frequency could expire), but where it is not possible or not desired that it be performed until sometime after a plant condition or associated Limiting Condition for Operation (LCO) is within its applicability. Therefore, to avoid this conflict, the surveillance test should be performed when it can be and should be performed.

The NRC recognized this potential issue in the TS by allowing a frequency tolerance as described in TS SR 3.0.2. The lack of a similar tolerance applied to OM Code testing places an unusual hardship on the plant to adequately schedule work tasks without operational flexibility.

Thus, just as with TS required surveillance testing, some tolerance is needed to allow adjusting OM Code testing intervals to suit the plant conditions and other maintenance and testing activities. This assures operational flexibility when scheduling surveillance tests that minimize the conflicts between the need to complete the surveillance and plant conditions.

5. Proposed Alternative and Basis for Use

ASME OM Code establishes component test frequencies that are based either on elapsed time periods (e.g., quarterly, 2 years, etc.) or on the occurrence of plant conditions or events (e.g., cold shutdown, refueling outage, upon detection of a sample failure, following maintenance, etc.).

a. Components whose test frequencies are based on elapsed time periods shall be tested at the frequencies specified in ASME OM Code Section IST with a specified time period between tests as shown in the following table.

Frequency	Specified Time Period Between Tests (all values are 'not to exceed'; no minimum periods are specified)
Quarterly (or every 3 months)	92 days
Semiannually (or every 6 months)	184 days
Annually (or every year)	366 days
x Years	x calendar years where 'x' is a whole number of years ≥ 2

b. The specified time period between tests may be extended as follows:

   i. For periods specified as less than 2 years, the period may be extended by up to 25% for any given test. This is consistent with QCNPS TS Section 5.5.6, "Inservice Testing Program."

   ii. Period extensions may also be applied to accelerated test frequencies (e.g., pumps in Alert Range).

iii. For periods specified as greater than or equal to 2 years, the period may be extended by up to 6 months for any given test.

c. Components whose test frequencies are based on the occurrence of plant conditions or events (e.g., cold shutdown, refueling outage, upon detection of a sample failure, following maintenance, etc.) may not have their period between tests extended except as allowed by the ASME OM Code.

6. Duration of Proposed Alternative

The proposed alternative will be utilized for the entire Fifth 120 month Interval beginning February 18, 2013.

7. Precedent

Generic relief has not been specifically granted to apply a tolerance band to the ASME OM code required test frequencies. The NRC has previously accepted the application of TS SR 3.0.2 tolerances to selected OM Code frequencies as denoted in TS 5.5.6.

The prior NRC acceptance of the practice of applying TS tolerances to ASME OM code required test frequencies provides equivalent precedence for accepting and approving this relief request.

8. References

a. Quad Cities TS Section 1.4 – Frequency
b. Quad Cities TS Section 5.5.6 – Inservice Testing Program
c. Quad Cities TS SR 3.0.2 – Specified Frequency (25% Grace Period)
d. Quad Cities TS SR 3.0.4 – Mode Entry Requirements

1. **ASME Code Components Affected**

All Quad Cities Nuclear Power Station (QCNPS) motor-operated valves (MOVs) scoped into the Inservice Testing Program that are also included in the scope of the QCNPS MOV Testing Program.

2. **Applicable Code Edition and Addenda**

ASME OM Code 2004 Edition through 2006 Addenda

3. **Applicable Code Requirement**

ISTC-3100 requires that any MOV that has undergone maintenance that could affect its performance after the preservice test be tested in accordance with ISTC-3310.

ISTC-3310 requires that a new reference value be determined or the previous reference value be reconfirmed by an inservice test after a MOV has been replaced, repaired, or has undergone maintenance that could affect the valve's performance.

ISTC-3510 requires that active Category A and B MOVs be exercised nominally every 3 months.

ISTC-3521 requires that active Category A and B MOVs be exercised during cold shutdowns if it is not practicable to exercise the valves at power, or that active Category A and B MOVs be exercised during refueling outages if it is not practicable to exercise the valves during cold shutdowns.

ISTC-3700 requires that valves with remote position indicators be observed locally at least once every 2 years to verify that valve operation is accurately indicated.

ISTC-5120 requires that MOVs be stroke-time tested when exercised in accordance with ISTC-3510.

4. Reason for Request

In accordance with 10 CFR 50.55a(a)(3)(i), relief is requested from the requirements of the OM Code, Subsection ISTC-3000, excluding ISTC-3600, "Leak Testing Requirements," and the requirements of Subsection ISTC-5120. The proposed alternative provides an acceptable level of quality and safety.

QCNPS proposes to adopt the requirements of Code Case OMN-1 (as delineated in the 2004 ASME OM Code through 2006 Addenda) in lieu of the performance of stroke time testing and position indication testing as described by ASME OM ISTC 2004 through 2006 addenda. The provision to allow for motor control center testing, as contained in Section 6.1 of Code Case OMN-1, is excluded from this request.

5. Proposed Alternative and Basis for Use

The QCNPS MOV testing program was developed as a result of NRC Generic Letter (GL) 89-10, "Safety Related Motor Operated Valve Testing and Surveillance," and GL 96-05, "Periodic Verification of Design Basis Capability of Safety Related Motor Operated Valves," utilizing Topical Report MPR-1807, "Joint BWR, Westinghouse and Combustion Engineering Owners' Group Program on Motor-Operated Valve (MOV) Periodic Verification," Revision 2. QCNPS is currently utilizing MPR-2524-A, "Joint Owners' Group (JOG) Motor Operated Valve Periodic Verification Program Summary," (November 2006) as guidance for the MOV Program. The adoption of OMN-1 will consolidate testing between the station's IST and MOV Programs.

Section 4.2.5 "Alternatives to Stroke-Testing," of NUREG-1482, "Guidance for Inservice Testing at Nuclear Power Plants," Revision 1, states in part that as an alternative to MOV stroke-time testing, ASME-developed Code Case OMN-1, which provides periodic exercising and diagnostic testing for use in assessing the operational readiness of MOVs, may be used. Section 4.2.5 recommends that licensees implement ASME Code Case OMN-1 as an alternative to the MOV stroke-time testing. The periodic exercising and diagnostic testing requirements in OMN-1 provide an improved method for assessing the operational readiness of MOVs.

Code Case OMN-1 was revised in the 2006 Addenda to the ASME OM Code-2004. Most of the revisions are enhancements such as clarification of valve remote position indication requirements and ball/plug/diaphragm valve test requirements, and the expansion of risk-informed provisions. However, there was one significant revision in Section 6.1, "Acceptance Criteria," that states that motor control center (MCC) testing is acceptable if correlation with testing at the MOV has been established. MCC diagnostic testing was not specifically addressed in the original version of OMN-1. Historically, diagnostic testing of MOVs has been conducted using at-the-valve tests. Although there may be potential benefits of testing conducted at the MCC, the ASME OM Code does not address any method for the correlation of MCC-based measurements to diagnostic test measurements conducted at-the-valve. For these reasons, QCNPS has excluded the provision for MCC testing from this relief request. Therefore, the MCC test method will not be used as an acceptance criterion to determine the operational readiness of MOVs.

The following positions describe how QCNPS interprets and complies with the various requirements of OMN-1 (ASME OMb Code-2006).

1. OMN-1, Section 3.1 allows for the use of testing that was conducted prior to the implementation of OMN-1 if it meets the requirements of the Code Case. QCNPS intends to utilize the testing credited under its GL 89-10/96-05 responses to satisfy the requirement for a one-time test to verify the capacity of each individual or group of MOV's safety-related design basis requirements.

2. OMN-1, Section 3.2 requires that each MOV be tested during the preservice test period or before implementing inservice inspection. QCNPS intends to utilize the testing credited under its GL 96-05 response to satisfy this requirement.

3. OMN-1, Section 3.3(b) states that inservice tests shall be conducted in the as-found condition, and activities shall not be conducted if they might invalidate the as-found condition for inservice testing. QCNPS maintenance activities that would affect the as-found condition of the valve, such as motor operator preventive maintenance or stem lubrication, are typically scheduled to occur in conjunction with the performance of the MOV Periodic Verification Testing, and are performed after as-found testing. Any other activities that could affect the as-found test results are not performed until after the as-found testing has been conducted.

4. OMN-1 Section 3.3(c) requires the inservice test program to include a mix of static and dynamic MOV performance testing. QCNPS has utilized the JOG program's mix of static and dynamic MOV performance testing (i.e., MPR-2524-A) to develop its current MOV testing program. Additionally, QCNPS will continue to utilize the existing engineering standards, which are consistent with the JOG standards, to justify any changes to the mix of required MOV performance testing. The use of such an evaluation will serve to ensure QCNPS continues to meet this requirement.

5. OMN-1, Section 3.3(e) requires that Remote Position Indication shall be verified locally during inservice testing or maintenance activities. QCNPS will continue to verify the operability of each MOV's position indication system as part of each MOV's diagnostic test. In addition, the function of each MOV's position indication system will be verified during the performance of maintenance activities affecting remote position indication.

6. OMN-1, Section 3.3.1(b) requires MOV inservice testing to be conducted every 2 refueling cycles or 3 years (whichever is longer), if insufficient data exists to determine inservice test frequencies. QCNPS has sufficient MOV testing data to justify its current testing frequencies, and therefore meets this requirement. If in the future, modification or replacement results in the necessity to re-baseline a valve or group of valves, the requirements of OMN-1, Section 3.3.1(b) or 3.7.2.2(c) as applicable, will be followed.

7. OMN-1, Section 6.4.4 requires that calculations for determining the MOV's functional margin are evaluated to account for potential performance-related degradation. The QCNPS MOV Program, including Exelon's Motor Operated Valve Design Database (MIDAS) Software (or similar updated product), takes into account performance-related degradation, to calculate valve margin.

8. The provision of motor control center testing contained in Section 6.1 ("Acceptance Criteria") is excluded from this request ("i.e., Motor control center testing is acceptable if correlation with testing at the MOV has been established").

6. Duration of Proposed Alternative

The proposed alternative identified in this relief request shall be utilized during the Fifth 10-Year IST Interval beginning February 18, 2013.

7. Precedent

Similar relief has been approved for LaSalle County Station, Units 1 and 2, Relief Request RV-02, in NRC Safety Evaluation dated September 26, 2007 (Reference 1); Peach Bottom Atomic Power Station, Units 2 and 3, Relief Request GVRR-1, in NRC Safety Evaluation dated September 3, 2008 (Reference 2); and Clinton Power Station, Unit 1 Relief Request No. 2201 in NRC Safety Evaluation dated June 10, 2010 (Reference 3).

8. References

1. Letter from R. Gibbs (U.S. NRC) to C. M. Crane (Exelon Generation), "Relief Requests for the LaSalle County Station, Units 1 and 2, Third 10-Year Pump and Valve Inservice Testing Program (TAC Nos. MD5988, MD5989, MD5992, MD5993, MD5994, MD5995)," dated September 26, 2007

2. Letter from H. Chernoff (U.S. NRC) to C. G. Pardee (Exelon Generation), "Peach Bottom Atomic Power Station, Units 2 and 3 – Requests for Relief Associated with the Fourth Inservice Testing Interval (TAC Nos. MD7461 and MD7462)," dated September 3, 2008

3. Letter from S. Campbell (U.S. NRC) to M. Pacilio (Exelon Generation), "Clinton Power Station, Unit No. 1 – Safety Evaluation of Relief Request Nos. 2201, 2202 and 3201, for the Third 10-Year Inservice Testing Interval," dated June 10, 2010

1 ASME Code Component(s) Affected

Component Number	System	Code Class	Category
1(2)-1001-047-MO	RHR	1	A
1(2)-1001-050-MO	RHR	1	A
1(2)-1001-029A-MO	RHR	1	A
1(2)-1001-029B-MO	RHR	1	A
1(2)-1001-068A	RHR	1	A/C
1(2)-1001-068B	RHR	1	A/C
1(2)-1402-009A	CS	1	A/C
1(2)-1402-009B	CS	1	A/C
1(2)-1402-025A-MO	CS	1	A
1(2)-1402-025B-MO	CS	1	A

2 Applicable Code Edition and Addenda

ASME OM Code 2004 Edition through 2006 Addenda

3 Applicable Code Requirement

ISTC-3630 (Leakage Rate for Other Than Containment Isolation Valves) states that Category A valves with a leakage requirement not based on an Owner's 10 CFR 50, Appendix J program, shall be tested to verify their seat leakages are within acceptable limits. Valve closure before seat leakage testing shall be by using the valve operator with no additional closing force applied.

ISTC-3630(a) (Frequency) Tests shall be conducted at least once every 2 years.

4 Reason for Request

Pursuant to 10 CFR 50.55a, "Codes and Standards", paragraph (a)(3)(i), relief is requested from the requirement of ASME OM Code ISTC-3630(a). The basis of the relief request is that the proposed alternative would provide an acceptable level of quality and safety.

ISTC-3630 requires that leakage rate testing for Pressure Isolation Valves (PIVs) be performed at least once every 2 years. PIVs are not specifically included in the scope for performance-based testing as provided for in 10 CFR 50 Appendix J Option B. While the motor-operated PIVs affected by this Relief Request are also Containment Isolation Valves (CIVs) and tested in accordance with the Appendix J Program, the check valve PIVs are not CIVs and not within the Appendix J scope. The concept behind the Option B alternative for containment isolation valves is that licensees should be allowed to adopt cost effective methods for complying with regulatory requirements. Additionally, NEI 94-01, "Industry Guideline for Implementing Performance-Based Option of 10 CFR Part 50, Appendix J," describes the risk-informed basis for the extended test intervals under Option B. That justification shows that for valves which have demonstrated good performance by passing their leak rate tests for two consecutive cycles, further failures appear to be governed by the random failure rate of the component. NEI 94-01 also presents the results of a comprehensive risk analysis, including the statement that "the risk impact associated with increasing [leak rate] test intervals is negligible (less than 0.1% of total risk)." The valves identified in this relief request are all in water applications. The PIV testing is performed with water pressurized to pressures lower than function maximum pressure differential. However, the observed leakage is adjusted to the function maximum pressure differential value in accordance with ISTC-3630(b)(4). This relief request is intended to provide for a performance-based scheduling of PIV tests at QCNPS. The reason for requesting this relief is dose reduction / ALARA. Recent historical data was used to identify that PIV testing alone each refuel outage incurs a total dose of approximately 600 milliRem. Assuming all of the PIVs remain classified as good performers the extended test intervals would provide for a savings of approximately 1.2 Rem over a 4-1/2 year period.

NUREG 0933, "Resolution of Generic Safety Issues," Issue 105 (Interfacing Systems LOCA at LWRs) discussed the need for PIV leak rate testing based primarily on three pre-1980 historical failures of applicable valves industry-wide. These failures all involved human errors in either operations or maintenance. None of these failures involved inservice equipment degradation. The performance of PIV leak rate testing provides assurance of acceptable seat leakage with the valve in a closed condition. Typical PIV testing does not identify functional problems which may inhibit the valves ability to re-position from open to closed. For check valves, such functional testing is accomplished per ASME OM Code ISTC-3522 and ISTC-3520. Power-operated valves are routinely full stroke tested per ASME OM Code to ensure their functional capabilities. At QCNPS, these functional tests for motor operated PIVs are performed on a quarterly frequency. The functional testing of the PIV check valves will be monitored through a Condition Monitoring Plan in accordance with ISTC-5222, "Condition-Monitoring Program," and Mandatory Appendix II, "Check Valve Condition Monitoring Program." Performance of the separate 2 year PIV leak rate testing does not contribute any additional assurance of functional capability; it only determines the seat tightness of the closed valves.

5 <u>Proposed Alternative and Basis for Use</u>

QCNPS proposes to perform PIV testing at intervals ranging from every refuel to every third refuel. The specific interval for each valve would be a function of its performance and would be established in a manner consistent with the CIV process under 10 CFR 50 Appendix J, Option B. In fact, all of the MOVs listed are also classified as CIVs and are leak rate tested with air at intervals determined by 10 CFR 50 Appendix J Option B (hereto referred to as Option B). The MOV PIV testing would be scheduled to coincide with the CIV testing, at whatever interval required for Option B. A conservative control will be established such that if any valve fails either their CIV test or their PIV test, the test interval for both tests will be reduced consistent with Appendix J, Option B requirements until good performance is reestablished.

The primary basis for this relief request is the historically good performance of the PIVs. The only recorded seat leakage failures of PIVs at QCNPS were in fact determined to be a result of the test methodology and not due to any physical condition of the valves.

Additional basis for this relief request is provided below:

- Separate functional testing of MOV PIVs and Condition Monitoring of Check Valve PIVs per ASME OM Code.

- Low likelihood of valve mispositioning during power operations (procedures, interlocks).

- Air test vs. water test - degrading seat conditions tend to be identified sooner with air testing.

- Relief valves in the low pressure (LP) piping - these relief valves may not provide Inner-System Loss of Coolant Accident (ISLOCA) mitigation for inadvertent PIV mispositioning but their relief capacity can accommodate conservative PIV seat leakage rates.

- Alarms that identify high pressure (HP) to LP leakage - Operators are highly trained to recognize symptoms of a present or incipient ISLOCA and to take appropriate actions.

6 <u>Duration of Proposed Alternative</u>

The proposed alternative will be utilized for the entire Fifth 120 month Interval beginning February 18, 2013.

7 <u>Precedents</u>

This relief request was approved for Fermi Power Station for the Third 120 month Interval. Letter from R. Pascarelli (U.S. NRC) to J. Davis (Detroit Edison), "Fermi-2 Evaluation of In-Service Testing Program Relief Requests VRR-011, VRR-012, and VRR-013," dated September 28, 2010.

1. **ASME Code Components Affected**

Component Number	System	Code Class	Category
1-2301-032-SO	HPCI	2	B
2-2301-032-SO	HPCI	2	B

2. **Applicable Code Edition and Addenda**

ASME OM Code 2004 Edition through 2006 Addenda

3. **Applicable Code Requirement**

ISTC-5150, Solenoid-Operated Valves

4. **Impracticality of Compliance**

Pursuant to 10 CFR 50.55a, "Codes and standards," paragraph (f)(5)(iii), relief is requested from the requirement of ASME OM Code ISTC-5150. The basis of the relief request is that the Code requirement is impractical.

These solenoid valves function as a backup to the exhaust line drain pot steam trap. During normal operation of the HPCI turbine using high quality steam, the drain path from the drain pot to the torus via the steam trap is adequate to remove condensate from the turbine exhaust line. However, during HPCI turbine operation with low pressure and low quality steam (e.g., during certain HPCI surveillance tests), condensate collects in the drain pot faster than it can be drained through the trap. Under these conditions, solenoid valve 1(2)-2301-032 opens automatically to drain to the gland seal condenser upon receipt of a signal from a drain pot level switch when the drain pot level reaches the high-level alarm set point. A high level condition alarms a control room annunciator.

These valves are not equipped with hand switches or position indicators and the valves are totally enclosed, so valve position cannot be verified by direct observation. Therefore, it is impractical to exercise and stroke time these valves in accordance with Code requirements.

Valve actuation may be indirectly verified by removing the HPCI system from service, filling the drain pot with water until the high level alarm is received, and observing that the high level alarm clears. It is impractical to assign a maximum limiting stroke time to these valves using this test method because the time for the alarm to clear would depend primarily on variables such as the rate of filling and the level of the drain pot when the filling is secured. The steam line drain pot is not equipped with direct level indication; therefore, the time required for the alarm to clear may vary significantly.

Failure of these valves to perform their safety function would be indicated by a drain pot high level alarm. Additionally, condensate entrapped in the steam would cause significant fluctuations in exhaust steam header pressure.

5. **Burden Caused By Compliance**

Compliance with the quarterly exercising and stroke timing requirements of the Code would require either system modifications to replace these valves with ones of testable design, or to purchase non-intrusive test equipment and develop new test methods and procedures.

6. **Proposed Alternative and Basis for Use**

A functional verification test is conducted on the drain pot level limit switches and the associated control room annunciators at least once every 92 days. Valve actuation will be indirectly verified by removing the HPCI system from service, filling the drain pot with water until the high level alarm is received, and observing a positive draining of the HPCI drain pot as indicated by a level increase in gland seal condenser and the high level alarm clears.

The following provisions of ISTC-5153, Stroke Test Corrective Action still apply:

- If a valve fails to exhibit the required change of obturator position, the valve shall be immediately declared inoperable.
- Valves declared inoperable may be repaired, replaced, or the data may be analyzed to determine the cause of the deviation and the valve shown to be operating acceptably.
- Valve operability based upon analysis shall have the results of the analysis recorded in the record of tests (see ISTC-9120).
- Before returning a repaired or replacement valve to service, a test demonstrating satisfactory operation shall be performed.

7. **Duration of Proposed Alternative**

The proposed alternative will be utilized for the entire Fifth 120 month Interval beginning February 18, 2013.

8. Precedents

This relief request was previously approved for Quad Cities Nuclear Power Station Units 1 and 2 for the Fourth 120 month Interval (Relief Request RV-23A) in letter from A. Mendiola (U.S. NRC) to C. Crane (Exelon Generation), "Quad Cities Nuclear Power Station, Units 1 and 2 – Fourth 10-Year Inservice Testing Program Relief Requests," dated February 20, 2004.

10 CFR 50.55a Request Number RV-05

Relief Requested
In Accordance with 10 CFR 50.55a(a)(3)(i)
Alternate Provides Acceptable Level of Quality and Safety

1. ASME Code Component(s) Affected

Quad Cities Nuclear Power Station (QCNPS) Units 1 and 2, Main Steam Safety Valves (MSSVs): Model: 3777Q; Manufacturer: Dresser

Component Number	System	Code Class	Category
1-0203-004A	Main Steam	1	C
1-0203-004B	Main Steam	1	C
1-0203-004C	Main Steam	1	C
1-0203-004D	Main Steam	1	C
1-0203-004E	Main Steam	1	C
1-0203-004F	Main Steam	1	C
1-0203-004G	Main Steam	1	C
1-0203-004H	Main Steam	1	C
2-0203-004A	Main Steam	1	C
2-0203-004B	Main Steam	1	C
2-0203-004C	Main Steam	1	C
2-0203-004D	Main Steam	1	C
2-0203-004E	Main Steam	1	C
2-0203-004F	Main Steam	1	C
2-0203-004G	Main Steam	1	C
2-0203-004H	Main Steam	1	C

2. Applicable Code Edition and Addenda

ASME OM Code 2004 Edition through 2006 Addenda

3. Applicable Code Requirement

ASME OM Code, Appendix I, "Inservice Testing of Pressure Relief Devices in Light-Water Reactor Nuclear Power Plants," Section I-1320, "Test Frequencies, Class 1 Pressure Relief Valves," paragraph (a), "5-Year Test Interval."

4. **Reason for Request**

10 CFR 50.55a(f)(4) directs a licensee to meet inservice testing requirements for ASME Code Class 1 valves set forth in the ASME OM Code and addenda. QCNPS is committed to the 2004 Edition through 2006 Addenda of the ASME OM Code.

Section ISTC-3200, "Inservice Testing," states that inservice testing shall commence when the valves are required to be operable to fulfill their required function(s). Section ISTC-5240, "Safety and Relief Valves," directs that safety and relief valves meet the inservice testing requirements set forth in Appendix I of the ASME OM Code. Appendix I, Section I-1320(a) of the ASME OM Code states that Class 1 pressure relief valves shall be tested at least once every five years, starting with initial electric power generation. This section also states a minimum of 20 percent of the pressure relief valves are tested within any 24 month interval and that the test interval for any individual valve shall not exceed five years. The required test ensures that the MSSVs, which are located on each of the main steam lines between the reactor vessel and the first isolation valve within the drywell, will open at the pressures assumed in the safety analysis.

The Dresser Model 3777Q MSSVs have shown acceptable test history at QCNPS as described in Section 5 below.

The physical locations of the MSSVs cause them to interfere with one another during transport of the valves in and out of containment. In order to create a transport path, QCNPS elects to remove, test and rebuild at least half of the subject valves during each refueling outage. This ensures compliance with the ASME OM Code requirements for testing Class 1 pressure relief valves within a five-year interval.

To support these replacements, four spare MSSVs are required to be certified prior to the refuel outage during which they will be installed. These spare MSSVs are certified tested immediately after refurbishment and placed into stores. In order to meet the 5 year test-to-test interval requirement, each spare MSSV requires a second recertification test just before a refuel outage to mitigate the time the valve spent in stores. Extending the testing interval to 6 years with a grace period of 6 months to coincide with a refueling outage (i.e., 6.5 years total) would allow additional time for the spare MSSVs to reside in stores after their certification tests without an additional recertification test immediately prior to installation. This extension would reduce the number of recertification test actuations of the spare MSSVs and limit the potential of disc/seat damage and subsequent seat leakage due to these additional tests.

In accordance with 10 CFR 50.55a, "Codes and standards," paragraph (a)(3)(i), EGC requests relief from the five year test interval requirements of ASME OM Code, Appendix I, Section I-1320(a) for the Dresser Model 3777Q MSSVs at QCNPS Units 1 and 2. QCNPS requests that the test interval be increased from five years to six years with a grace period of 6 months to coincide with a refueling outage (i.e., 6.5 years total). Compliance with the applicable requirements of the ASME OM Code for these MSSVs results in unnecessary recertification testing of the MSSVs just prior to a refuel outage without a compensating increase in the level of quality or safety.

5. Proposed Alternative and Basis for Use

QCNPS proposes that ASME Class 1 pressure relief valves (i.e., Dresser Model 3777Q MSSVs) at QCNPS shall be tested at least once every 6 years with a grace period of 6 months to coincide with a refueling outage (i.e., 6.5 years total). A minimum of 20% of the pressure relief valves will be tested within any 24-month interval and that this 20% shall consist of valves that have not been tested during the current 6 year interval (with a 6 month grace), if they exist. The test interval for any individual valve shall not exceed 6.5 years. This Alternative is consistent with the alternative provided in ASME Code Case OMN-17, "Alternative Rules for Testing ASME Class 1 Pressure Relief /Safety Valves," Section 1, "Test Frequencies, Class 1 Pressure Relief Valves," Paragraph (a) "72-month Interval."

IST history for the Dresser Model 3777Q MSSVs at QCNPS from May 1997 to the present indicate good performance in that almost all tested MSSVs (i.e., 77 MSSV tests) that have been installed in either QCNPS Unit 1 or Unit 2 for two operating cycles have successfully passed the ASME OM Code and Technical Specification (TS) as-found lift setpoint acceptance criteria within plus or minus 3% (the historical test data indicates 1 of 77 tests did not remain within the as-left tolerance of plus or minus 3%; however, it was found in the negative, more conservative, direction).

QCNPS utilizes an ASME OM Code-certified off-site vendor to perform as-found and as-left testing, inspection, and refurbishment of the MSSVs. An EGC-approved and qualified procedure is used for disassembly and inspection of the MSSVs. This procedure requires that each MSSV be disassembled and inspected upon removal from service, independent of the as-found test results. The procedure identifies the critical components that are required to be inspected for wear and defects, and the critical dimensions that are required to be measured during the inspection. If components are found worn or outside of the specified tolerance(s), the components are either reworked to within the specified tolerances, or replaced. All parts that are defective, outside-of-tolerance, and all reworked/replaced components are identified, and EGC is notified of these components by the off-site vendor. The MSSV is then re-assembled, the as-left test is performed, and the MSSV is returned to QCNPS.

Based upon the unnecessary recertification testing of the MSSVs just prior to a refuel outage to comply with the ASME OM Code coupled with historical MSSV test results for Dresser Model 3777Q MSSVs, QCNPS has concluded that this alternative provides an acceptable level of quality and safety.

6. Duration of Proposed Alternative

The proposed alternative will be utilized for the entire Fifth 120 month Interval beginning February 18, 2013.

7. Precedents

A similar relief request was previously approved for Quad Cities Nuclear Power Station Units 1 and 2 for the Fourth 120 month Interval (Relief Request RV-30F) in letter from R. Gibbs (U.S. NRC) to C. Pardee (Exelon Generation), "Dresden Nuclear Power Station Units 2 and 3 – Relief Request No. RV-02C from 5-Year Test Interval for Main Steam Safety Valves and Quad Cities Nuclear Power Station, Units 1 and 2 – Relief Requests No. RV-30E and RV-30F from 5-Year Test Interval for Main Steam Safety Valves," dated June 27, 2008.

10 CFR 50.55a Request Number RV-06

Relief Requested
In Accordance with 10 CFR 50.55a(a)(3)(ii)
Hardship or Unusual Difficulty Without Compensating
Increase in Level of Quality or Safety

1. **ASME Code Components Affected**

Component Number	System	Code Class	Category
1-0203-003A	Main Steam	1	B/C
1-0203-004A	Main Steam	1	C
1-0203-004B	Main Steam	1	C
1-0203-004C	Main Steam	1	C
1-0203-004D	Main Steam	1	C
1-0203-004E	Main Steam	1	C
1-0203-004F	Main Steam	1	C
1-0203-004G	Main Steam	1	C
1-0203-004H	Main Steam	1	C
2-0203-003A	Main Steam	1	B/C
2-0203-004A	Main Steam	1	C
2-0203-004B	Main Steam	1	C
2-0203-004C	Main Steam	1	C
2-0203-004D	Main Steam	1	C
2-0203-004E	Main Steam	1	C
2-0203-004F	Main Steam	1	C
2-0203-004G	Main Steam	1	C
2-0203-004H	Main Steam	1	C

2. **Applicable Code Edition and Addenda**

ASME OM Code 2004 Edition through 2006 Addenda

3. **Applicable Code Requirement**

Appendix I, I-1350(c) – Requirements for Testing Additional Valves

4. **Reason for Request**

Pursuant to 10 CFR 50.55a, "Codes and standards," paragraph (a)(3)(ii), relief is requested from the requirement of ASME OM Code, Appendix I, I-1350(c). The basis of the relief request is that the Code requirement presents an undue hardship without a compensating increase in the level of quality or safety.

Valve 1(2)-0203-003A is a dual function safety/relief valve manufactured by Target Rock. The remaining valves are simple safety valves. These main steam safety valves are used to terminate an abnormal pressure increase in the reactor vessel and the reactor coolant pressure boundary (i.e., they provide overpressure protection).

The physical locations of the safety valves cause them to interfere with one another during transport of the valves in and out of containment. In order to create a transport path, at least half of the subject valves are removed, tested and rebuilt during each refueling outage. This accelerated maintenance schedule provides a high level of assurance that these safety valves will perform their safety function.

Quad Cities Nuclear Power Station does not have the facilities required to perform set-point tests on large relief and safety valves. These valves are unbolted from their mounting flanges, decontaminated, and shipped to an off-site test facility. Because of the lengthy period required for removal, transportation, testing and re-installation, the removal and testing of additional valves due to sample expansion would delay unit start-up from refueling outages by at least several days. This represents a significant hardship.

The sample expansion requirements of Appendix I would require two additional valves be tested if one valve failed its set-point test. Since the dual function safety/relief valve is tested each outage, and no less than four of the remaining valves are tested during each outage, the valves already being tested represent an increased sample population. Therefore, based on the sample expansion requirements already being met for one valve, and the hardship associated with pulling additional valves, no additional valves will be tested if only one valve fails the set-point test.

5. Proposed Alternative and Basis for Use

The dual function safety/relief valve, and at least half of the eight safety valves, will be removed and tested during each reactor refueling outage. If only one of the eight safety valves fails its set-point test, additional safety valves will not be tested. If more than one safety valve fails, the sample expansion criteria of Appendix I, 1350(c) will be implemented.

6. Duration of Proposed Alternative

The proposed alternative will be utilized for the entire Fifth 120 month Interval beginning February 18, 2013.

7. Precedents

This relief request was previously approved for Quad Cities Nuclear Power Station Units 1 and 2 for the Fourth 120 month Interval (Relief Request RV-30B) in letter from A. Mendiola (U.S. NRC) to C. Crane (Exelon Generation), "Quad Cities Nuclear Power Station, Units 1 and 2 – Fourth 10-Year Inservice Testing Program Relief Requests," dated February 20, 2004.

1. **ASME Code Components Affected**

Component Number	System	Code Class	Category
1-0203-001A-AO	Main Steam	1	A
1-0203-001B-AO	Main Steam	1	A
1-0203-001C-AO	Main Steam	1	A
1-0203-001D-AO	Main Steam	1	A
1-0203-002A-AO	Main Steam	1	A
1-0203-002B-AO	Main Steam	1	A
1-0203-002C-AO	Main Steam	1	A
1-0203-002D-AO	Main Steam	1	A
2-0203-001A-AO	Main Steam	1	A
2-0203-001B-AO	Main Steam	1	A
2-0203-001C-AO	Main Steam	1	A
2-0203-001D-AO	Main Steam	1	A
2-0203-002A-AO	Main Steam	1	A
2-0203-002B-AO	Main Steam	1	A
2-0203-002C-AO	Main Steam	1	A
2-0203-002D-AO	Main Steam	1	A

2. **Applicable Code Edition and Addenda**

ASME OM Code 2004 Edition through 2006 Addenda

3. **Applicable Code Requirement**

ISTC-5132(b) – Stroke Test Acceptance Criteria – Valves with reference stroke times of less than or equal to 10 seconds shall exhibit no more than ±50% change in stroke time when compared to the reference value.

4. **Reason for Request**

Pursuant to 10 CFR 50.55a, "Codes and standards," paragraph (a)(3)(i), relief is requested from the requirement of ASME OM Code ISTC-5132(b). The basis of the relief request is that the proposed alternative would provide an acceptable level of quality and safety.

The main steam isolation valves (MSIVs) open to admit reactor steam to the main turbine. They close to provide containment and reactor isolation.

The ISTC Code requirement bases the stroke time acceptance criteria on a fixed reference value taken from a baseline test. However, Technical Specifications

(TS) Surveillance Requirement (SR) 3.6.1.3.6 in TS 3.6.1.3, "Primary Containment Isolation Valves (PCIV's)," establishes an invariable acceptable stroke time range for the MSIVs of $\geq$ 3 seconds to $\leq$ 5 seconds. This fixed range is more conservative and consistent than that required by ISTC-5132(b) since the range is not dependent on a baseline value that may vary by as much as ±1 second.

5. **Proposed Alternative and Basis for Use**

TS SR 3.6.1.3.6 establishes an acceptable stroke time range for the MSIVs of 3.0 seconds $\leq T_{MSIV} \leq$ 5.0 seconds. Quad Cities Nuclear Power Station (QCNPS) will utilize this range for evaluating an acceptable MSIV stroke time in lieu of establishing an acceptance band based on MSIV stroke time reference values. QCNPS has also established additional limitations on stroke time based on reactor power levels to ensure that the TS SR limits are always met. Any MSIV that fails to meet the TS SR limits will be considered inoperable and required actions will continue to be in accordance with ISTC-5133 - Stroke Test Corrective Actions.

6. **Duration of Proposed Alternative**

The proposed alternative will be utilized for the entire Fifth 120 month Interval beginning February 18, 2013.

7. **Precedents**

This relief request was previously approved for Quad Cities Nuclear Power Station Units 1 and 2 for the Fourth 120 month Interval (Relief Request RV-30C) in letter from A. Mendiola (U.S. NRC) to C. Crane (Exelon Generation), "Quad Cities Nuclear Power Station, Units 1 and 2 – Fourth 10-Year Inservice Testing Program Relief Requests," dated February 20, 2004.

4.9 Code Case Index

CODE CASE NUMBER	**TITLE**
OMN-1	Alternative Rules for Preservice and Inservice Testing of Active Electric Motor-Operated Valve Assemblies in Light Water Reactor Power Plants
OMN-17	Alternative Rules for Testing ASME Class 1 Pressure Relief/Safety Valves.

4.10 Cold Shutdown Justification Index

CSJ NUMBER	REV #	TITLE
CSJ-02A	0	Reactor Recirculation Pump Discharge Valve Exercise Testing
CSJ-03A	0	Control Rod Drive Charging Water Check Valve Closure Testing
CSJ-03B	0	Control Rod Drive Air and Scram Dump Valve Exercise Testing
CSJ-10A	0	Reactor Heat Removal Shutdown Cooling Suction Primary Containment Isolation Valve Exercise Testing
CSJ-12A	0	Reactor Water Cleanup Valve Exercise Testing
CSJ-14A	0	Core Spray Injection Check Valves Open Exercise Testing
CSJ-30A	0	Outboard Main Steam Isolation Valve Fail Safe Testing
CSJ-30B	0	Main Steam Isolation Valve Exercise Testing
CSJ-30C	0	Main Steam Line Drain Valve Exercise Testing
CSJ-37A	0	Reactor Building Closed Cooling Water Primary Containment Isolation Valve Exercise Testing

4.11 Cold Shutdown Justifications

COLD SHUTDOWN JUSTIFICATION: CSJ-02A
Page 1 of 1

Component Number	System	Code Class	Category
1-0202-005A-MO	RX	1	B
1-0202-005B-MO	RX	1	B
2-0202-005A-MO	RX	1	B
2-0202-005B-MO	RX	1	B

Component Function(s)

Valves 0202-005A and 0202-005B are the Reactor Recirculation (RR) pump discharge isolation valves. The RR pump discharge isolation valve must close upon receipt of a Residual Heat Removal Low Pressure Coolant Injection (LPCI) mode (Loop Selection Logic) signal. Closure of the RR pump discharge isolation valve ensures that LPCI flow is directed to the reactor core, rather than being diverted out a RR system line break.

Justification

Valves 0202-005A and 0202-005B cannot be exercised closed during normal operation because one loop of the Reactor Recirculation system would have to be secured prior to performing the test. Single loop operation is limited by Technical Specifications and should be avoided because coolant flow imbalances may lead to neutron flux oscillations and requires a significant (30%) extended load reduction for the sole purpose of performing this exercise test.

These valves will be exercised closed during cold shutdowns when the reactor recirculation system can be secured.

COLD SHUTDOWN JUSTIFICATION: CSJ-03A

Page 1 of 1

Component Number	System	Code Class	Category
1-0305-115	CR	1	C
2-0305-115	CR	1	C

Component Function(s)

The Control Rod (CR) Drive Charging Water Header Check Valves (typical of 177) must close when each CR Drive Scram Inlet Valve (0305-126 -FCV) opens and discharges the CR Drive Hydraulic Control Unit (HCU) accumulator into the CR Drive under-piston area to insert a control rod. If this CR Drive charging water header check valve does not close, CR Drive HCU scram flow from the accumulator may be diverted to the charging water header.

Justification

These valves cannot be exercised closed during normal operation since the CR Drive pumps that are required for operation would have to be secured, and accumulator pressure monitored, to verify valve closure. If the CR Drive pumps are secured, cooling water to the CR Drive seals would be interrupted and the seals may be damaged.

The valves will be exercised closed during cold shutdowns when the CR Drive pumps can be secured.

COLD SHUTDOWN JUSTIFICATION: CSJ-03B

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Component Number	System	Code Class	Category
1-0302-019A-SO	CR	SR	B
1-0302-019B-SO	CR	SR	B
1-0302-020A-SO	CR	SR	B
1-0302-020B-SO	CR	SR	B
1-0302-025A-SO	CR	SR	B
1-0302-025B-SO	CR	SR	B
1-0302-181A-SO	CR	SR	B
1-0302-181B-SO	CR	SR	B
1-0302-182A-SO	CR	SR	B
1-0302-182B-SO	CR	SR	B
2-0302-019A-SO	CR	SR	B
2-0302-019B-SO	CR	SR	B
2-0302-020A-SO	CR	SR	B
2-0302-020B-SO	CR	SR	B
2-0302-025A-SO	CR	SR	B
2-0302-025B-SO	CR	SR	B
2-0302-181A-SO	CR	SR	B
2-0302-181B-SO	CR	SR	B
2-0302-182A-SO	CR	SR	B
2-0302-182B-SO	CR	SR	B

Component Function(s)

These Augmented Scope Components.

The Control Rod Drive Scram Air Header has multiple vent paths to ensure reliability in case scram action is necessary. 0302-020A, 0302-020B, 0302-019A and 0302-019B are the Scram Dump Valves and Scram Dump Backup valves respectively. Valves 0302-025A, 0302-025B, 0301-122, 0302-181A, 0302-181B, 0302-182A and 0302-182B are vent valves for the Anticipated Transient Without Scram/Alternate Rod Injection (ATWS/ARI) system. These valves must energize or open to provide a vent path to depressurize the Scram Air Header.

Justification

These valves cannot be exercised or fail safe tested during normal operation because their actuation could lead to an unplanned rapid insertion of all control rods and the closure of the scram discharge volume vent and drain valves. Valves 0302-019A, 0302-019B, 0302-020A and 0302-020B are in series and do not have individual position indication, the only positive method of determining that these valves open is to actuate both the A and B scram logic. The actuation of a single ARI/ATWS valve would result in the depressurization of the entire scram air header. The valves will be exercised and fail safe tested during cold shutdowns when the Control Rod Drives are not required.

COLD SHUTDOWN JUSTIFICATION: CSJ-10A

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Component Number	System	Code Class	Category
1-1001-047-MO	RH	1	A
1-1001-050-MO	RH	1	A
2-1001-047-MO	RH	1	A
2-1001-050-MO	RH	1	A

Component Function(s)

These normally closed valves are Primary Containment Isolation Valves (PCIVs) and Pressure Isolation Valves (PIVs) for the Residual Heat Removal (RHR) Shutdown Cooling mode suction line. These valves are required to close for isolation purposes.

Justification

These valves cannot be exercised closed during normal operation. These normally closed valves must be exercised open prior to closure timing. These valves cannot be opened during normal operation due to an interlock that prevents the opening of the valves when the reactor pressure is greater than 100 psig.

These valves will be exercised closed during cold shutdowns when the reactor pressure is less than 100 psig and when Shutdown Cooling can be secured.

COLD SHUTDOWN JUSTIFICATION: CSJ-12A

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Component Number	System	Code Class	Category
1(2)-1201-002-MO	RT	1	A
1(2)-1201-005-MO	RT	1	A
1(2)-1201-080-MO	RT	NS	B

Component Function(s)

The 1(2)-1201-002-MO and 1(2)-1201-005-MO valves are Primary Containment Isolation Valves (PCIVs) on the Reactor Water Cleanup (RWCU) System inlet. These valves must close within 30 and 38 seconds respectively upon receipt of a Group 3 (reactor low water level) containment isolation signal. In addition these valves will automatically close upon actuation of the Standby Liquid Control system, if the non-regenerative heat exchanger outlet temperature exceeds 140 F, high area temperatures are detected in the RWCU piping (165 F) or the Main Steam Isolation Valve Room and Steam Tunnel Areas (200 F).

Valve 1(2)-1201-080-MO must close to isolate the reactor water cleanup system from the reactor core isolation cooling system during reactor core isolation cooling system operation to ensure injection flow requirements are met. This valve closes automatically upon receipt of a reactor water cleanup isolation signal. This valve is in the IST program augmented scope.

Justification

It is not practicable to full or part-stroke exercise these RWCU Isolation valves to the closed position during normal plant operations per the requirements ISTC-3510 for 1(2)-1201-080-MO and OMN-1, sections 3.6.1 and 3.6.2 for 1(2)-1201-002-MO and 1(2)-1201-005-MO since the exercising these valves would require the RWCU system to be shutdown.

RWCU System operation is generally maintained during power operation to maintain reactor water chemistry stable. Isolating the system, performing the testing and restoring the system to service during power operations is a complex evolution and involves a significant amount of time during which reactor water chemistry impurity levels (sulfates, chlorides, conductivity, and radionuclide) increase. These impurities are detrimental to the reactor vessel, internal components and can cause elevated primary system dose rates.

Sudden changes in RWCU flow or temperature results in significant water chemistry changes that may require more time than is permitted by the applicable Technical Specification action statements for recovery. Also, interruption in the operation of the RWCU system has been known to result in resin fines release and intrusion into the RPV while testing the RWCU system valves at power.

1(2)-1201-002-MO and 1(2)-1201-005-MO will be full-stroke exercised closed and 1(2)-1201-080-MO will be full-stroke exercised and timed during cold shutdowns.

COLD SHUTDOWN JUSTIFICATION: CSJ-14A
Page 1 of 1

Component Number	System	Code Class	Category
1-1402-009A	CS	1	A/C
1-1402-009B	CS	1	A/C
2-1402-009A	CS	1	A/C
2-1402-009B	CS	1	A/C

Component Function(s)

These Core Spray (CS) injection check valves must open when the associated system is required to inject water into the reactor vessel.

Justification

Injection of cold water from the Contaminated Condensate Storage Tanks and/or Suppression Chamber would produce reactivity excursions. This cold water would create a thermal shock to various Class 1 piping systems especially causing concerns at the weld joints. Providing there is inadequate thermal mixing in the reactor vessel, there is a possibility that the cold water could reach the reactor vessel nozzles and reactor vessel internals. By minimizing the number of injections into the reactor vessel, the thermal cycling of weld joints and reactor components and the resulting piping stresses would be reduced. In addition, the RHR and Core Spray check valves cannot be exercised open during normal operation via a full flow test because the system injection motor operated valves can only be opened at reactor pressures less than 325 psig.

The Core Spray Check Valves will be tested by a full flow injection test during Cold Shutdowns.

COLD SHUTDOWN JUSTIFICATION: CSJ-30A
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Component Number	System	Code Class	Category
1-0203-002A-AO	MS	1	A
1-0203-002B-AO	MS	1	A
1-0203-002C-AO	MS	1	A
1-0203-002D-AO	MS	1	A
2-0203-002A-AO	MS	1	A
2-0203-002B-AO	MS	1	A
2-0203-002C-AO	MS	1	A
2-0203-002D-AO	MS	1	A

Component Function(s)

The Main Steam Isolation Valves (MSIVs) open to admit reactor steam to the turbine. They close to provide reactor containment and reactor coolant system isolation.

Valves in the 0203-002-AP2 series are 2-Way Air Pilot Valves with air pilot operators that must fail open during a loss-of-instrument air event. When these valves open, the MSIV will close.

Justification

A true fail safe test of these valves can only be performed by simulating a loss of instrument air by locally venting the MSIV accumulator and verifying the valve changes position.

The 2-Way air pilot valves are exercised each time the associated MSIV is closed. The 2-Way air pilot valves provide a secondary vent path independent of the main 4-Way air pilot valve. So it is extremely difficult to determine whether the MSIV closed with actuator air exhausting through both the 4-Way air pilot and the subject 2-Way air pilot, or though the 4-Way air pilot alone.

A loss-of-instrument air event must be simulated by locally venting the MSIV accumulator to provide conclusive evidence that the 2-way air pilot valve was exercised open.

A true fail safe test of these valves can only be performed by locally venting the MSIV accumulator and observing the valve closure. This cannot be performed without significantly reducing reactor power. Also, the accumulators are located in the MSIV room, which is a high temperature, high humidity, and high radiation area. The ALARA and personnel safety aspects make it impractical to perform during power operation. These valves will be fail-safe tested during cold shutdowns when entry into the MSIV room is permitted.

COLD SHUTDOWN JUSTIFICATION: CSJ-30B

Component Number	System	Code Class	Category
1-0203-001A-AO	MS	1	A
1-0203-001B-AO	MS	1	A
1-0203-001C-AO	MS	1	A
1-0203-001D-AO	MS	1	A
1-0203-002A-AO	MS	1	A
1-0203-002B-AO	MS	1	A
1-0203-002C-AO	MS	1	A
1-0203-002D-AO	MS	1	A
2-0203-001A-AO	MS	1	A
2-0203-001B-AO	MS	1	A
2-0203-001C-AO	MS	1	A
2-0203-001D-AO	MS	1	A
2-0203-002A-AO	MS	1	A
2-0203-002B-AO	MS	1	A
2-0203-002C-AO	MS	1	A
2-0203-002D-AO	MS	1	A

Component Function(s)

The Main Steam Isolation Valves (MSIVs) are normally open to provide a steam flow path from the reactor through containment to the turbine. This is not a safety-related function.

The MSIVs have a closed safety function to provide reactor containment and reactor coolant system isolation on a Group 1 Primary Containment Isolation Signal.

The 4-Way Air pilot has a safety function to actuate to its fail-safe position that allows the closure of the MSIV. This function is verified by the closure of the MSIV.

Justification

It is impractical to full-stroke exercise these valves to the closed position on a quarterly (nominal 92 days) frequency during plant operation. The MSIVs have the capability and are being partial stroked at least once per quarter during the Technical Specification MSIV scram sensor channel functional test requirements.

As identified in UFSAR section 6.2.6.3.1, "MSIV Testing", the performance of a full-stroke exercise to the closed position of individual MSIVs can be performed during power operation if reactor power is reduced sufficiently (< 75% power) to avoid a scram as a result of primary system pressure spikes and reactor power fluctuations.

NUREG-1482 "Guidelines for Inservice Testing at Nuclear Power Plants", Section 2.4.5, "Deferring Valve Testing to Cold Shutdown or Refueling Outages" identifies “impractical conditions justifying test deferrals” as those conditions that could result in unnecessary challenges to safety systems, place undue stress on components, cause unnecessary cycling of equipment, or unnecessarily reduce the life expectancy of the plant systems and components. Section 2.4.5 also identified that any testing that could cause a plant trip or require a power reduction can be considered as an example of impractical conditions. The note at the end of NUREG-1482, Section 4.2.4, "MS Isolation Valves" also identified that the revised standard technical specification bases for MSIV

COLD SHUTDOWN JUSTIFICATION: CSJ-30B
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surveillance requirements states that "MSIVs should not be exercised at power, since even a partial stroke exercise increases the risk of a valve closure when the unit is generating power."

No reduction from high power levels (>75% power) will be made specifically to accomplish this testing. The MSIV's will be full-stroke timed during Cold Shutdowns. In addition, these valves will be partially stroked closed at least once per quarter.

COLD SHUTDOWN JUSTIFICATION: CSJ-30C

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Component Number	System	Code Class	Category
1(2)-0220-001-MO	MS	2	A
1(2)-0220-002-MO	MS	2	A

Component Function(s)

1(2)-0220-001-MO and 1(2)-0220-002-MO are normally closed, and remain closed to 1) prevent coolant inventory loss and protect plant personnel in the event of a line break downstream of the isolation valve; 2) complete the containment boundary after a LOCA.

The valves have a function to open during plant start up to drain the main steam line and to provide a means of equalizing pressure across the MSIVs. The open function is not required to support safe shutdown of the reactor or to perform any reactor safety functions. The valves are closed prior to achieving 20 percent power.

Justification

NUREG-1482 "Guidelines for Inservice Testing at Nuclear Power Plants", Section 2.4.5, "Deferring Valve Testing to Cold Shutdown or Refueling Outages" identifies "impractical conditions justifying test deferrals" as those conditions that could result in unnecessary challenges to safety systems, place undue stress on components, cause unnecessary cycling of equipment, or unnecessarily reduce the life expectancy of the plant systems and components. Section 2.4.5 also identified that any testing that could cause a plant trip or require a power reduction can be considered as an example of impractical conditions.

Valves 1(2)-0220-001-MO and 1(2)-0220-002-MO are the Main Steam Line Drain Line Isolation valves that are, by design, installed at the low point of the Main Steam System. This piping location has a history of being a trap for corrosion products. When the valves are stroked while the unit is online, steam flow transports the corrosion products into the valves, where they are trapped between the discs and seats upon valve closure. The trapped corrosion products then cause a scoring of the disc and seat surfaces, reducing the seat leak tightness of the valve. Exercising during Cold Shutdowns and Refuel Outages will not cause the same result since there would be no flow through the system with the exception for main steam line draining activities, which would flush the valves clear of corrosion products.

These valves are 3-inch NPS and the seats are not removable with the valve installed. Due to the proximity of these valves to the Main Steam Lines, repair/replacement of these valves results in a high dose accumulation. Therefore, since it is demonstrated that the on-line exercising of these valves will "unnecessarily reduce the life expectancy" of valves 1(2)-0220-001-MO and 1(2)-0220-002-MO, they will be full-stroke exercise tested during Cold Shutdowns.

This justification is in accordance to the guidance provided in NUREG-1482, Rev. 1, Section 2.4.5.

COLD SHUTDOWN JUSTIFICATION: CSJ-37A
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Component Number	System	Code Class	Category
1-3702-MO	RCC	MC	A
1-3703-MO	RCC	MC	A
1-3706-MO	RCC	MC	A
2-3702-MO	RCC	MC	A
2-3703-MO	RCC	MC	A
2-3706-MO	RCC	MC	A

Component Function(s)

These valves are Primary Containment Isolation Valves (PCIVs) on the Reactor Building Closed Cooling Water (RBCCW) supply and return lines to the drywell. These valves must close to provide primary containment isolation.

Justification

These normally open valves cannot be closed during normal operation, because the RBCCW system supplies cooling water to the seals of the Reactor Recirculation (RR) pumps, the RR pump motor bearing coolers, and the drywell air coolers. Interrupting the cooling water supply to the RR pump seals or motor bearings for even a short time could result in damage to the pump.

The valves will be exercised closed during cold shutdown periods when the component cooling water is not required.

4.12 Refuel Outage Justification Index

ROJ NUMBER	REV #	TITLE
ROJ-00A	0	Low Pressure Coolant Injection, Core Spray, and Reactor Vessel Level Indication System Check Valve Seat Leakage Testing
ROJ-03A	0	Control Rod Drive Hydraulic Control Unit Valve Exercise Testing
ROJ-10A	0	Low Pressure Coolant Injection Check Valve Open Exercise Test
ROJ-30A	0	Main Steam Safety Relief Valve Discharge Line Vacuum Breaker Exercise Testing
ROJ-30B	0	Inboard Main Steam Isolation Valve Fail Safe Testing
ROJ-47A	0	Main Steam Isolation Valve and Safety Relief Valve Air Actuator Accumulator Check Valve Closure Testing

4.13 Refuel Outage Justifications

REFUEL OUTAGE JUSTIFICATION: ROJ-00A
Page 1 of 2

Component Number	System	Code Class	Category
1-0263-944A	RX	2	A/C
1-0263-944B	RX	2	A/C
1-0263-945A	RX	SR	A/C
1-0263-945B	RX	SR	A/C
1-0263-947A	RX	2	A/C
1-0263-947B	RX	2	A/C
1-0263-948A	RX	SR	A/C
1-0263-948B	RX	SR	A/C
1-1001-068A	RH	1	A/C
1-1001-068B	RH	1	A/C
1-1402-009A	CS	1	A/C
1-1402-009B	CS	1	A/C
2-0263-944A	RX	2	A/C
2-0263-944B	RX	2	A/C
2-0263-945A	RX	SR	A/C
2-0263-945B	RX	SR	A/C
2-0263-947A	RX	2	A/C
2-0263-947B	RX	2	A/C
2-0263-948A	RX	SR	A/C
2-0263-948B	RX	SR	A/C
2-1001-068A	RH	1	A/C
2-1001-068B	RH	1	A/C
2-1402-009A	CS	1	A/C
2-1402-009B	CS	1	A/C

Component Function(s)

Valves 0263-944A/B, 0263-945A/B, 0263-947A/B, and 0263-948A/B are the Reactor Vessel Level Indication Back Fill check valves that must close to provide assurance that vessel level instrumentation integrity is adequately maintained in the event of Control Rod (CR) Drive system depressurization. The basis for the check valve leakage shall be the maximum leakage, which ensures that the loss of water inventory from the reference leg piping over an acceptable time period is limited to a 6" level change. This ensures that adequate vessel level indication is provided to the operator for assessing plant operating conditions.

Check valves 1001-068A/B, Low Pressure Coolant Injection (LPCI) Check Valves and 1402-009A/B, Core Spray (CS) Injection Check Valves are Pressure Isolation Valves (PIVs) that are required to close to isolate the reactor pressure boundary from low pressure piping systems.

Justification

The Reactor Vessel Level Indication System (RVLIS) Back Fill check valves also can only be exercised closed by performing a seat leakage test. This test entails the localized pressurization of portions of the RVLIS Back-Fill system on instrument racks containing sensitive equipment. The open function for RVLIS Backfill Check Valves is verified by successful venting following the seat leakage test. Seat leakage past a test boundary valve, venting of the system, or the inadvertent jarring of sensitive instruments could cause a transient on the operating unit and is therefore impractical. Additionally, exercise testing during short duration cold shutdowns would impose a significant hardship on Quad Cities due to the time to set up test equipment, perform the test, and analyze the results that may result in a delay in plant start-up and is not practical.

REFUEL OUTAGE JUSTIFICATION: ROJ-00A

The RVLIS check valves will be exercised open and closed during each refueling outage.

The LPCI and CS check valves can only be exercised closed by performing a seat leakage test. These valves are located in the drywell and thus cannot be lined up to exercise during power operation or cold shutdowns when the drywell is inerted.

These valves cannot be exercised closed during Cold Shutdown, because there are no external means of determining disk position and the only ways to verify that the valve is closed is by leak testing. To perform leak testing, the system must be taken out-of-service and a drywell entry is necessary to perform the leakage test. It is impractical to de-inert the drywell for the sole purpose of performing leakage testing. Also, due to the short duration of Cold Shutdowns, the time to set up test equipment, perform the test, and analyze the results may result in a delay in plant start-up and is not practical.

The LPCI and CS check valves will be exercised closed during each refueling outage.

This justification is in accordance with the position detailed in NUREG 1482, Paragraph 4.1.4, "Extension of Test Interval to Refueling Outage for Check Valves Verified Closed by Leak Testing".

REFUEL OUTAGE JUSTIFICATION: ROJ-03A

Component Number	System	Code Class	Category
1-0305-114	CR	2	S
1-0305-117-SO	CR	SR	S
1-0305-118-SO	CR	SR	S
1-0305-126-CV	CR	2	S
1-0305-127-CV	CR	2	S
1-0305-137	CR	2	S
2-0305-114	CR	2	S
2-0305-117-SO	CR	SR	S
2-0305-118-SO	CR	SR	S
2-0305-126-CV	CR	2	S
2-0305-127-CV	CR	2	S
2-0305-137	CR	2	S

Component Function(s)

1(2)-0305-114 check valve must open to provide a flow path from the over-piston area of the drive to the SDV during SCRAM or ARI initiation.

1(2)-0305-117-SO and 1(2)-0305-118-SO must open in the event of a SCRAM to vent both of the SCRAM operators, thus allowing the SCRAM inlet and outlet valves to open.

1(2)-0305-126-CV must be capable of opening when a scram signal or an ARI initiation is present, thereby allowing water from the pressurized accumulator to be injected to the Control Rod Drive Mechanisms under-piston area for control rod insertion. It is required to open subsequent to a scram signal or an ARI initiation.

1(2)-0305-127-CV must be capable of opening to allow the Control Rod Drive Mechanisms over-piston area to be vented to the scram discharge volume (SDV). It is required to open subsequent to a scram signal or an ARI initiation [UFSAR 4.6.3].

1(2)-0305-137 must close to prevent significant loss of water to the drive water header during a scram. During scram, the directional control valves are subject to scram pressure through the porting in the manifold and common HCU piping. The two directional control valves (122, 123) connected to the drive water riser can be opened if subjected to this higher pressure at their outlet ports. The check valve (137) installed in the manifold prevents significant loss of water to the drive water riser during scram.

Justification

One of each of the listed valves in installed on each of the 177 CRD Hydraulic Control Units. The proper operation of each of the valves is demonstrated by the Technical Specification required scram testing of each individual CRD.

During the scram testing, these valves are exercised and each individual control rod drive scram insertion is timed and must meet specific time increments as stated in the Technical Specifications. Satisfactory timing of each individual rod ensures that the respective valves function properly.

To exercise these valves more than the current Technical Specification requirements is not practical.

REFUEL OUTAGE JUSTIFICATION: ROJ-03A
Page 2 of 2

Individual scram insertion times and subsequent valve exercising will be performed per the Technical Specification requirements. The required frequency is as follows:

1. Prior to exceeding 40% rated thermal power (RTP) after each reactor shutdown ≥ 120 days and with reactor steam dome pressure ≥ 800 psig, each control rod will be scram time tested.
2. At least once per 120 days of cumulative power operation, a representative sample of the control rods will be scram time tested.
3. After performing work on a control rod or the CRD System that could affect scram time and with any reactor steam dome pressure, each affected control rod will be scram time tested.
4. Prior to exceeding 40% RTP after fuel movement within the affected core cell and prior to exceeding 40% RTP after work on a control rod or the CRD System that could affect scram time, with reactor steam dome pressure ≥ 800 psig, each affected control rod will be scram time tested.

A test frequency of "RR" will be listed in the valve table for these valves since, at a minimum, the entire population of control rods (177) will be scram tested prior to or during start-up following each refueling outage in order to meet the Technical Specification requirements.

REFUEL OUTAGE JUSTIFICATION: ROJ-10A

Component Number	System	Code Class	Category
1-1001-068A	RH	1	A/C
1-1001-068B	RH	1	A/C
2-1001-068A	RH	1	A/C
2-1001-068B	RH	1	A/C

Component Function(s)

Check valves 1001-068A/B, Low Pressure Coolant Injection (LPCI) Check Valves must open for LPCI operation to allow water to discharge to the reactor vessel into the core region through one of the recirculation loops.

Justification

Injection of cold water from the Contaminated Condensate Storage Tanks and/or Suppression Chamber would produce reactivity excursions. This cold water would create a thermal shock to various Class 1 piping systems especially causing concerns at the weld joints. Providing there is inadequate thermal mixing in the reactor vessel, there is a possibility that the cold water could reach the reactor vessel nozzles and reactor vessel internals. By minimizing the number of injections into the reactor vessel, the thermal cycling of weld joints and reactor components and the resulting piping stresses would be reduced. In addition, the LPCI check valves cannot be exercised open during normal operation via a full flow test because the system injection motor operated valves can only be opened at reactor pressures less than 325 psig.

Immediately prior to exercising testable check valve AO 1(2)-1001-68A/B, the differential pressure is equalized across the check valve to prevent damage to the air operator. The air operator is not designed to overcome high amounts of differential pressure. The air operator is used only for exercising the check valve during testing and is not used to actuate the valve during normal operating or accident conditions. Equalizing the differential pressure across the valve does not improve the open and closure function of the check valve or otherwise increase the likelihood that the check valve will pass its exercise test. The LPCI and CS check valves can only be exercised closed by performing a seat leakage test. These valves are located in the drywell and thus cannot be lined up to exercise during power operation or cold shutdowns when the drywell is inerted.

These valves cannot be exercised closed during Cold Shutdown, because in order to perform the open exercise testing, a drywell entry is necessary to equalize the differential pressure across the check valve to prevent damage to the air operator. The air operator is not designed to overcome high amounts of differential pressure. The air operator is used only for exercising the check valve during testing and is not used to actuate the valve during normal operating or accident conditions. Equalizing the differential pressure across the valve does not improve the open and closure function of the check valve or otherwise increase the likelihood that the check valve will pass its exercise test. These equalizing valves are located in the drywell and thus cannot be lined up to exercise during power operation or cold shutdowns when the drywell is inerted.

It is impractical to de-inert the drywell for the sole purpose of performing open exercising testing.

The RHR check valves will be stroked open by their air operators during each refueling outage.

This justification is in accordance with the position detailed in NUREG 1482, Paragraph 3.1.1.3, "De-Inerting Containment of Boiling Water Reactors to Allow Cold Shutdown Testing".

REFUEL OUTAGE JUSTIFICATION: ROJ-30A

Component Number	System	Code Class	Category
1-0220-081A	MS	SR	C
1-0220-081B	MS	SR	C
1-0220-081C	MS	SR	C
1-0220-081D	MS	SR	C
1-0220-081E	MS	SR	C
2-0220-081A	MS	SR	C
2-0220-081B	MS	SR	C
2-0220-081C	MS	SR	C
2-0220-081D	MS	SR	C
2-0220-081E	MS	SR	C

Component Function(s)

The Main Steam Safety/Relief Valve (MSRV) discharge line vacuum breakers are required to open for the Automatic Depressurization System (ADS) to perform its safety function.

These vacuum breakers must open to admit drywell atmosphere into the MSRV discharge lines. If these vacuum breakers do not open, Suppression Pool (Torus) water would be sucked into the MSRV discharge lines after actuation of the MSRVs (as the steam in the line condenses). A subsequent actuation of the MSRVs with an elevated water leg in the MSRV discharge lines would result in large water clearing transient loads that could damage the MSRV discharge lines.

These valves are required to close to prevent discharge of steam into the drywell during relief valve actuation.

Justification

These vacuum breakers (check valves) do not have remote position indication. There is no means available to verify that these valves are normally closed, and then open following a relief valve actuation. Since these valves are located inside the drywell, they are only accessible when the containment is de-inerted during some Cold Shutdowns or Reactor Refueling.

These check valves are at the end of the vacuum breaker line, and the disc is readily accessible for examination/testing. These check valves will be exercised open and closed during reactor refueling outages by manually pushing the disk away from its seat using a small dowel rod / force measurement device. After exercising the valve open, a visual examination will be performed to verify that the disc returns to the closed position.

This justification is in accordance with the position detailed in NUREG 1482, Paragraph 3.1.1.3, "De-Inerting Containment of Boiling Water Reactors to Allow Cold Shutdown Testing".

REFUEL OUTAGE JUSTIFICATION: ROJ-30B

Component Number	System	Code Class	Category
1-0203-001A-AO	MS	1	A
1-0203-001B-AO	MS	1	A
1-0203-001C-AO	MS	1	A
1-0203-001D-AO	MS	1	A
2-0203-001A-AO	MS	1	A
2-0203-001B-AO	MS	1	A
2-0203-001C-AO	MS	1	A
2-0203-001D-AO	MS	1	A

Component Function(s)

The Main Steam Isolation Valves (MSIVs) open to admit reactor steam to the turbine. They close to provide containment and reactor isolation.

Valves in the 0203-002-AP2 series are 2-Way Air Pilot Valves with air pilot operators that must fail open during a loss-of-instrument air event. When these valves open, the Main Steam Isolation valve will close.

Justification

A true fail-safe test of these valves can only be performed BY simulating a loss of instrument air by locally venting the MSIV accumulator and verifying the valve changes position.

The 2-Way air pilot valves are exercised each time the associated Main Steam Isolation Valve (MSIV) is closed. The 2-Way air pilot valves provide a secondary vent path independent of the main 4-Way air pilot valve. So it is extremely difficult to determine whether the MSIV closed with actuator air exhausting through both the 4-Way air pilot and the subject 2-Way air pilot, or though the 4-Way air pilot alone.

A loss-of-instrument air event must be simulated by locally venting the MSIV accumulator to provide conclusive evidence that the 2-way air pilot valve was exercised open.

The valves and accumulators are located in the drywell and thus cannot be lined up to exercise during power operation or cold shutdowns when the drywell is inerted. Testing will occur during cold shutdowns ONLY when the drywell is de-inerted for Maintenance or Operation purposes. It is impractical to de-inert the drywell solely for the purpose of conducting this test. As a minimum, the fail-safe test will be performed during every refueling outage.

This justification is in accordance with the position detailed in NUREG 1482, Paragraph 3.1.1.3, "De-Inerting Containment of Boiling Water Reactors to Allow Cold Shutdown Testing".

REFUEL OUTAGE JUSTIFICATION: ROJ-47A

Component Number	System	Code Class	Category
1-0203-001AD	MS	SR	A/C
1-0203-001BD	MS	SR	A/C
1-0203-001CD	MS	SR	A/C
1-0203-001DD	MS	SR	A/C
1-0203-002AC	MS	SR	A/C
1-0203-002BC	MS	SR	A/C
1-0203-002CC	MS	SR	A/C
1-0203-002DC	MS	SR	A/C
1-0203-003AD	MS	SR	A/C
2-0203-001AD	MS	SR	A/C
2-0203-001BD	MS	SR	A/C
2-0203-001CD	MS	SR	A/C
2-0203-001DD	MS	SR	A/C
2-0203-002AC	MS	SR	A/C
2-0203-002BC	MS	SR	A/C
2-0203-002CC	MS	SR	A/C
2-0203-002DC	MS	SR	A/C
2-0203-003AD	MS	SR	A/C

Component Function(s)

These check valves are installed on the Main Steam Isolation Valve (MSIV) air actuator accumulators and the Target Rock Safety/Relief Valve (SRV) air actuator accumulator. Since the Instrument Air system is not safety related, these check valves must close to retain compressed air in the local accumulator, and preserve sufficient pressure to actuate the MSIV or SRV.

Justification

These check valves do not have remote position indication and there is no direct means of determining that these check valves are closed, they cannot be exercised closed without performing a reverse flow/leak test. Exercising these valves at power requires isolating the instrument air header from the actuator. This could result in an inadvertent closure of an MSIV, which would result in a reactor trip.

This test also cannot be performed during normal operation because the test procedure entails a Drywell or MSIV Room entry. The Drywell is required to be inerted with nitrogen during normal operation and the MSIV room is a high temperature and high radiation area during reactor operation. The ALARA and personnel safety aspects make it impractical to perform this test during power operation.

The test is not practical to perform during Cold Shutdowns because this test requires the Drywell to be de-inerted (Inboard MSIVs and Target Rock Only) and the setup of test equipment. The time to perform these complicated tasks may result in a delay in plant startup.

These valves are exercised closed during the MSIV Accumulator check valve leak test that is performed during each reactor refueling outage.

This justification is in accordance with the position detailed in NUREG 1482, Paragraph 3.1.1.3, "De-Inerting Containment of Boiling Water Reactors to Allow Cold Shutdown Testing" and NUREG 1482, Paragraph 4.1.4, "Extension of Test Interval to Refueling Outage for Check Valves Verified Closed by Leak Testing".

4.14 Technical Position Index

TECHNICAL POSITION NUMBER	TITLE
CTP-IST-001	Preconditioning of IST Program Components
CTP-IST-002	Quarterly Pump Testing Under Full-Flow Conditions
CTP-IST-003	Quarterly Testing of Group B Pumps
CTP-IST-004	Classification of Pumps: Centrifugal vs. Vertical Line Shaft
CTP-IST-005	Preservice Testing of Pumps
CTP-IST-006	Classification and Testing of Class 1 Safety/Relief Valves With Auxiliary Actuating Devices
CTP-IST-007	Skid-Mounted Components
CTP-IST-008	Position Verification Testing
CTP-IST-009	ASME Class 2 & 3 Relief Valve Testing Requirements
CTP-IST-010	ERV and PORV Testing Requirements
CTP-IST-011	Extension of Exercise Testing Frequencies to Cold Shutdown or Refueling Outage
CTP-IST-012	Use of ASME OM Code Cases for Inservice Testing
CTP-IST-013	Exercise Testing Requirements for Valves with Fail-Safe Actuators
CTP-IST-014	Bi-directional Testing of Check Valves to Their Safety and Non-Safety Related Positions

Note: The applicable revisions for each of the listed Technical Positions are contained in Exelon Training & Reference Material (T&RM) ER-AA-321-1007, *"Inservice Testing (IST) Program Corporate Technical Positions"*, Section 7, *"Attachments"*.

4.15 Technical Positions

Note

Component specific Technical Positions are referenced in the IST Pump and Valve Tables only by the last three numerical digits, as applicable. For example, Technical Position CTP-IST-004 would be listed as "004" on the table.

Non-component specific Technical Positions are not referenced in the IST Pump and Valve Tables, however they still apply to the testing performed under the IST Program.

Number: **CTP-IST-001, Rev. 1**

Title: **Preconditioning of IST Program Components**

Applicability: All Exelon IST Programs. This issue also applies to other Technical Specification surveillance testing where preconditioning may affect the results of the test. This Technical Position may be adopted optionally by other Exelon organizations.

Background: There are no specified ASME Code requirements regarding preconditioning or the necessity to perform as-found testing, with the exception of setpoint testing of relief valves and MOV testing performed in accordance with Code Case OMN-1 or Mandatory Appendix III. Nevertheless, there has been significant concern raised by the NRC, and documented in numerous publications, over this issue. Section 3.5 of Reference 2 provides guidance on preconditioning as it relates to IST; Section 3.6 provides additional guidance on as-found testing. It is the intent of this Technical Position to provide a unified, consistent approach to the issue of preconditioning as it applies to IST Programs throughout the Exelon fleet.

The purpose of IST is to confirm the operational readiness of pumps and valves within the scope of the IST Program to perform their intended safety functions whenever called upon. This is generally accomplished by testing using quantifiable parameters which provide an indication of degradation in the performance of the component. Preconditioning can diminish or eradicate the ability to obtain any meaningful measurement of component degradation, thus defeating the purpose of the testing.

Preconditioning is defined as the alteration, variation, manipulation, or adjustment of the physical condition of a system, structure, or component before Technical Specification surveillance or ASME Code testing. Since IST is a component-level program, this Technical Position will address preconditioning on a component-level basis. Preconditioning may be acceptable or unacceptable.

- Acceptable preconditioning is defined as preconditioning which is necessary for the protection of personnel or equipment, which has been evaluated as having insufficient impact to invalidate the results of the surveillance test, or which provides performance data or information which is equivalent or superior to that which would be provided by the surveillance test.
- Unacceptable preconditioning is preconditioning that could potentially mask degradation of a component and allow it to be returned to or remain in service in a degraded condition.

In most cases, the best means to eliminate preconditioning concerns is to perform testing in the as-found condition. When this is not practical, an evaluation must be performed to determine if the preconditioning is acceptable. Appendix 1 to this Technical Position may be used to document this evaluation.

The acceptability or unacceptability of preconditioning must be evaluated on a case-by-case basis due to the extensive variability in component design, operation, and performance requirements. Preconditioning of pumps may include filling and venting of pump casings, venting of discharge piping, speed adjustments, lubrication, adjustment of seals or packing, etc. Preconditioning of valves may include stem lubrication, cycling of the valve prior to the "test" stroke, charging of accumulators, attachment of electrical leads or jumpers, etc.

Factors to be considered in the evaluation of preconditioning acceptability include component size and type, actuator or driver type, design requirements, required safety functions, safety significance, the nature, benefit, and consequences of the preconditioning activity, the frequencies of the test and preconditioning activities, applicable service and environmental conditions, previous performance data and trends, etc.

Lubrication of a valve stem provides an example of the variability of whether or not a preconditioning activity is acceptable. For example, lubrication of the valve stem of an AC-powered MOV during refueling outages for a valve that is exercise tested quarterly would normally be considered acceptable, unless service or environmental conditions could cause accelerated degradation of its performance. Lubrication of a valve stem each refueling outage for an MOV that is exercise tested on a refueling outage frequency may be unacceptable if the

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lubrication is always performed prior to the exercise test. Lubrication of a valve stem for an AOV prior to exercise testing is likely to be unacceptable, unless it can be documented that the preconditioning (i.e., maintenance or diagnostic testing) can provide equal or better information regarding the as-found condition of the valve. Manipulation of a check valve or a vacuum breaker that uses a mechanical exerciser to measure breakaway force prior to surveillance testing would be unacceptable preconditioning. Additional information regarding preconditioning of MOVs may be found in Reference 4.

Position:

1. Preconditioning **SHALL** be avoided unless an evaluation has been performed to determine that the preconditioning is acceptable. Appendix 1 to this Technical Position may be used to document this evaluation. In cases where the same information applies to more than one component, a single acceptability evaluation may be performed and documented

2. Evaluations **SHALL** be prepared, reviewed and approved by persons with the appropriate level of knowledge and responsibility. For example, persons preparing an evaluation should hold a current certification in the area related to the activity. Reviewers should be certified in a related area.

3. The evaluation **SHALL** be approved by a Manager or designee.

4. If it is determined that an instance of preconditioning has occurred without prior evaluation, the evaluation **SHALL** be performed as soon as practicable following discovery. If the evaluation concludes that the preconditioning is unacceptable, an IR shall be written to evaluate the condition and identify corrective actions.

References:

1. NRC Information Notice 97-16, "Preconditioning of Plant Structures, Systems, and Components before ASME Code Inservice Testing or Technical Specification Surveillance Testing".
2. NUREG-1482, Revision 1 (January, 2005), Section 3.5 “Pre-Conditioning of Pumps and Valves”.
3. NRC Inspection Manual Part 9900: Technical Guidance, "Maintenance – Preconditioning of Structures, Systems and Components Before Determining Operability".
4. ER-AA-302-1006, "Generic Letter 96-05 Program Motor-Operated Valve Maintenance and Testing Guidelines"
5. ER-AA-321, "Administrative Requirements for Inservice Testing"

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CTP-IST-001 APPENDIX 1
EVALUATION OF PRECONDITIONING ACCEPTABILITY

Description of activity:			
Section 1: NRC Inspection Manual Part 9900 Review:			
Answer the following questions to determine the acceptability of the preconditioning activity based on Section D.2 of Reference 3.			
Question	*Yes*	*No*	*Not Determined*
1. Does the alteration, variation, manipulation or adjustment ensure that the component will meet the surveillance test acceptance criteria?	☐	☐	☐
2. Would the component have failed the surveillance without the alteration, variation, manipulation or adjustment?	☐	☐	☐
3. Does the practice bypass or mask the as-found condition?	☐	☐	
4. Is the alteration, variation, manipulation or adjustment routinely performed just before the testing?	☐	☐	
5. Is the alteration, variation, manipulation or adjustment performed only for scheduling convenience?	☐	☐	
If all the answers to Questions 1 thru 5 are No, the activity is acceptable; go to Section 3. Otherwise, continue to Section 2.			

Section 2: Additional Evaluation		
The following questions may be used to determine if preconditioning activities that do not meet the screening criteria of Section 1 are acceptable		
Question	*Yes*	*No*
6. Is the alteration, variation, manipulation or adjustment required to prevent personnel injury or equipment damage? If yes, explain below.	☐	☐
7. Does the alteration, variation, manipulation or adjustment provide performance data or information that is equivalent or superior to that provided by the surveillance test? If yes, explain below.	☐	☐
8. Is the alteration, variation, manipulation or adjustment being performed to repair, replace, inspect or test an SSC that is inoperable or is otherwise unable to meet the surveillance test acceptance criteria? If yes, explain below.	☐	☐
9. Is there other justification to support classification of the alteration, variation, manipulation or adjustment as acceptable preconditioning? If yes, explain below and provide references.	☐	☐
Explanation / Details: (attach additional sheets as necessary)		
Conclusion: The preconditioning evaluated herein **(is / is not)** acceptable. (Circle one)		

Section 3: Review / Approve	
Prepared by:	Date:
Reviewed by:	Date:
Approved by:	Date:

Number: **CTP-IST-002, Rev. 1**

Title: **Quarterly Pump Testing Under Full Flow Conditions**

Applicability: ASME OM-1995 Code and Later, Subsection ISTB

Background: Pumps included in the scope of the IST Program are classified as Group A or Group B. The OM Code defines a Group A pump as a pump that is operated continuously or routinely during normal operation, cold shutdown, or refueling operations. A Group B pump is defined as a pump in a standby system that is not operated routinely except for testing.

Testing of pumps in the IST Program is performed in accordance with Group A, Group B, comprehensive or preservice test procedures. In general, a Group A test procedure is intended to satisfy quarterly testing requirements for Group A pumps, a Group B test procedure is intended to satisfy quarterly testing requirements for Group B pumps and a comprehensive test procedure is required to be performed on a frequency of once every two years for all Group A and Group B pumps. The Code states that when a Group A test is required a comprehensive test may be substituted; when a Group B test is required a comprehensive test or a Group A test may be substituted. A preservice test may be substituted for any inservice test. The Corporate Exelon position on preservice testing requirements for pumps in the IST Program is provided in CTP-IST-005.

Subsection ISTB provides different acceptance, alert and required action ranges for centrifugal, vertical line shaft, non-reciprocating positive displacement and reciprocating positive displacement pumps, for Group A, Group B and comprehensive pump tests. In each case, the acceptance bands for flow and differential or discharge pressure for the comprehensive test are narrower than those for the Group A and Group B tests. Since comprehensive pump test requirements did not exist prior to the OM-1995 Code, and since the frequency of comprehensive tests is once every two years, most stations have a limited history of comprehensive pump test performance. Thus, pumps that have demonstrated satisfactory results during quarterly testing over a period of several years may fail a comprehensive test while continuing to operate at the same performance level.

Position: The following points summarize the Exelon position on full-flow testing of pumps:

1. Any specific pump is either Group A or Group B; it cannot be both. Any pump that is operated routinely for any purpose, except for the performance of inservice testing, is a Group A pump. A pump cannot be classified as Group A for certain modes of operation and Group B for other modes of operation (e.g., pumps used for shutdown cooling are Group A pumps), unless authorized by means of an NRC-approved Relief Request.
2. Under certain circumstances, similar or redundant pumps may be classified differently. For example, if a station has four identical RHR pumps with two used for shutdown cooling and two dedicated to ECCS service, the shutdown cooling pumps would be Group A, whereas the dedicated ECCS pumps would be Group B provided they were maintained in standby except when performing inservice testing.
3. Quarterly testing of Group A pumps shall be performed in accordance with a Group A or comprehensive test procedure. Post-maintenance testing of Group A pumps shall be performed in accordance with a Group A, a comprehensive, or a preservice test procedure.
4. Quarterly testing of Group B pumps shall be performed in accordance with a Group B, Group A, or comprehensive test procedure. Post-maintenance testing of Group B pumps shall be performed in accordance with a Group A, a comprehensive, or a preservice test procedure.

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5. Credit can only be taken for a comprehensive test if all of the OM Code requirements for a comprehensive test are met, including flow, instrument range and accuracy, and acceptance limits.

Regardless of test conditions, quarterly pump testing is required to meet the acceptance criteria specified for Group A or Group B pumps, as applicable, in the edition/addenda of the OM Code in effect at the Plant. More restrictive acceptance criteria may be applied optionally if desired to improve trending or administrative control.

The ASME OM Code has identified quarterly and comprehensive pump testing as distinctly separate tests with separate frequency and instrumentation requirements and separate acceptance criteria. When performing a quarterly (Group A or Group B) test under full flow conditions, it may be apparent that a comprehensive test limit was exceeded. In such cases, **ISSUE** an IR to describe and evaluate the condition and potential compensatory measures (e.g., establishing new reference values) prior to the next scheduled comprehensive test. No additional corrective actions are required.

References:

1. ASME OM Code, Code for Operation and Maintenance of Nuclear Power Plants, 1995 Edition and later, Subsection ISTB.

Number: **CTP-IST-003, Rev. 0**

Title: **Quarterly Testing of Group B Pumps**

Applicability: ASME OM-1995 Code and Later

Background: Pumps included in IST Programs that must comply with the 1995 Edition of the ASME OM Code and later are required to be classified as either Group A or Group B pumps. The OM Code defines a Group A pump as a pump that is operated continuously or routinely during normal operation, cold shutdown, or refueling operations. A Group B pump is defined as a pump in a standby system that is not operated routinely except for testing.

Testing of pumps is performed in accordance with Group A, Group B, comprehensive or preservice test procedures. In general, a Group A test procedure is intended to satisfy quarterly testing requirements for a Group A pump, a Group B test procedure is intended to satisfy quarterly testing requirements for a Group B pump, and a comprehensive test procedure is required to be performed on a frequency of once every two years for all Group A and Group B pumps. A Group A test procedure may be substituted for a Group B procedure and a comprehensive or preservice test procedure may be substituted for a Group A or a Group B procedure at any time.

A Group A test procedure is essentially identical to the quarterly pump test that was performed in accordance with OM-6 and earlier Code requirements. Group B testing was introduced to the nuclear industry when the NRC endorsed the OM-1995 Edition with OMa-1996 Addenda in 10 CFR 50.55a(b)(3). The intent of the Group B test was to provide assurance that safety related-pumps that sit idle essentially all of the time (e.g. ECCS pumps) would be able to start on demand and achieve a pre-established reference condition. The requirements for Group B testing were significantly relaxed when compared with the Group A (traditional) pump test requirements based on the assumption that there were no mechanisms or conditions that would result in pump degradation while the pump sat idle.

Strong differences of opinion regarding the intent and requirements for Group B testing developed and have persisted since the beginning. These differences span the industry, the NRC, and even members of the OM Code Subgroup-ISTB who created them. One opinion is that the Group B test is intended to be a "bump" test in which the pump is started, brought up to reference flow or pressure, and then stopped. The opposing opinion is that the Group B test requires the pump to be brought to the reference flow or pressure followed by recording and evaluation of both the flow and pressure readings. Both opinions can be supported by the applicable OM Code verbiage. However, NRC personnel have expressed a reluctance to accept the "bump" test interpretation.

Position: Group B pump testing should be performed as follows:

1. When performing a Group B pump test, both hydraulic test parameters (i.e., flow and differential pressure OR flow and discharge pressure) shall be measured and evaluated in accordance with the applicable Code requirements for the pump type.

2. Vibration measurements are not required for Group B pump tests. Vibration measurements may continue to be taken optionally. In the event that a vibration reading exceeds an alert or required action limit for the comprehensive test for the pump being tested, an IR shall be written and corrective action taken in accordance with the CAP process.

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References:

1. ASME OM Code, Code for Operation and Maintenance of Nuclear Power Plants, 1995 Edition and later, Subsection ISTB.

Number: **CTP-IST-004, Rev. 1**

Title: **Classification of Pumps: Centrifugal vs. Vertical Line Shaft**

Applicability: All Exelon IST Programs

Background: Early Code documents that provided requirements for inservice testing of pumps did not differentiate between pump types. Subsection IWP of the ASME Boiler and Pressure Vessel Code, Section XI, required the measurement of flow, differential pressure and vibration and comparison of the measured data with reference values, similar to the way in which centrifugal pump testing is currently performed. Some additional measurements were required (e.g., bearing temperature, lubrication level or pressure) which were later determined to be of minimal value to IST. A major limitation in the earlier Code was that the same parameters and acceptance criteria were specified for all pumps.

With the development of the OM Standards (OM-1, OM-6, OM-10, etc.), it was recognized that pumps of different design performed differently and required different measurement criteria to determine acceptable performance. For example, discharge pressure was determined to be a more representative measurement of performance for a positive displacement pump than differential pressure. Part 6 of the OM Standards (OM-6), also introduced different criteria for inservice testing of centrifugal and vertical line shaft pumps. Unfortunately, it did not provide any definition for a vertical line shaft pump.

The definition of "vertical line shaft" pump was first incorporated into the OM-1998 Edition of the OM Code as "a vertically suspended pump where the pump driver and pump element are connected by a line shaft within an enclosed column." This definition failed to eliminate much of the uncertainty in determining whether certain pumps were vertically-oriented centrifugal pumps or vertical line shaft pumps. Further confusion was created by the choice of wording used in the OM Code Tables that specify the acceptance criteria for centrifugal and vertical line shaft pumps.

Position: Code requirements for vibration measurement provide the clearest indication of the difference between a centrifugal pump and a vertical line shaft pump. On centrifugal pumps, vibration measurements are required to be taken in a plane approximately perpendicular to the rotating shaft in two approximately orthogonal directions on each accessible pump-bearing housing and in the axial direction on each accessible pump thrust bearing housing. On vertical line shaft pumps, measurements are required to be taken on the upper motor-bearing housing in three approximately orthogonal directions, one of which is the axial direction.

Therefore, a pump which is connected to its driver by a vertically-oriented shaft in which vibration measurements must be taken on the pump motor due to the inaccessibility of the pump bearings will be classified as a vertical line shaft pump.

For plants using the 1998 Edition of the OM Code through the OMb-2003 addenda, Table ISTB-5100-1 applies to all horizontally and vertically-oriented centrifugal pumps; Table ISTB-5200-1 applies to vertical line shaft pumps. For plants using the 2004 Edition of the OM Code and later, Table ISTB-5121-1 applies to all horizontally and vertically-oriented centrifugal pumps; Table ISTB-5221-1 applies to vertical line shaft pumps.

References:

1. ASME OMa-1988, ASME/ANSI Operation and Maintenance of Nuclear Power Plants, Part 6, Inservice Testing of Pumps in Light-Water Reactor Power Plants.
2. ASME OM Code, Code for Operation and Maintenance of Nuclear Power Plants, 1995 Edition and later, Subsection ISTB.

Number: **CTP-IST-005, Rev. 1**

Title: **Preservice Testing of Pumps**

Applicability: OM-1995 Code and Later

Background: Requirements for preservice testing of pumps have been stated in ASME Code documents since the beginning. However, the 1995 Edition of the OM Code significantly expanded the scope of preservice testing by introducing the requirement that centrifugal and vertical line shaft pumps in systems where resistance can be varied establish a pump curve by measuring flow and differential pressure at a minimum of five points. These points are required to be from pump minimum flow to at least design flow, if practicable. At least one point is to be designated as the reference point for future inservice tests.

The OM Codes further state that it is the responsibility of the Owner to determine if preservice testing requirements apply when reference values may have been affected by repair, replacement, or maintenance on a pump. A new reference value or set of values is required to be determined or the previous reference value(s) reconfirmed by a comprehensive or Group A test prior to declaring the pump operable.

Position: Whenever a pump's reference values may have been affected by repair, replacement, or maintenance, a preservice test **SHALL** be performed in accordance with the preservice test requirements of Reference 1 of this CTP for the applicable pump design. If it is determined through evaluation that the maintenance activity did not affect the existing reference values, then the previous reference value(s) **SHALL** be reconfirmed by a comprehensive or Group A test prior to declaring the pump operable. Evaluation that the maintenance activity did not affect the pump's reference values **SHALL BE DOCUMENTED**.

Since a preservice test may be substituted for any other required inservice test, this test could be performed in place of any quarterly or comprehensive test. Performing it in lieu of a comprehensive test would have minimal impact on test scope or schedule and would provide valuable information for subsequent evaluations of pump performance.

For centrifugal and vertical line shaft pumps in systems with variable resistance, one of the five points on the preservice test curve (preferably one between 100% and 120% of design flow but in no case less than 80% of design flow) **SHALL** be selected as the reference point for the comprehensive tests. If quarterly testing will be performed at full flow, then the same point should be selected for the quarterly pump tests. If quarterly testing cannot be performed at full flow, then another point on the preservice test curve **SHALL** be selected as the reference point for the quarterly tests.

References:

1. ASME OM Code, Code for Operation and Maintenance of Nuclear Power Plants, 1995 Edition and later, Subsection ISTB.

Number: **CTP-IST-006, Rev. 1**

Title: **Classification and Testing of Class 1 Safety/Relief Valves With Auxiliary Actuating Devices**

Applicability: All Exelon IST Programs

Background: The definition for valve categories in the ASME Codes has been consistent since the beginning. Category A, B, C and D valves are basically defined the same now as they were in early editions/addenda of Section XI of the ASME Boiler and Pressure Vessel Code. Likewise, the requirement that valves meeting the definition for more than one category be tested in accordance with all the applicable categories has been consistent over time.

Due to a lack of clear testing requirements for Class 1 Safety/Relief Valves With Auxiliary Actuating Devices in early ASME Codes, these valves were historically classified as Category B/C. As relief valves, they were required to meet the Category C testing requirements; and since the auxiliary operators essentially put them in the classification of power-operated valves, Category B requirements were imposed to address stroke-time and position indication testing considerations.

Position: The B/C categorization of these valves was initially made due to a lack of specific Code requirements. However, with the publication of ASME OM Standard OM-1 in 1981, which identified specific requirements for these valves, it became irrelevant. All applicable testing requirements for these valves were specified in OM-1, which has been superceded by Appendix I of the ASME OM Code. Efforts of the Code to exempt these valves from Category B testing requirements further demonstrate their inapplicability. Therefore, these valves should be classified as Category C.

References:

1. ASME OM-1987, ASME/ANSI Operation and Maintenance of Nuclear Power Plants, Part 1, Requirements for Inservice Performance Testing of Nuclear Power Plant Pressure Relief Devices.
2. ASME OM Code, Code for Operation and Maintenance of Nuclear Power Plants, 1995 Edition and later, Subsection ISTC and Appendix I.

Number: **CTP-IST-007, Rev. 1**

Title: **Skid-Mounted Components**

Applicability: All Exelon IST Programs

Background: The term "skid-mounted component" was coined to describe support components, such as pumps and valves for the purposes of IST, that function in the operation of a supported component in such a way that their proper functioning is confirmed by the operation of the supported component. For example, the successful operation of an emergency diesel-generator set confirms that essential support equipment, such as cooling water and lube oil pumps and valves, are functioning as required. The concept of "skid-mounted" is actually irrespective of physical location.

Position: Components that are required to perform a specific function in shutting down a reactor to the safe shutdown condition, in maintaining the safe shutdown condition, or in mitigating the consequences of an accident are required to tested in accordance with the ASME Code-in-effect for the station's IST Program. It is not the intent of the skid-mounted exemption that it be used in cases where the specific testing requirements of the Code for testing of pumps and valves can be met. For example, if adequate instrumentation is provided to measure a pump's flow and differential pressure, and if required points for vibration measurement can be accessed, then invoking the skid-mounted exemption would be inappropriate.

The “skid-mounted” exclusion as stated in references 2 and 3, below, may be applied to pumps or valves classified as “skid-mounted” in the IST Program provided that they are tested as part of the major component and are justified to be adequately tested. Such components **SHALL** be listed in the Program Plan document and identified as skid-mounted. Pump or Valve Data Sheets which contain the justification regarding the adequacy of their testing **SHALL** be provided in the IST Bases Document.

References:

1. NUREG-1482 (Rev.0 and Rev.1), Section 3.4, Skid-Mounted Components and Component Subassemblies
2. ASME OM Code, Code for Operation and Maintenance of Nuclear Power Plants, 1995 Edition OMa-1996 Addenda, ISTA 1.7, ISTC 1.2.
3. ASME OM Code, Code for Operation and Maintenance of Nuclear Power Plants, 1998 Edition and later, ISTA-2000 and ISTC-1200.

Number: **CTP-IST-008, Rev. 1**

Title: **Position Verification Testing**

Applicability: All Exelon IST Programs

Background: Valves with remote position indicators are required to be observed locally at least once every two years to verify that valve operation is accurately indicated. This local observation should be supplemented by other indications to verify obturator position. Where local observation is not possible, other indications shall be used for verification of valve operation.

Position: All valves within the scope of the IST Program that are equipped with remote position indicators, shall be tested. The testing shall clearly demonstrate that the position indicators operate as required and are indicative of obturator position. For example, a valve that has open and closed indication shall be cycled to demonstrate that both the open and closed indicators perform as designed, including both or neither providing indication when the valve is in mid-position. Valves that have indication in one position only shall be cycled to ensure that the indicator is energized/de-energized when appropriate. These requirements apply to all IST valves, regardless of whether they are classified as active or passive.

References:

1. ASME OM Code, Code for Operation and Maintenance of Nuclear Power Plants, 1995 Edition with OMa-1996 Addenda, para ISTC 4.1.
2. ASME OM Code, Code for Operation and Maintenance of Nuclear Power Plants, 1998 Edition and later, para ISTC-3700.
3. NUREG-1482, Rev. 1, Section 4.2.8

Number: **CTP-IST-009, Rev. 0**

Title: **ASME Class 2 & 3 Relief Valve Testing Requirements**

Applicability: All Exelon IST Programs

Background: The ASME OM Code, Appendix I, provides requirements for Inservice Testing of ASME Class 1, 2, and 3 Pressure Relief Devices. The requirements for Class 1 pressure relief devices are identified separately from those for Classes 2 and 3. The requirements for Class 2 and 3 pressure relief devices are identified together.

This Technical Position applies only to ASME Class 2 and 3 safety and relief valves. It does not include vacuum breakers or rupture discs. Class 2 PWR Main Steam Safety Valves are also not included in this Technical Position because they are required to be tested in accordance with ASME Class 1 safety valve requirements.

Position: This Technical Position applies to the classification, selection, scheduling and testing of ASME Class 2 and 3 safety and relief valves only. For the purposes of this Technical Position, the term “relief valve” will be used to apply to both types.

<u>Classification</u>
DETERMINE whether or not the valve may be classified as a thermal relief. A thermal relief valve is one whose only over-pressure protection function is to protect isolated components, systems, or portions of systems from fluid expansion caused by changes in fluid temperature. If a relief valve is required to perform any other function in protecting a system or a portion of a system that is required to place the reactor in the safe shutdown condition, to maintain the safe shutdown condition, or to mitigate the consequences of an accident, it cannot be classified as a thermal relief valve.

Class 2 and Class 3 thermal relief valves are required to be **TESTED** or **REPLACED** every 10 years unless performance data indicates the need for more frequent testing or replacement. Details regarding whether a Class 2 or Class 3 thermal relief valve is tested or replaced and the bases for the associated frequency **SHALL** be documented in the IST Bases Document.

Grouping, sample expansion and the requirement to test 20% of the valves within any 48-month period do not apply to Class 2 and Class 3 thermal relief valves. Class 2 and 3 thermal relief valves may be optionally tested in accordance with the more conservative requirements for non-thermal relief valves if desired.

Non-thermal relief valves shall be grouped in accordance with the grouping criteria of Appendix I (same manufacturer, type, system application, and service media). Groups may range in size from one valve to all of the valves meeting the grouping criteria. Grouping criteria **SHALL** be documented in the IST Bases Document or other document that controls Class 2 and 3 IST relief valve testing.

If two valves are manufactured at the same facility to the same specifications, dimensions, and materials of construction but under a different manufacturer's name due to a merger or acquisition, the valves may be considered to meet the requirement for same manufacturer.

Valves in systems containing air or nitrogen may be considered to have the same service media.

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Selection

Valves **SHALL** be selected for testing such that the valve(s) in each group with the longest duration since the previous test are chosen first. This **SHALL INCLUDE** any valves selected due to sample expansion.

IF an exception to this requirement is necessary due to accessibility or scheduling considerations, **DOCUMENT** the reason and that the valves that should have been selected will not come due prior to the next opportunity to test them (e.g., the next outage).

Scheduling

Grace is **NOT** permitted for relief valve testing, unless authorized by an NRC-approved relief request.

All frequency requirements are test-to-test (i.e., they begin on the most recent date on which the valve was tested per Appendix I requirements and end on the date of the next Appendix I test).

All Class 2 or Class 3 relief valves in any group must be tested at least once every 10 years.

Valves within each group must be tested such that a minimum of 20% of the valves are tested within any given 48-month period.

If all of the valves in a group are removed for testing and replaced with pretested valves, the removed valves shall be tested within 12 months of removal from the system.

If less than all of the valves in a group are removed for testing and replaced with pretested valves, the removed valves shall be tested within 3 months of removal from the system or before resumption of electric power generation, whichever is later.

Testing of pretested valves must have been performed such that they will meet the 10 year and 20% / 48-month requirements for the entire time they are in service.

Testing of relief valves that is required to be performed during an outage **SHALL BE PERFORMED** as early in the outage as practicable in order to allow for contingency testing of additional valves in the event a scheduled valve fails its as-found test.

Testing

Testing **SHALL BE PERFORMED** using the same service media wherein the valve was installed.

Testing of additional valves due to failure of a scheduled valve to meet its as-found setpoint acceptance criteria **SHALL BE PERFORMED** in accordance with all applicable OM Code and Technical Specification requirements.

References:

1. ASME OM Code, 1995 Edition and later, Mandatory Appendix I, Inservice Testing of Pressure Relief Devices in Light-Water Reactor Nuclear Power Plants

Number: **CTP-IST-010, Rev. 0**

Title: **ERV and PORV Testing Requirements**

Applicability: Exelon Stations with Electromatic Relief Valves or Power-Operated Relief Valves

Background: Electromatic Relief Valves (ERVs) and Power-Operated Relief Valves (PORVs) are used at nuclear plants to protect the Reactor Coolant pressure boundary from overpressure under various conditions. This may include preventing excessive challenges to BWR Main Steam Safety Valves and PWR Pressurizer Safety Valves during operation at power or preventing low temperature overpressure (LTOP) conditions from exceeding brittle fracture limits when the plant is cooled down.

ERVs and PORVs come in a variety of designs, which can make their categorization and testing in accordance with OM Code requirements challenging. Some are actual relief valves that are equipped with air operators to open the valves against spring force upon actuation by some pressure-sensing apparatus in the primary coolant system. Others may be motor-operated gate valves that open and close as a result of signals generated at predetermined pressure settings. The key to determining the proper category of the ERV or PORV is not the nomenclature of the valve (i.e., "relief valve"), but the actual physical design of the valve and its actuator.

Power-operated relief valves were not addressed by the ASME Codes until the OMa-1996 Addenda. Even then, they were only alluded to by the addition of an exclusion to paragraph ISTC 1.2 which stated: "Category A and B safety and relief valves are excluded from the requirements of ISTC 4.1, Valve Position Verification and ISTC 4.2, Inservice Exercising Test." Up to this point, Owners typically categorized these valves as Category B/C, assigned the position verification and exercise test requirements for the Category B portion, and then obtained Relief from the NRC to not perform them due to their impracticability. The Relief Requests provided a detailed description of the proposed alternative techniques, which generally matched Category C requirements for valves with auxiliary actuators.

Paragraph ISTC-5110 was introduced in the OM-1998 Edition of the OM Code which stated: "Power-operated relief valves shall meet the requirements of ISTC-5100 for the specific Category B valve type and ISTC-5240 for Category C valves." This essentially added no value, since this was already the practice.

OMb-2000 added the following definition of a power-operated relief valve to paragraph ISTC-2000, Supplemental Definitions: "a power-operated valve that can perform a pressure relieving function and is remotely actuated by either a signal from a pressure sensing device or a control switch. A power-operated relief valve is not capacity certified under ASME Section III overpressure protection requirements." In addition, OMb-2000 added the following to paragraph ISTC-3510: "Power-operated relief valves shall be exercise tested once per fuel cycle."

The addition of exclusions, definitions and test requirements to the Code for these valves has only tended to make actual testing requirements more conflicting or confusing. These valves are still being categorized as Category B, C or B/C (with

a few A's or A/C's) throughout the industry with testing requirements assigned accordingly and relief still being sought where deemed appropriate.

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Position: Each Station **MUST DETERMINE** the proper valve category or categories for its ERVs and/or PORVs based on valve and actuator design, and **IDENTIFY** appropriate testing requirements and methodologies appropriate to that categorization. The following table summarizes the possible categories that can be applied to an ERV or PORV, whether or not the valve meets the definition of a PORV as defined in ISTC-2000, and the associated test requirements:

Category		Meets PORV Def.	Test Requirements		Comments
B	**C**		**B**	**C**	
X		No	**ISTC-3700** **ISTC-5120*** **ISTC-5130*** **ISTC-5140***		Valve is not a safety or relief valve; actuator is MO, AO or HO. Does **not** meet Code definition of PORV (ISTC-2000). Exercise test quarterly per ISTC-3510, or defer to Cold Shutdown or RFO per ISTC-3521.
X		Yes	**ISTC-3700** **ISTC-5110**		Valve meets Code definition of PORV (ISTC-2000). Exercise test once per fuel cycle per ISTC-3510 and ISTC-5110.
	X	No		**ISTC-5240** **App. I**	Valve is a relief valve with AO or HO actuator. Does **not** meet Code definition of PORV (ISTC-2000). Exempt from Cat B testing (ISTC-3500/ISTC-3700) per ISTC-1200.
X	X	No		**ISTC-5240** **App. I**	Valve is a relief valve with AO or HO actuator. Does **not** meet Code definition of PORV (ISTC-2000). Exempt from Cat B testing (ISTC-3500/ISTC-3700) per ISTC-1200.
X	X	Yes	**ISTC-3700** **ISTC-5110**		Should not be classified Category C. Relief valves do not meet the Code definition of PORV (ISTC-2000).

* **As applicable**

A Relief Request **SHALL BE SUBMITTED** for any ERV or PORV that does not meet the applicable test requirements specified in the above table.

A detailed description of the rationale behind the category designation, the assignment of testing requirements, and how they are satisfied **SHALL BE PROVIDED** on the applicable IST Bases Document Valve Data Sheets.

References:

1. ASME OM Code, 1995 Edition and later, Subsection ISTC, Inservice Testing of Valves in Light-Water Reactor Nuclear Power Plants
2. ASME OM Code, 1995 Edition and later, Mandatory Appendix I, Inservice Testing of Pressure Relief Devices in Light-Water Reactor Nuclear Power Plants

Number: **CTP-IST-011, Rev. 0**

Title: **Extension of Valve Exercise Test Frequencies to Cold Shutdown or Refueling Outage**

Applicability: All Exelon IST Programs

Background: Requirements for exercise testing of Category A and B power-operated valves and check valves (Category C) are stipulated in the OM Code as follows:

ISTC-3510 states: "Active Category A, Category B and Category C check valves shall be exercised nominally every 3 mo, except as provided by paras. ISTC-3520, ISTC-3540, ISTC-3550, ISTC-3570, ISTC-5221 and ISTC-5222." Plant Technical Specifications for IST identify the 3 month frequency as once per 92 days with allowance for a 25% extension.

ISTC-3520 is divided into ISTC-3521 for Category A and Category B valves, and ISTC-3522 for Category C check valves. ISTC-3521 states: "Category A and B valves shall be tested as follows:

(a) full-stroke exercising of Category A and Category B valves during operation at power to the position(s) required to fulfill its function(s).
(b) if full-stroke exercising during operation at power is not practicable, it may be limited to part-stroke during operation at power and full-stroke during cold shutdowns.
(c) if exercising is not practicable during operation at power, it may be limited to full-stroke exercising during cold shutdowns.
(d) if exercising is not practicable during operation at power and full-stroke during cold shutdowns is also not practicable, it may be limited to part-stroke during cold shutdowns and full-stroke during refueling outages.
(e) if exercising is not practicable during operation at power or cold shutdowns, it may be limited to full-stroke during refueling outages.

Paragraphs (f) through (h) provide additional limitations on cold shutdown and refueling outage exercise testing.

ISTC-3522 provides essentially the same requirements for check valves except that the requirement to consider partial-stroke exercising is not included.

ISTC-3540 stipulates exercise testing frequency requirements for manual valves. ISTC-3550 discusses valves in regular use, ISTC-3570 addresses valves in systems out-of-service, ISTC-5221 addresses special frequency considerations for check valves in a sample disassembly and inspection program, and ISTC-5222 addresses check valves in a condition monitoring program.

ISTC-3521 makes it clear that the intent of the Code is for valves to be exercised quarterly unless it is impracticable to do so. When it is impracticable, the graduated approach of ISTC-3521 through cold shutdown and refueling frequencies and partial and full-stroke exercising impose an obligation on the owner to perform at least some testing as frequently as practicable.

The determination of "practicability" is left to the owner. The industry has universally adopted the practice of writing Cold Shutdown and Refueling Outage Justifications to document conditions that they believe to be "impracticable". There are no Code or regulatory definitions of impracticability nor are there any

Code or regulatory requirements to prepare Cold Shutdown or Refueling Outage Justifications. However, Reference 2 provides a good deal of useful guidance regarding a regulatory opinion of what constitutes it. Merriam-Webster defines "impracticable" as (1) impassable or (2) not practicable; incapable of being performed or accomplished by the means employed or at command".

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Position: The following direction **SHALL BE IMPLEMENTED** when establishing exercise test frequencies for power-operated Category A and B valves and Category C check valves:

1. Stations **SHALL DETERMINE** the practicability of performing exercise testing of all valves in their IST Programs in accordance with the Code.
2. When preparing or performing a technical revision to a Cold Shutdown or Refueling Outage Justification, the Station IST Engineer **SHALL OBTAIN** a peer review from the Corporate IST Engineer and at least one other Site IST Program Engineer.
3. Cold Shutdown and Refueling Outage Justifications **SHALL PROVIDE** a strong, clear technical case for the testing deferral. References to NUREG-1482 may be made to support the justification; however, it is not to be cited as the justification itself.

References:

1. ASME OM Code, 1995 Edition and later, Subsection ISTC, Inservice Testing of Valves in Light-Water Reactor Nuclear Power Plants
2. NUREG 1482, Revision 1, Guidelines for Inservice Testing at Nuclear Power Plants, Sections 2.4.5 and 3.1.

Number: **CTP-IST-012, Rev. 0**

Title: **Use of ASME OM Code Cases for Inservice Testing**

Applicability: All Exelon IST Programs

Background: Code Cases are issued to clarify the intent of existing Code requirements or to provide alternatives to those requirements. Adoption of the alternative requirements provided by Code Cases are optional; they only become mandatory when an owner commits to them. Code Cases are included as a separate section at the end of published editions/addenda of the OM Code for the user's convenience. They are not a part of any Code edition or addenda and endorsement of specific editions/ addenda of the OM Code by the NRC does not constitute endorsement of the Code Cases.

If the Code Committee desires to make the requirements of a Code Case mandatory, those requirements are incorporated into the Code at a later date. For example, Code Case OMN-1, Alternative Rules for Preservice and Inservice Testing of Active Electric Motor Operated Valve Assemblies in Light-Water Reactor Power Plants, was incorporated into the 2009 Edition of the OM Code as Mandatory Appendix III. Appendix III will become mandatory for IST Programs when 10 CFR 50.55a imposes the requirement that 10-year interval updates meet the requirements of the 2009 Edition of the ASME Code or later. Until such time, plants may optionally implement OMN-1 or may continue to perform stroke-time testing and position indication verification in accordance with Subsection ISTC requirements.

In order for an OM Code Case to be used in an Inservice Testing Program at a nuclear power plant, it must be authorized by ASME and approved by the NRC. A Code Case is authorized for use by ASME as soon as it is published, provided certain limitations included in the Code Case, such as the applicability statement, are met. OM Code Cases are published on the ASME Web site at http:// cstools.asme.org and in Mechanical Engineering magazine as they are issued.

Efforts to clarify or simplify the use of Code Cases have instead created conflicting requirements which need to be addressed in order to avoid noncompliance with the Code or CFR. These include:

- The Code of Federal Regulations, paragraph 10 CFR 50.55a(b)(6) states that Licensees may apply ASME OM Code Cases listed in Regulatory Guide 1.192 without prior NRC approval subject to certain conditions. One condition states that when a licensee initially applies a listed Code case, the licensee shall apply the most recent version of the Code case "incorporated by reference in this paragraph". A second condition states that if a licensee has previously applied a Code case and a later version of the Code case is "incorporated by reference in this paragraph", the licensee may continue to apply, to the end of the current 120-month interval, the previous version of the Code case or may apply the later version of the Code case, including any NRC-specified conditions placed on its use. A third condition restricts the use of annulled Code cases to those that were in use prior to their annulment.

  It is not clear what "incorporated by reference in this paragraph" is referring to. If "this paragraph" means 10 CFR 50.55a(b)(6), this would refer to Reg Guide 1.192. If it refers more broadly to 10 CFR 50.55a(b), this would also include 10CFR 50.55a(b)(3), which contains the endorsement of the latest edition/addenda of the OM Code approved for use by the NRC. In the first case, Reg Guide 1.192 was published in June 2003 with no revisions to date. Versions of the Code cases referenced therein have all exceeded their expiration dates and are not applicable to current Code editions. In the latter case, since Code Cases are independent of Code

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editions/addenda, there is a disconnect between approval of Code versus Code Cases.

- Requirements for the use of Code Cases are stipulated in the body of the OM Code. In all cases from the OM-1995 Edition through the OMa-2011 Addenda, it is required that "Code Cases shall be applicable to the edition and addenda specified in the inservice test plan" and " Code Cases shall be in effect at the time the inservice test plan is filed". These requirements are almost never met.
- Code Cases provided as attachments up to and including the OMb-2006 Addenda contained expiration dates. These dates are usually prior to the time it is desired to use the Code Case.
- Each Code Case contains an applicability statement. Even in the latest Edition/addenda of the Code incorporated by reference in 10 CFR 50.55a, these statements usually indicate that the Code Case applies to earlier versions of the Code than what is required to be used.

Despite the inconveniences in implementing Code Cases, they often provide alternatives to the Code that are technically superior and highly desirable from a cost-efficiency perspective. Therefore, each plant should review the potential use of Code Cases with Corporate Engineering, particularly when in the process of performing 10-year updates.

Position: The following requirements **SHALL BE IMPLEMENTED** in order to use ASME OM Code Cases at Exelon stations:

1. All Code Cases used by a Station for their IST Program **SHALL BE LISTED** in the IST Program Plan.
2. Code Case expiration dates, applicability statements, and the Edition/ addenda of the Code-in-effect for a Station's IST Program **SHALL** all be compatible for Code Cases implemented in an IST Program **OR** a Relief Request **SHALL BE SUBMITTED** to use the Code Case in accordance with Reference 2 of this CTP.

References:

1. ASME OM Code, 1995 Edition and later, Subsection ISTA, General Requirements
2. ER-AA-321, Administrative Requirements for Inservice Testing

Number: **CTP-IST-013, Rev. 0**

Title: **Exercise Testing Requirements for Valves with Fail-Safe Actuators**

Applicability: All Exelon IST Programs

Background: Valves with fail-safe positions usually have actuators that use the fail-safe mechanism to stroke the valve to the fail-safe position during normal operation. For example, an air-operated valve that fails closed may use air to open the valve against spring pressure. When the actuator is placed in the closed position, air is vented from the diaphragm and the spring moves the obturator to the closed position.

The fail-safe test is generally an integral part of the stroke time exercise test and is thus performed at the same frequency. Where the exercise test is performed less frequent than every 3 months, a cold shutdown justification, refueling outage justification, or relief request is required. The same justification for the stroke time exercise test would also apply to the fail-safe test.

Position: In cases where normal valve operation moves the valve to the fail-safe position by de-energizing the operator electrically, by venting air, or both (e.g., a solenoid valve in the air supply system of a valve operator moves to the vent position on loss of power), no additional fail-safe testing is required.

In cases where a fail-safe actuator does not operate as an integral part of normal actuator operation, the fail-safe feature(s) must be tested in a manner that demonstrates proper operation of each component that contributes to the fail-safe operation. The means used to meet this requirement shall be described in the IST Bases Document.

References:

1. ASME OM Code, Code for Operation and Maintenance of Nuclear Power Plants, 1995 Edition and later, Subsection ISTC.

Number: **CTP-IST-014, Rev. 0**

Title: **Bi-directional Testing of Check Valves to Their Safety and Non-Safety Related Positions**

Applicability: All Exelon IST Programs

Background: This CTP addresses those cases in which inservice testing of check valves is performed in accordance with the requirements of ISTC-5221. It does not address these issues for check valves that are included in a Condition Monitoring Program. References 2 and 3 of this CTP provide additional information regarding check valve testing and Condition Monitoring.

The OM Code changed the focus of inservice testing of check valves from the ability to demonstrate that a check valve was capable of being in its safety-related position to demonstrating that the obturator was capable of free, unobstructed movement in both directions. This was accomplished by introducing a bidirectional testing requirement to inservice testing of check valves. Confirmation of this change in focus is evidenced by the fact that the Code required frequency for bi-directional testing of check valves is the lesser of the frequencies that the open direction and close direction tests can be performed. In other words, if a check valve is capable of being tested in the open direction quarterly but can only be tested closed during refueling outages, the Code required frequency for the bidirectional test is every refueling outage irrespective of the valve's safety position(s).

Condition Monitoring is the preferred method for check valve testing and inspection. For check valves that are not in a Condition Monitoring Program, the OM Code provides three options: flow/flow reversal, use of an external mechanical exerciser, and sample disassembly/examination. Of these, the flow and mechanical exerciser methods are preferred; the Code limits sample disassembly/ examination to those cases where the others are impractical. In all of these non-Condition Monitoring methods, demonstration of unobstructed obturator travel in the open and closed directions is required.

Position: The following requirements **SHALL BE MET** when implementing this CTP:

1. When using flow to demonstrate opening of a check valve with an open safety function, **OBSERVE** that the obturator has traveled to **EITHER** the full open position **OR** to the position required to perform its intended safety function(s).
   Travel to the position required to perform its intended safety function(s) is defined as the minimum flow required to mitigate the system's most limiting accident requirements. For example, if three different accident scenarios called for flows of 300, 600 and 1000 gpm respectively, the required test flow would be 1000 gpm.
   The full open position is defined as the point at which the obturator is restricted from further travel (e.g., hits the backstop). Methods for demonstrating travel to the full open position must be qualified if less than required accident flow is used.
2. When using flow to demonstrate that the obturator of a valve that does not have an open safety function has traveled open, the test **MUST DEMONSTRATE** that the obturator is unimpeded.
3. Tests for check valve closure **MUST DEMONSTRATE** that the check valve has travelled to the closed position, not merely that it is in the closed position.
4. Whenever design requirements are used for IST acceptance criteria, instrument accuracy **MUST BE CONSIDERED**. This can be accomplished by determining that sufficient margin was included in the design calculation or by adding a correction to the IST acceptance criteria.

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5. Non-intrusive methods used to credit obturator position **SHALL BE QUALIFIED.** Documentation of the means used to qualify the test method(s) shall be documented in the IST Bases Document.
6. The Code requirement satisfied for each check valve, identification of the method used to satisfy the Code requirement, and a description of how the method satisfies the requirement **SHALL BE PROVIDED OR RERENENCED** on the Valve Data Sheet in the IST Bases Document for each check valve.

References:

1. ASME OM Code, Code for Operation and Maintenance of Nuclear Power Plants, 1995 Edition and later, Subsection ISTC.
2. ER-AA-321, Administrative Requirements for Inservice Testing
3. ER-AA-321-1005, Condition Monitoring for Inservice Testing of Check Valves

4.16 Inservice Testing Pump Tables

Core Spray (Page 1)

Pump EPN	Test Group	Safety Class	Pump Type	Pump Driver	Nominal Speed	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
1-1401A	B	2	C	M	3600	M-0036	E-08	DP	Y2			004
								DP	M3			004
								V	Y2			004
		Pump Name U1A Core Spray										
1-1401B	B	2	C	M	3600	M-0036	E-05	DP	M3			004
								DP	Y2			004
								V	Y2			004
		Pump Name U1B Core Spray										
2-1401A	B	2	C	M	3600	M-0078	F-09	DP	M3			004
								DP	Y2			004
								V	Y2			004
		Pump Name U2A Core Spray										
2-1401B	B	2	C	M	3600	M-0078	F-05	DP	M3			004
								DP	Y2			004
								V	Y2			004
		Pump Name U2B Core Spray										

Emergency Diesel Generator Cooling Water (Page 1)

Pump EPN	Test Group	Safety Class	Pump Type	Pump Driver	Nominal Speed	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
0-3903	B	3	C	M	3600	M-0022-3	C-09	DP	Y2			
								DP	M3			
								V	Y2			
		Pump Name U0 Emergency Diesel Generator Cooling Water										
1-3903	B	3	C	M	3600	M-0022-3	F-09	DP	Y2			
								DP	M3			
								V	Y2			
		Pump Name U1 Emergency Diesel Generator Cooling Water										
2-3903	B	3	C	M	3600	M-0069-3	F-09	DP	Y2			
								DP	M3			
								V	Y2			
		Pump Name U2 Emergency Diesel Generator Cooling Water										

Emergency Diesel Generator Fuel Oil Transfer (Page 1)

Pump EPN	Test Group	Safety Class	Pump Type	Pump Driver	Nominal Speed	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
0-5203	B	SR	PDN	M	1800	M-0029-2	F-05	Q	M3			
								Q	Y2			
								V	Y2			
		Pump Name U0 EDG Fuel Oil Transfer										
0-5208	S	SR	C	M	1200	M-0029-2	E-06	N/A	N/A			
		Pump Name U0 EDG Fuel Oil Priming										
1-5203	B	SR	PDN	M	1200	M-0029-2	F-02	Q	Y2			
								Q	M3			
								V	Y2			
		Pump Name U1 EDG Fuel Oil Transfer										
1-5208	S	SR	C	M	1200	M-0029-2	E-04	N/A	N/A			
		Pump Name U1 EDG Fuel Oil Priming										
2-5203	B	SR	PDN	M	1800	M-0029-2	E-08	Q	Y2			
								Q	M3			
								V	Y2			
		Pump Name U2 EDG Fuel Oil Transfer										
2-5208	S	SR	C	M	1200	M-0029-2	D-09	N/A	N/A			
		Pump Name U2 EDG Fuel Oil Priming										

High Pressure Coolant Injection (Page 1)

Pump EPN	Test Group	Safety Class	Pump Type	Pump Driver	Nominal Speed	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
1-2302	B	2	C	T	3500	M-0046-1	A-05	DP	M3			
								DP	Y2			
								V	Y2			
		Pump Name U1 High Pressure Coolant Injection Pump										
1-2304	S	2	C	M	3600	M-0046-1	E-02	DP	M3			007
								DP	Y2			007
		Pump Name U1 HPCI Gland Seal Condensate Pump										
1-2308	S	NS	VLS	M	3600	M-0046-3	A-03	P	M3			007
								P	Y2			007
		Pump Name U1 HPCI Auxiliary Oil Pump										
1-2312-HP	S	SR	PDN	T	Variable	M-0046-3	C-06	DP	M3			007
								DP	Y2			007
		Pump Name U1 HPCI Main Oil HP Pump										
1-2312-LP	S	SR	PDN	T	Variable	M-0046-3	C-06	DP	M3			007
								DP	Y2			007
		Pump Name U1 HPCI Main Oil LP Pump										
2-2302	B	2	C	T	3500	M-0087-1	B-05	DP	M3			
								DP	Y2			
								V	Y2			
		Pump Name U2 High Pressure Coolant Injection Pump										
2-2304	S	2	C	M	3600	M-0087-1	E-02	DP	M3			007
								DP	Y2			007
		Pump Name U2 HPCI Gland Seal Condensate Pump										
2-2308	S	NS	VLS	M	3600	M-0087-3	A-03	P	M3			007
								P	Y2			007
		Pump Name U2 HPCI Auxiliary Oil Pump										
2-2312-HP	S	SR	PDN	T	Variable	M-0087-3	C-06	DP	Y2			007
								DP	M3			007
		Pump Name U2 HPCI Main Oil HP Pump										
2-2312-LP	S	SR	PDN	T	Variable	M-0087-3	C-06	DP	M3			007
								DP	Y2			007
		Pump Name U2 HPCI Main Oil LP Pump										

Residual Heat Removal (Page 1)

Pump EPN	Test Group	Safety Class	Pump Type	Pump Driver	Nominal Speed	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
1-1001-65A	A	3	C	M	1800	M-0037	D-02	DP	Y2			
								DP	M3			
								V	Y2			
								V	M3			
		Pump Name U1A Residual Heat Removal Service Water										
1-1001-65B	A	3	C	M	1800	M-0037	F-02	DP	M3			
								DP	Y2			
								V	M3			
								V	Y2			
		Pump Name U1B Residual Heat Removal Service Water										
1-1001-65C	A	3	C	M	1800	M-0037	D-09	DP	M3			
								DP	Y2			
								V	M3			
								V	Y2			
		Pump Name U1C Residual Heat Removal Service Water										
1-1001-65D	A	3	C	M	1800	M-0037	F-09	DP	M3			
								DP	Y2			
								V	Y2			
								V	M3			
		Pump Name U1D Residual Heat Removal Service Water										
1-1002A	A	2	C	M	3600	M-0039-2	C-04	DP	M3			004
								DP	Y2			004
								V	M3			004
								V	Y2			004
		Pump Name U1A Residual Heat Removal										
1-1002B	A	2	C	M	3600	M-0039-2	F-04	DP	M3			004
								DP	Y2			004
								V	Y2			004
								V	M3			004
		Pump Name U1B Residual Heat Removal										
1-1002C	A	2	C	M	3600	M-0039-2	C-07	DP	Y2			004
								DP	M3			004
								V	M3			004
								V	Y2			004
		Pump Name U1C Residual Heat Removal										

Residual Heat Removal (Page 2)

Pump EPN	Test Group	Safety Class	Pump Type	Pump Driver	Nominal Speed	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
1-1002D	A	2	C	M	3600	M-0039-2	F-07	DP	Y2			004
								DP	M3			004
								V	Y2			004
								V	M3			004
	Pump Name U1D Residual Heat Removal											
2-1001-65A	A	3	C	M	1800	M-0079	D-02	DP	M3			
								DP	Y2			
								V	M3			
								V	Y2			
	Pump Name U2A Residual Heat Removal Service Water											
2-1001-65B	A	3	C	M	1800	M-0079	F-02	DP	Y2			
								DP	M3			
								V	Y2			
								V	M3			
	Pump Name U2B Residual Heat Removal Service Water											
2-1001-65C	A	3	C	M	1800	M-0079	D-09	DP	Y2			
								DP	M3			
								V	M3			
								V	Y2			
	Pump Name U2C Residual Heat Removal Service Water											
2-1001-65D	A	3	C	M	1800	M-0079	F-09	DP	M3			
								DP	Y2			
								V	Y2			
								V	M3			
	Pump Name U2D Residual Heat Removal Service Water											
2-1002A	A	2	C	M	3600	M-0081-2	C-04	DP	M3			004
								DP	Y2			004
								V	M3			004
								V	Y2			004
	Pump Name U2A Residual Heat Removal											
2-1002B	A	2	C	M	3600	M-0081-2	F-04	DP	Y2			004
								DP	M3			004
								V	M3			004
								V	Y2			004
	Pump Name U2B Residual Heat Removal											

Residual Heat Removal (Page 3)

Pump EPN	Test Group	Safety Class	Pump Type	Pump Driver	Nominal Speed	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
2-1002C	A	2	C	M	3600	M-0081-2	C-07	DP	Y2			004
								DP	M3			004
								V	M3			004
								V	Y2			004
		Pump Name U2C Residual Heat Removal										
2-1002D	A	2	C	M	3600	M-0081-2	F-07	DP	Y2			004
								DP	M3			004
								V	Y2			004
								V	M3			004
		Pump Name U2D Residual Heat Removal										

Reactor Core Isolation Cooling (Page 1)

Pump EPN	Test Group	Safety Class	Pump Type	Pump Driver	Nominal Speed	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
1-1302	B	NS	C	T	4400	M-0050-1	B-06	DP	M3			
								DP	Y2			
								V	Y2			
		Pump Name U1 Reactor Core Isolation Cooling										
1-1303D	S	NS	PDN	T	Variable	M-0050-2	D-07	N/A	N/A			
		Pump Name RCIC Turbine Driven Lube Oil										
2-1302	B	NS	C	T	4400	M-0089-1	B-06	DP	Y2			
								DP	M3			
								V	Y2			
		Pump Name U2 Reactor Core Isolation Cooling										
2-1303D	S	NS	PDN	T	Variable	M-0089-2	D-07	N/A	N/A			
		Pump Name RCIC Turbine Driven Lube Oil										

Standby Liquid Control (Page 1)

Pump EPN	Test Group	Safety Class	Pump Type	Pump Driver	Nominal Speed	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
1-1102A	B	2	PDR	M	420	M-0040	D-06	Q	Y2			
								Q	M3			
								V	Y2			
		Pump Name U1A Standby Liquid Control										
1-1102B	B	2	PDR	M	420	M-0040	E-06	Q	M3			
								Q	Y2			
								V	Y2			
		Pump Name U1B Standby Liquid Control										
2-1102A	B	2	PDR	M	420	M-0082	D-06	Q	M3			
								Q	Y2			
								V	Y2			
		Pump Name U2A Standby Liquid Control										
2-1102B	B	2	PDR	M	420	M-0082	F-06	Q	M3			
								Q	Y2			
								V	Y2			
		Pump Name U2B Standby Liquid Control										

Safe Shutdown Makeup (Page 1)

Pump EPN	Test Group	Safety Class	Pump Type	Pump Driver	Nominal Speed	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
0-2901	B	NS	C	M	3600	M-0070	D-06	DP	M3			
								DP	Y2			
								V	Y2			

Pump Name U0 Safe Shutdown Make-Up

4.17 Inservice Testing Valve Tables

Containment Atmosphere Monitoring (Page 1)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
1-2498-006A-SO	NS	S	0.25	GA	SO	P	C	C	CID-641-1	B-02	FD	M3			007, 013
											SD	M3			007
		Valve Name	CAM-HYDROGEN ANALYZER CALIBRATION GAS SOLENOID												
1-2498-006B-SO	NS	S	0.25	GA	SO	P	C	C	CID-641-1	B-07	FD	M3			007, 013
											SD	M3			007
		Valve Name	CAM-HYDROGEN ANALYZER CALIBRATION GAS SOLENOID												
1-2498-008A	SR	A/C	0.25	CK	SA	A	O	C	CID-641-1	C-02	CCF	CM			007
											COF	CM			007
											LTJ	AJ			
		Valve Name	CAM-HYDROGEN ANALYZER CALIBRATION GAS CHECK VLV												
1-2498-008B	SR	A/C	0.25	CK	SA	A	O	C	CID-641-1	C-07	CCF	CM			007
											COF	CM			007
											LTJ	AJ			
		Valve Name	CAM-HYDROGEN ANALYZER CALIBRATION GAS CHECK VLV												
1-2498-009A-SO	SR	B	0.25	GA	SO	A	C	O	CID-641-1	B-03	FO	M3			007, 013
											SO	M3			007
		Valve Name	CAM-REAGENT GAS SUPPLY VALVE												
1-2498-009B-SO	SR	B	0.25	GA	SO	A	C	O	CID-641-1	B-08	FO	M3			007, 013
											SO	M3			007
		Valve Name	CAM-REAGENT GAS SUPPLY VALVE												
1-2498-011A	SR	A/C	0.25	CK	SA	A	O	O/C	CID-641-1	C-03	CCF	CM			007
											COF	CM			007
											LTJ	AJ			
		Valve Name	CAM-REAGENT GAS SUPPLY CHECK												
1-2498-011B	SR	A/C	0.25	CK	SA	A	O	O/C	CID-641-1	C-08	CCF	CM			007
											COF	CM			007
											LTJ	AJ			
		Valve Name	CAM-REAGENT GAS SUPPLY CHECK												
1-2498-012A-SO	NS	S	0.25	GA	SO	P	C	C	CID-641-1	B-03	FD	M3			007, 013
											SD	M3			007
		Valve Name	CAM-OXYGEN ANALYZER CALIBRATION GAS SOLENOID												
1-2498-012B-SO	NS	S	0.25	GA	SO	P	C	C	CID-641-1	B-08	FD	M3			007, 013
											SD	M3			007
		Valve Name	CAM-OXYGEN ANALYZER CALIBRATION GAS SOLENOID												

Containment Atmosphere Monitoring (Page 2)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
1-2498-014A	SR	A/C	0.25	CK	SA	A	O	C	CID-641-1	C-03	CCF	CM			007
											COF	CM			007
											LTJ	AJ			
Valve Name CAM-OXYGEN ANALYZER CALIBRATION GAS CHECK VLV															
1-2498-014B	SR	A/C	0.25	CK	SA	A	O	C	CID-641-1	C-08	CCF	CM			007
											COF	CM			007
											LTJ	AJ			
Valve Name CAM-OXYGEN ANALYZER CALIBRATION GAS CHECK VLV															
1-2498-015A-SO	SR	B	0.25	GA	SO	A	C	O	CID-641-1	B-04	FO	M3			007, 013
											SO	M3			007
Valve Name CAM-REAGENT GAS SUPPLY VALVE															
1-2498-015B-SO	SR	B	0.25	GA	SO	A	C	O	CID-641-1	B-09	FO	M3			007, 013
											SO	M3			007
Valve Name CAM-REAGENT GAS SUPPLY VALVE															
1-2498-017A	SR	A/C	0.25	CK	SA	A	O	O/C	CID-641-1	C-04	CCF	CM			007
											COF	CM			007
											LTJ	AJ			
Valve Name CAM-REAGENT GAS SUPPLY CHECK															
1-2498-017B	SR	A/C	0.25	CK	SA	A	O	O/C	CID-641-1	C-09	CCF	CM			007
											COF	CM			007
											LTJ	AJ			
Valve Name CAM-REAGENT GAS SUPPLY CHECK															
1-2499-001A-SO	MC	A	0.5	GA	SO	A	C	O/C	M-641-1	D-07	FC	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
											STO	M3			
Valve Name CAM-DRYWELL SAMPLE PATH SELECTION VALVE															
1-2499-001B-SO	MC	A	0.5	GA	SO	A	C	O/C	M-641-1	D-03	FC	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
											STO	M3			
Valve Name CAM-DRYWELL SAMPLE PATH SELECTION VALVE															

Containment Atmosphere Monitoring (Page 3)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
1-2499-002A-SO	MC	A	0.5	GA	SO	A	C	O/C	M-641-1	D-06	FC	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
											STO	M3			
		Valve Name	CAM-DRYWELL SAMPLE PATH SELECTION VALVE												
1-2499-002B-SO	MC	A	0.5	GA	SO	A	C	O/C	M-641-1	D-03	FC	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
											STO	M3			
		Valve Name	CAM-DRYWELL SAMPLE PATH SELECTION VALVE												
1-2499-003A-SO	MC	A	0.5	GA	SO	A	C	O/C	M-641-1	B-07	FC	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
											STO	M3			
		Valve Name	CAM-TORUS SAMPLE PATH SELECTION VALVE												
1-2499-003B-SO	MC	A	0.5	GA	SO	A	C	O/C	M-641-1	B-02	FC	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
											STO	M3			
		Valve Name	CAM-TORUS SAMPLE PATH SELECTION VALVE												
1-2499-004A-SO	MC	A	0.5	GA	SO	A	C	O/C	M-641-1	B-06	FC	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
											STO	M3			
		Valve Name	CAM-TORUS SAMPLE PATH SELECTION VALVE												

Containment Atmosphere Monitoring (Page 4)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
1-2499-004B-SO	MC	A	0.5	GA	SO	A	C	O/C	M-641-1	B-03	FC	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
											STO	M3			
		Valve Name	CAM-TORUS SAMPLE PATH SELECTION VALVE												
1-2499-022A	MC	A/C	0.5	CK	SA	A	O	O/C	M-641-1	C-07	CCF	CM			
											COF	CM			
											LTJ	AJ			
		Valve Name	CAM-ATMOSPHERE SAMPLE RETURN CHECK												
1-2499-022B	MC	A/C	0.5	CK	SA	A	O	O/C	M-641-1	C-02	CCF	CM			
											COF	CM			
											LTJ	AJ			
		Valve Name	CAM-ATMOSPHERE SAMPLE RETURN CHECK												
2-2498-006A-SO	NS	S	0.25	GA	SO	P	C	C	CID-641-2	B-02	FD	M3			007, 013
											SD	M3			007
		Valve Name	CAM-HYDROGEN ANALYZER CALIBRATION GAS SOLENOID												
2-2498-006B-SO	NS	S	0.25	GA	SO	P	C	C	CID-641-2	B-07	FD	M3			007, 013
											SD	M3			007
		Valve Name	CAM-HYDROGEN ANALYZER CALIBRATION GAS SOLENOID												
2-2498-008A	SR	A/C	0.25	CK	SA	A	O	C	CID-641-2	C-02	CCF	CM			007
											COF	CM			007
											LTJ	AJ			
		Valve Name	CAM-HYDROGEN ANALYZER CALIBRATION GAS CHECK VLV												
2-2498-008B	SR	A/C	0.25	CK	SA	A	O	C	CID-641-2	C-07	CCF	CM			007
											COF	CM			007
											LTJ	AJ			
		Valve Name	CAM-HYDROGEN ANALYZER CALIBRATION GAS CHECK VLV												
2-2498-009A-SO	SR	B	0.25	GA	SO	A	C	O	CID-641-2	B-03	FO	M3			007, 013
											SO	M3			007
		Valve Name	CAM-REAGENT GAS SUPPLY VALVE												
2-2498-009B-SO	SR	B	0.25	GA	SO	A	C	O	CID-641-2	B-08	FO	M3			007, 013
											SO	M3			007
		Valve Name	CAM-REAGENT GAS SUPPLY VALVE												

Containment Atmosphere Monitoring (Page 5)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
2-2498-011A	SR	A/C	0.25	CK	SA	A	O	O/C	CID-641-2	C-03	CCF	CM			007
											COF	CM			007
											LTJ	AJ			
Valve Name CAM-REAGENT GAS SUPPLY CHECK															
2-2498-011B	SR	A/C	0.25	CK	SA	A	O	O/C	CID-641-2	C-08	CCF	CM			007
											COF	CM			007
											LTJ	AJ			
Valve Name CAM-REAGENT GAS SUPPLY CHECK															
2-2498-012A-SO	NS	S	0.25	GA	SO	P	C	C	CID-641-2	B-03	FD	M3			007, 013
											SD	M3			007
Valve Name CAM-OXYGEN ANALYZER CALIBRATION GAS SOLENOID															
2-2498-012B-SO	NS	S	0.25	GA	SO	P	C	C	CID-641-2	B-08	FD	M3			007, 013
											SD	M3			007
Valve Name CAM-OXYGEN ANALYZER CALIBRATION GAS SOLENOID															
2-2498-014A	SR	A/C	0.25	CK	SA	A	O	C	CID-641-2	C-03	CCF	CM			007
											COF	CM			007
											LTJ	AJ			
Valve Name CAM-OXYGEN ANALYZER CALIBRATION GAS CHECK VLV															
2-2498-014B	SR	A/C	0.25	CK	SA	A	O	C	CID-641-2	C-08	CCF	CM			007
											COF	CM			007
											LTJ	AJ			
Valve Name CAM-OXYGEN ANALYZER CALIBRATION GAS CHECK VLV															
2-2498-015A-SO	SR	B	0.25	GA	SO	A	C	O	CID-641-2	B-04	FO	M3			007, 013
											SO	M3			007
Valve Name CAM-REAGENT GAS SUPPLY VALVE															
2-2498-015B-SO	SR	B	0.25	GA	SO	A	C	O	CID-641-2	B-09	FO	M3			007, 013
											SO	M3			007
Valve Name CAM-REAGENT GAS SUPPLY VALVE															
2-2498-017A	SR	A/C	0.25	CK	SA	A	O	O/C	CID-641-2	C-04	CCF	CM			007
											COF	CM			007
											LTJ	AJ			
Valve Name CAM-REAGENT GAS SUPPLY CHECK															
2-2498-017B	SR	A/C	0.25	CK	SA	A	O	O/C	CID-641-2	C-09	CCF	CM			007
											COF	CM			007
											LTJ	AJ			
Valve Name CAM-REAGENT GAS SUPPLY CHECK															

Containment Atmosphere Monitoring (Page 6)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
2-2499-001A-SO	MC	A	0.5	GA	SO	A	C	O/C	M-641-2	D-06	FC	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
											STO	M3			
		Valve Name	CAM-DRYWELL SAMPLE PATH SELECTION VALVE												
2-2499-001B-SO	MC	A	0.5	GA	SO	A	C	O/C	M-641-2	D-03	FC	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
											STO	M3			
		Valve Name	CAM-DRYWELL SAMPLE PATH SELECTION VALVE												
2-2499-002A-SO	MC	A	0.5	GA	SO	A	C	O/C	M-641-2	D-06	FC	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
											STO	M3			
		Valve Name	CAM-DRYWELL SAMPLE PATH SELECTION VALVE												
2-2499-002B-SO	MC	A	0.5	GA	SO	A	C	O/C	M-641-2	D-03	FC	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
											STO	M3			
		Valve Name	CAM-DRYWELL SAMPLE PATH SELECTION VALVE												
2-2499-003A-SO	MC	A	0.5	GA	SO	A	C	O/C	M-641-2	B-07	FC	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
											STO	M3			
		Valve Name	CAM-TORUS SAMPLE PATH SELECTION VALVE												

Containment Atmosphere Monitoring (Page 7)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
2-2499-003B-SO	MC	A	0.5	GA	SO	A	C	O/C	M-641-2	B-02	FC	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
											STO	M3			
		Valve Name	CAM-TORUS SAMPLE PATH SELECTION VALVE												
2-2499-004A-SO	MC	A	0.5	GA	SO	A	C	O/C	M-641-2	B-07	FC	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
											STO	M3			
		Valve Name	CAM-TORUS SAMPLE PATH SELECTION VALVE												
2-2499-004B-SO	MC	A	0.5	GA	SO	A	C	O/C	M-641-2	B-02	FC	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
											STO	M3			
		Valve Name	CAM-TORUS SAMPLE PATH SELECTION VALVE												
2-2499-022A	MC	A/C	0.5	CK	SA	A	O	O/C	M-641-2	C-07	CCF	CM			
											COF	CM			
											LTJ	AJ			
		Valve Name	CAM-ATMOSPHERE SAMPLE RETURN CHECK												
2-2499-022B	MC	A/C	0.5	CK	SA	A	O	O/C	M-641-2	C-02	CCF	CM			
											COF	CM			
											LTJ	AJ			
		Valve Name	CAM-ATMOSPHERE SAMPLE RETURN CHECK												

Control Rod Drive (Page 1)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.	Valve Name
1-0301-122	NS	C	1.5	CK	SA	A	C	O/C	M-41-2	G-02	CCD	CM				CRD-MASTER SCRAM DUMP CHECK
											COD	CM				
1-0302-019A-SO	SR	B	1	3W	SO	A	C	O	M-41-2	F-01	SE	CS		CSJ-03B		CRD-MASTER SCRAM PILOT VALVE
1-0302-019B-SO	SR	B	1	3W	SO	A	C	O	M-41-2	G-01	SE	CS		CSJ-03B		CRD-MASTER SCRAM PILOT VALVE
1-0302-020A-SO	SR	B	0.5	3W	SO	A	O	C	M-41-2	G-04	FD	CS		CSJ-03B	013	CRD-SDV VENT & DRAIN PILOT VALVE
											SD	CS		CSJ-03B		
1-0302-020B-SO	SR	B	0.5	3W	SO	A	O	C	M-41-2	G-05	FD	CS		CSJ-03B	013	CRD-SDV VENT & DRAIN PILOT VALVE
											SD	CS		CSJ-03B		
1-0302-021A-AO	2	B	1	DIA	AO	A	O	C	M-41-3	B-10	FC	M3			013	CRD-SCRAM DISCHARGE VOLUME (SDV) VENT
											PIC	Y2				
											PIO	Y2				
											STC	M3				
1-0302-021B-AO	SR	B	1	DIA	AO	A	O	C	M-41-3	B-09	FC	M3			013	CRD-SCRAM DISCHARGE VOLUME (SDV) VENT
											PIC	Y2				
											PIO	Y2				
											STC	M3				
1-0302-021C-AO	2	B	1	DIA	AO	A	O	C	M-41-3	B-01	FC	M3			013	CRD-SCRAM DISCHARGE VOLUME (SDV) VENT
											PIC	Y2				
											PIO	Y2				
											STC	M3				
1-0302-021D-AO	SR	B	1	DIA	AO	A	O	C	M-41-3	B-02	FC	M3			013	CRD-SCRAM DISCHARGE VOLUME (SDV) VENT
											PIC	Y2				
											PIO	Y2				
											STC	M3				

Control Rod Drive (Page 2)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
1-0302-022A-AO	2	B	2	DIA	AO	A	O	C	M-41-3	F-09	FC	M3			013
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name	CRD-SCRAM DISCHARGE VOLUME (SDV) DRAIN												
1-0302-022B-AO	SR	B	2	DIA	AO	A	O	C	M-41-3	F-10	FC	M3			013
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name	CRD-SCRAM DISCHARGE VOLUME (SDV) DRAIN												
1-0302-022C-AO	2	B	2	DIA	AO	A	O	C	M-41-3	G-02	FC	M3			013
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name	CRD-SCRAM DISCHARGE VOLUME (SDV) DRAIN												
1-0302-022D-AO	SR	B	2	DIA	AO	A	O	C	M-41-3	G-01	FC	M3			013
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name	CRD-SCRAM DISCHARGE VOLUME (SDV) DRAIN												
1-0302-025A-SO	SR	B	1	3W	SO	A	C	O	M-41-2	E-01	SE	CS		CSJ-03B	
		Valve Name	CRD-ALTERNATE ROD INJECT SCRAM SOLENOID												
1-0302-025B-SO	SR	B	1	3W	SO	A	C	O	M-41-2	E-02	SE	CS		CSJ-03B	
		Valve Name	CRD-ALTERNATE ROD INJECT SCRAM SOLENOID												
1-0302-026	NS	C	1.5	CK	SA	A	C	O/C	M-41-2	E-01	CCD	CM			
											COD	CM			
		Valve Name	CRD-ALTERNATE ROD INJECT SCRAM CHECK												
1-0302-181A-SO	SR	B	1	GA	SO	A	C	O	M-41-2	G-02	SO	CS		CSJ-03B	
		Valve Name	CRD-ALTERNATE ROD INJECT SCRAM SOLENOID												
1-0302-181B-SO	SR	B	1	GA	SO	A	C	O	M-41-2	G-02	SO	CS		CSJ-03B	
		Valve Name	CRD-ALTERNATE ROD INJECT SCRAM SOLENOID												
1-0302-182A-SO	SR	B	1	GA	SO	A	C	O	M-41-2	G-06	SO	CS		CSJ-03B	
		Valve Name	CRD-ALTERNATE ROD INJECT SCRAM SOLENOID												
1-0302-182B-SO	SR	B	1	GA	SO	A	C	O	M-41-2	G-06	SO	CS		CSJ-03B	
		Valve Name	CRD-ALTERNATE ROD INJECT SCRAM SOLENOID												

Control Rod Drive (Page 3)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
1-0305-114	2	S	0.75	CK	SA	A	C	O	M-41-1	F-2/-9	BDC	N/A			007, 014
											CO	RR		ROJ-03A	007
		Valve Name CRD-SCRAM DISCHARGE HEADER CHECK (TYP 177)													
1-0305-115	2	S	0.5	CK	SA	A	O	C	M-41-1	E-3/-8	BDO	M3			007, 014
											CC	CS		CSJ-03A	007
		Valve Name CRD-ACCUM CHARGING WATER HDR CHECK (TYP 177)													
1-0305-117-SO	SR	S	0.5	3W	SO	A	O	C	M-41-5	A-3/A-6	FD	RR		ROJ-03A	007, 013
											SD	RR		ROJ-03A	007
		Valve Name CRD-SCRAM PILOT SOLENOID (TYP 177)													
1-0305-118-SO	SR	S	0.5	3W	SO	A	O	C	M-41-5	B-3/A-6	FD	RR		ROJ-03A	007, 013
											SD	RR		ROJ-03A	007
		Valve Name CRD-SCRAM PILOT SOLENOID (TYP 177)													
1-0305-120-FCV	2	B	0.5	GA	SO	A	C	C	M-41-1	D-3/-7	FC	M3			007, 013
											SC	M3			007
		Valve Name CRD-DIRCTIONAL FLO CNTRL-W/DRAW(TYP 177)													
1-0305-121-SO	2	B	0.5	GA	SO	A	C	C	M-41-1	D-3/-8	FC	M3			007, 013
											SC	M3			007
		Valve Name CRD-DIRCTIONAL CNTRL VLV-INSERT(TYP 177)													
1-0305-122-SO	2	B	0.5	GA	SO	A	C	C	M-41-1	D-3/-8	FC	M3			007, 013
											SC	M3			007
		Valve Name CRD-DIRCTIONAL CNTRL VLV-W/DRAW(TYP 177)													
1-0305-123-FCV	2	B	0.5	GA	SO	A	C	C	M-41-1	D-3/-8	FC	M3			007, 013
											SC	M3			007
		Valve Name CRD-DIRCTIONAL FLO CNTRL-INSERT(TYP 177)													
1-0305-126-CV	2	S	1	DIA	AO	A	C	O	M-41-1	E-4/-7	FO	RR		ROJ-03A	007, 013
											SO	RR		ROJ-03A	007
		Valve Name CRD-SCRAM INLET VALVE (TYP 177)													
1-0305-127-CV	2	S	0.75	DIA	AO	A	C	O	M-41-1	E-2/-9	FO	RR		ROJ-03A	007, 013
											SO	RR		ROJ-03A	007
		Valve Name CRD-SCRAM OUTLET VALVE (TYP 177)													
1-0305-137	2	S	0.5	CK	SA	A	C	C	M-41-1	D-3/-8	BDO	M3			007, 014
											CC	RR		ROJ-03A	007
		Valve Name CRD DRIVE WATER CHECK													
1-0305-138	2	S	0.5	CK	SA	A	O	C	M-41-1	D-4/-7	BDO	OP			007, 014
											CC	M3			007
		Valve Name CRD-COOLING WATER CHECK VALVE (TYP 177)													

Control Rod Drive (Page 4)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
2-0301-122	NS	C	1.5	CK	SA	A	C	O/C	M-83-2	G-02	CCD	CM			
											COD	CM			
		Valve Name	CRD-MASTER SCRAM DUMP CHECK												
2-0302-019A-SO	SR	B	1	3W	SO	A	C	O	M-83-2	F-01	SE	CS		CSJ-03B	
		Valve Name	CRD-MASTER SCRAM PILOT VALVE												
2-0302-019B-SO	SR	B	1	3W	SO	A	C	O	M-83-2	G-01	SE	CS		CSJ-03B	
		Valve Name	CRD-MASTER SCRAM PILOT VALVE												
2-0302-020A-SO	SR	B	0.5	3W	SO	A	O	C	M-83-2	G-04	FD	CS		CSJ-03B	013
											SD	CS		CSJ-03B	
		Valve Name	CRD-SDV VENT & DRAIN PILOT VALVE												
2-0302-020B-SO	SR	B	0.5	3W	SO	A	O	C	M-83-2	G-05	FD	CS		CSJ-03B	013
											SD	CS		CSJ-03B	
		Valve Name	CRD-SDV VENT & DRAIN PILOT VALVE												
2-0302-021A-AO	2	B	1	DIA	AO	A	O	C	M-83-3	B-10	FC	M3			013
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name	CRD-SCRAM DISCHARGE VOLUME (SDV) VENT												
2-0302-021B-AO	SR	B	1	DIA	AO	A	O	C	M-83-3	B-09	FC	M3			013
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name	CRD-SCRAM DISCHARGE VOLUME (SDV) VENT												
2-0302-021C-AO	2	B	1	DIA	AO	A	O	C	M-83-3	B-01	FC	M3			013
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name	CRD-SCRAM DISCHARGE VOLUME (SDV) VENT												
2-0302-021D-AO	SR	B	1	DIA	AO	A	O	C	M-83-3	B-02	FC	M3			013
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name	CRD-SCRAM DISCHARGE VOLUME (SDV) VENT												

Control Rod Drive (Page 5)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
2-0302-022A-AO	2	B	2	DIA	AO	A	O	C	M-83-3	F-09	FC	M3			013
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name	CRD-SCRAM DISCHARGE VOLUME (SDV) DRAIN												
2-0302-022B-AO	SR	B	2	DIA	AO	A	O	C	M-83-3	F-10	FC	M3			013
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name	CRD-SCRAM DISCHARGE VOLUME (SDV) DRAIN												
2-0302-022C-AO	2	B	2	DIA	AO	A	O	C	M-83-3	G-02	FC	M3			013
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name	CRD-SCRAM DISCHARGE VOLUME (SDV) DRAIN												
2-0302-022D-AO	SR	B	2	DIA	AO	A	O	C	M-83-3	G-01	FC	M3			013
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name	CRD-SCRAM DISCHARGE VOLUME (SDV) DRAIN												
2-0302-025A-SO	SR	B	1	3W	SO	A	C	O	M-83-2	E-02	SE	CS		CSJ-03B	
		Valve Name	CRD-ALTERNATE ROD INJECT SCRAM SOLENOID												
2-0302-025B-SO	SR	B	1	3W	SO	A	C	O	M-83-2	E-01	SE	CS		CSJ-03B	
		Valve Name	CRD-ALTERNATE ROD INJECT SCRAM SOLENOID												
2-0302-026	NS	C	1.5	CK	SA	A	C	O/C	M-83-2	E-01	CCD	CM			
											COD	CM			
		Valve Name	CRD-ALTERNATE ROD INJECT SCRAM CHECK												
2-0302-181A-SO	SR	B	1	GA	SO	A	C	O	M-83-2	G-02	SO	CS		CSJ-03B	
		Valve Name	CRD-ALTERNATE ROD INJECT SCRAM SOLENOID												
2-0302-181B-SO	SR	B	1	GA	SO	A	C	O	M-83-2	G-02	SO	CS		CSJ-03B	
		Valve Name	CRD-ALTERNATE ROD INJECT SCRAM SOLENOID												
2-0302-182A-SO	SR	B	1	GA	SO	A	C	O	M-83-2	F-06	SO	CS		CSJ-03B	
		Valve Name	CRD-ALTERNATE ROD INJECT SCRAM SOLENOID												
2-0302-182B-SO	SR	B	1	GA	SO	A	C	O	M-83-2	G-06	SO	CS		CSJ-03B	
		Valve Name	CRD-ALTERNATE ROD INJECT SCRAM SOLENOID												

Control Rod Drive (Page 6)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
2-0305-114	2	S	0.75	CK	SA	A	C	O	M-83-1	F-2/-9	BDC	N/A			007, 014
											CO	RR		ROJ-03A	007
		Valve Name	CRD-SCRAM DISCHARGE HEADER CHECK (TYP 177)												
2-0305-115	2	S	0.5	CK	SA	A	O	C	M-83-1	E-3/-8	BDO	M3			007, 014
											CC	CS		CSJ-03A	007
		Valve Name	CRD-ACCUM CHARGING WATER HDR CHECK (TYP 177)												
2-0305-117-SO	SR	S	0.5	3W	SO	A	O	C	M-83-5	A-3/A-6	FD	RR		ROJ-03A	007, 013
											SD	RR		ROJ-03A	007
		Valve Name	CRD-SCRAM PILOT SOLENOID (TYP 177)												
2-0305-118-SO	SR	S	0.5	3W	SO	A	O	C	M-83-1	B-3/A-6	FD	RR		ROJ-03A	007, 013
											SD	RR		ROJ-03A	007
		Valve Name	CRD-SCRAM PILOT SOLENOID (TYP 177)												
2-0305-120-FCV	2	B	0.5	GA	SO	A	C	C	M-83-1	D-3/-7	FC	M3			007, 013
											SC	M3			007
		Valve Name	CRD-DIRCTIONAL FLO CNTRL W/DRAW(TYP 177)												
2-0305-121-SO	2	B	0.5	GA	SO	A	C	C	M-83-1	D-3/-8	FC	M3			007, 013
											SC	M3			007
		Valve Name	CRD-DIRCTIONAL CNTRL VLV-INSERT(TYP 177)												
2-0305-122-SO	2	B	0.5	GA	SO	A	C	C	M-83-1	D-3/-8	FC	M3			007, 013
											SC	M3			007
		Valve Name	CRD-DIRCTIONAL CNTRL VLV-W/DRAW(TYP 177)												
2-0305-123-FCV	2	B	0.5	GA	SO	A	C	C	M-83-1	D-3/-7	FC	M3			007, 013
											SC	M3			007
		Valve Name	CRD-DIRCTIONAL FLO CNTRL-INSERT(TYP 177)												
2-0305-126-CV	2	S	1	DIA	AO	A	C	O	M-83-1	E-4/-7	FO	RR		ROJ-03A	007, 013
											SO	RR		ROJ-03A	007
		Valve Name	CRD-SCRAM INLET VALVE (TYP 177)												
2-0305-127-CV	2	S	0.75	DIA	AO	A	C	O	M-83-1	E-2/-8	FO	RR		ROJ-03A	007, 013
											SO	RR		ROJ-03A	007
		Valve Name	CRD-SCRAM OUTLET VALVE (TYP 177)												
2-0305-137	2	S	0.5	CK	SA	A	C	C	M-83-1	D-3/-8	BDO	M3			007, 014
											CC	RR		ROJ-03A	007
		Valve Name	CRD DRIVE WATER CHECK												
2-0305-138	2	S	0.5	CK	SA	A	O	C	M-83-1	D-4/-7	BDO	OP			007, 014
											CC	M3			007
		Valve Name	CRD-COOLING WATER CHECK VALVE (TYP 177)												

Core Spray (Page 1)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
1-1402-003A-MO	2	B	18	GA	MO	A	O	O/C	M-36	G-06	DIA	MOV	RV-02		
											SC	Y2			
											SO	Y2			
		Valve Name	CORE SPRAY-TORUS SUCTION LINE ISOLATION												
1-1402-003B-MO	2	B	18	GA	MO	A	O	O/C	M-36	F-04	DIA	MOV	RV-02		
											SC	Y2			
											SO	Y2			
		Valve Name	CORE SPRAY-TORUS SUCTION LINE ISOLATION												
1-1402-004A-MO	2	B	8	GL	MO	A	C	C	M-36	A-08	DIA	MOV	RV-02		
											SC	M3			
											SO	M3			
		Valve Name	CORE SPRAY-TEST RETURN TO TORUS												
1-1402-004B-MO	2	B	8	GL	MO	A	C	C	M-36	B-07	DIA	MOV	RV-02		
											SC	M3			
											SO	M3			
		Valve Name	CORE SPRAY-TEST RETURN TO TORUS												
1-1402-006A	1	B	10	GA	M	P	LO	O	M-36	D-03	PIC	Y2			
											PIO	Y2			
		Valve Name	CORE SPRAY-INJECTION LINE MANUAL ISOLATION VALVE												
1-1402-006B	1	B	10	GA	M	P	LO	O	M-36	D-03	PIC	Y2			
											PIO	Y2			
		Valve Name	CORE SPRAY-INJECTION LINE MANUAL ISOLATION VALVE												
1-1402-008A	2	C	12	SCK	SA	A	C	O/C	M-36	D-09	CC	M3			
											CO	M3			
		Valve Name	CORE SPRAY-PUMP DISCHARGE CHECK												
1-1402-008B	2	C	12	SCK	SA	A	C	O/C	M-36	E-06	CC	M3			
											CO	M3			
		Valve Name	CORE SPRAY-PUMP DISCHARGE CHECK												
1-1402-009A	1	A/C	10	CK	SA	A	C	O/C	M-36	D-02	CC	RR		ROJ-00A	
											CO	CS		CSJ-14A	
											LT.	AJ	RV-03		
		Valve Name	CORE SPRAY-REACTOR VESSEL INJECTION CHECK												
1-1402-009B	1	A/C	10	CK	SA	A	C	O/C	M-36	D-04	CC	RR		ROJ-00A	
											CO	CS		CSJ-14A	
											LT.	AJ	RV-03		
		Valve Name	CORE SPRAY-REACTOR VESSEL INJECTION CHECK												

Core Spray (Page 2)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
1-1402-013A	2	C	1.5	SCK	SA	A	C	O	M-36	D-09	CCR	CM			
											COR	CM			
		Valve Name CORE SPRAY-MINIMUM FLOW RECIRC LINE CHECK													
1-1402-013B	2	C	1.5	SCK	SA	A	C	O	M-36	E-06	CCR	CM			
											COR	CM			
		Valve Name CORE SPRAY-MINIMUM FLOW RECIRC LINE CHECK													
1-1402-024A-MO	2	A	10	GA	MO	A	O	O/C	M-36	B-02	DIA	MOV	RV-02		
											LT	AJ			
											SC	Y2			
											SO	Y2			
		Valve Name CORE SPRAY-INJECTION LINE ISOLATION VALVE													
1-1402-024B-MO	2	A	10	GA	MO	A	O	O/C	M-36	B-04	DIA	MOV	RV-02		
											LT	AJ			
											SC	Y2			
											SO	Y2			
		Valve Name CORE SPRAY-INJECTION LINE ISOLATION VALVE													
1-1402-025A-MO	1	A	10	GA	MO	A	C	O/C	M-36	C-02	DIA	MOV	RV-02		
											LT	AJ			
											LT.	AJ	RV-03		
											SC	Y2			
											SO	Y2			
		Valve Name CORE SPRAY-REACTOR VESSEL INJECTION VALVE													
1-1402-025B-MO	1	A	10	GA	MO	A	C	O/C	M-36	C-04	DIA	MOV	RV-02		
											LT	AJ			
											LT.	AJ	RV-03		
											SC	Y2			
											SO	Y2			
		Valve Name CORE SPRAY-REACTOR VESSEL INJECTION VALVE													
1-1402-028A-RV	2	C	2	RV	SA	A	C	O/C	M-36	B-08	RT	Y10			
		Valve Name CORE SPRAY-DISCHARGE LINE RELIEF VALVE													
1-1402-028B-RV	2	C	2	RV	SA	A	C	O/C	M-36	C-06	RT	Y10			
		Valve Name CORE SPRAY-DISCHARGE LINE RELIEF VALVE													
1-1402-031A	2	A/C	0.5	XFC	SA	A	O	C	M-36	E-03	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name CS PUMP,DPIS-1-1459A LOW SIDE EXCESS FLOW CHECK													

Core Spray (Page 3)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
1-1402-031B	2	A/C	0.5	XFC	SA	A	O	C	M-36	E-03	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name	CS PUMP,DPIS-1-1459B LOW SIDE EXCESS FLOW CHECK												
1-1402-038A-MO	2	B	1.5	GL	MO	A	C	O/C	M-36	C-08	DIA	MOV	RV-02		
											SC	Y2			
											SO	Y2			
		Valve Name	CORE SPRAY-MINIMUM FLOW RECIRC LINE ISOL VALVE												
1-1402-038B-MO	2	B	1.5	GL	MO	A	C	O/C	M-36	E-07	DIA	MOV	RV-02		
											SC	Y2			
											SO	Y2			
		Valve Name	CORE SPRAY-MINIMUM FLOW RECIRC LINE ISOL VALVE												
1-1402-064A	2	C	0.75	CK	SA	A	O	C	M-36	D-09	BDO	M3			014
											CC	M3			
		Valve Name	CORE SPRAY-ECCS KEEP FILL SUPPLY CHECK												
1-1402-064B	2	C	0.75	CK	SA	A	O	C	M-36	C-05	BDO	M3			014
											CC	M3			
		Valve Name	CORE SPRAY-ECCS KEEP FILL SUPPLY CHECK												
1-1402-065A	2	C	0.75	SCK	SA	A	O	C	M-36	D-10	BDO	M3			014
											CC	M3			
		Valve Name	CORE SPRAY-ECCS KEEP FILL SUPPLY CHECK												
1-1402-065B	2	C	0.75	SCK	SA	A	O	C	M-36	C-05	BDO	M3			014
											CC	M3			
		Valve Name	CORE SPRAY-ECCS KEEP FILL SUPPLY CHECK												
1-1402-071	2	C	1.5	CK	SA	A	C	C	M-36	D-07	CCD	CM			
											COD	CM			
		Valve Name	CORE SPRAY-COND MAKEUP XFER LINE ISOL VALVE												
2-1402-003A-MO	2	B	18	GA	MO	A	O	O/C	M-78	G-06	DIA	MOV	RV-02		
											SC	M3			
											SO	M3			
		Valve Name	CORE SPRAY-TORUS SUCTION LINE ISOLATION												
2-1402-003B-MO	2	B	18	GA	MO	A	O	O/C	M-78	F-04	DIA	MOV	RV-02		
											SC	M3			
											SO	M3			
		Valve Name	CORE SPRAY-TORUS SUCTION LINE ISOLATION												

Core Spray (Page 4)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
2-1402-004A-MO	2	B	8	GL	MO	A	C	C	M-78	B-08	DIA	MOV	RV-02		
											SC	Y2			
											SO	Y2			
		Valve Name	CORE SPRAY-TEST RETURN TO TORUS												
2-1402-004B-MO	2	B	8	GL	MO	A	C	C	M-78	B-07	DIA	MOV	RV-02		
											SC	Y2			
											SO	Y2			
		Valve Name	CORE SPRAY-TEST RETURN TO TORUS												
2-1402-006A	1	B	10	GA	M	P	LO	O	M-78	D-02	PIC	Y2			
											PIO	Y2			
		Valve Name	CORE SPRAY-INJECTION LINE MANUAL ISOLATION VALVE												
2-1402-006B	1	B	10	GA	M	P	LO	O	M-78	D-03	PIC	Y2			
											PIO	Y2			
		Valve Name	CORE SPRAY-INJECTION LINE MANUAL ISOLATION VALVE												
2-1402-008A	2	C	12	SCK	SA	A	C	O/C	M-78	E-09	CC	M3			
											CO	M3			
		Valve Name	CORE SPRAY-PUMP DISCHARGE CHECK												
2-1402-008B	2	C	12	SCK	SA	A	C	O/C	M-78	E-06	CC	M3			
											CO	M3			
		Valve Name	CORE SPRAY-PUMP DISCHARGE CHECK												
2-1402-009A	1	A/C	10	CK	SA	A	C	O/C	M-78	D-02	CC	RR		ROJ-00A	
											CO	CS		CSJ-14A	
											LT.	AJ	RV-03		
		Valve Name	CORE SPRAY-REACTOR VESSEL INJECTION CHECK												
2-1402-009B	1	A/C	10	CK	SA	A	C	O/C	M-78	D-04	CC	RR		ROJ-00A	
											CO	CS		CSJ-14A	
											LT.	AJ	RV-03		
		Valve Name	CORE SPRAY-REACTOR VESSEL INJECTION CHECK												
2-1402-013A	2	C	1.5	SCK	SA	A	C	O	M-78	E-10	CCR	CM			
											COR	CM			
		Valve Name	CORE SPRAY-MINIMUM FLOW RECIRC LINE CHECK												
2-1402-013B	2	C	1.5	SCK	SA	A	C	O	M-78	E-06	CCR	CM			
											COR	CM			
		Valve Name	CORE SPRAY-MINIMUM FLOW RECIRC LINE CHECK												

Core Spray (Page 5)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
2-1402-024A-MO	2	A	10	GA	MO	A	O	O/C	M-78	B-02	DIA	MOV	RV-02		
											LT	AJ			
											SC	Y2			
											SO	Y2			
		Valve Name CORE SPRAY-INJECTION LINE ISOLATION VALVE													
2-1402-024B-MO	2	A	10	GA	MO	A	O	O/C	M-78	B-04	DIA	MOV	RV-02		
											LT	AJ			
											SC	Y2			
											SO	Y2			
		Valve Name CORE SPRAY-INJECTION LINE ISOLATION VALVE													
2-1402-025A-MO	1	A	10	GA	MO	A	C	O/C	M-78	D-02	DIA	MOV	RV-02		
											LT	AJ			
											LT.	AJ	RV-03		
											SC	Y2			
											SO	Y2			
		Valve Name CORE SPRAY-REACTOR VESSEL INJECTION VALVE													
2-1402-025B-MO	1	A	10	GA	MO	A	C	O/C	M-78	C-04	DIA	MOV	RV-02		
											LT	AJ			
											LT.	AJ	RV-03		
											SC	Y2			
											SO	Y2			
		Valve Name CORE SPRAY-REACTOR VESSEL INJECTION VALVE													
2-1402-028A-RV	2	C	2	RV	SA	A	C	O/C	M-78	B-09	RT	Y10			
		Valve Name CORE SPRAY-DISCHARGE OVERPRESSURE PROT													
2-1402-028B-RV	2	C	2	RV	SA	A	C	O/C	M-78	C-06	RT	Y10			
		Valve Name CORE SPRAY-DISCHARGE OVERPRESSURE PROT													
2-1402-031A	2	A/C	0.5	XFC	SA	A	O	C	M-78	E-03	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name CS PUMP,DPIS-1-1459A LOW SIDE EXCESS FLOW CHECK													
2-1402-031B	2	A/C	0.5	XFC	SA	A	O	C	M-78	E-03	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name CS PUMP,DPIS-1-1459B LOW SIDE EXCESS FLOW CHECK													

Core Spray (Page 6)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
2-1402-038A-MO	2	B	1.5	GL	MO	A	C	O/C	M-78	C-08	DIA	MOV	RV-02		
											SC	Y2			
											SO	Y2			
Valve Name CORE SPRAY-MINIMUM FLOW RECIRC LINE ISOL VALVE															
2-1402-038B-MO	2	B	1.5	GL	MO	A	C	O/C	M-78	E-06	DIA	MOV	RV-02		
											SC	Y2			
											SO	Y2			
Valve Name CORE SPRAY-MINIMUM FLOW RECIRC LINE ISOL VALVE															
2-1402-064A	2	C	0.75	CK	SA	A	O	C	M-78	D-10	BDO	M3			014
											CC	M3			
Valve Name CORE SPRAY-ECCS KEEP FILL SUPPLY CHECK															
2-1402-064B	2	C	0.75	CK	SA	A	O	C	M-78	C-05	BDO	M3			014
											CC	M3			
Valve Name CORE SPRAY-ECCS KEEP FILL SUPPLY CHECK															
2-1402-065A	2	C	0.75	SCK	SA	A	O	C	M-78	D-10	BDO	M3			014
											CC	M3			
Valve Name CORE SPRAY-ECCS KEEP FILL SUPPLY CHECK															
2-1402-065B	2	C	0.75	SCK	SA	A	O	C	M-78	C-05	BDO	M3			014
											CC	M3			
Valve Name CORE SPRAY-ECCS KEEP FILL SUPPLY CHECK															
2-1402-070	2	C	1.5	CK	SA	A	C	C	M-78	E-07	CCD	CM			
											COD	CM			
Valve Name CORE SPRAY-COND MAKEUP XFER LINE ISOL VALVE															

Process Sampling (Page 1)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.	Valve Name
1-8800-2B	MC	A	0.5	GA	M	P	C	C	M-461-1	C-02	LT	AJ				PROCESS SAMPLING-DRYWELL AIR SAMPLE
1-8800-2C	MC	A	0.5	GA	M	P	C	C	M-461-1	C-02	LT	AJ				PROCESS SAMPLING-DRYWELL AIR SAMPLE
1-8800-2D	MC	A	0.5	GA	M	P	C	C	M-461-1	C-02	LT	AJ				PROCESS SAMPLING-DRYWELL AIR SAMPLE
1-8800-2E	MC	A	0.5	GA	M	P	C	C	M-461-1	C-02	LT	AJ				PROCESS SAMPLING-DRYWELL AIR SAMPLE
1-8800-2F	MC	A	0.5	GA	M	P	C	C	M-461-1	C-02	LT	AJ				PROCESS SAMPLING-DRYWELL AIR SAMPLE
1-8800-2G	MC	A	0.5	GA	M	P	C	C	M-461-1	C-02	LT	AJ				PROCESS SAMPLING-DRYWELL AIR SAMPLE
1-8800-2H	MC	A	0.5	GA	M	P	C	C	M-461-1	C-02	LT	AJ				PROCESS SAMPLING-DRYWELL AIR SAMPLE
1-8800-2I	MC	A	0.5	GA	M	P	C	C	M-461-1	C-02	LT	AJ				PROCESS SAMPLING-DRYWELL AIR SAMPLE
1-8800-2J	MC	A	0.5	GA	M	P	C	C	M-461-1	C-02	LT	AJ				PROCESS SAMPLING-DRYWELL AIR SAMPLE
1-8800-2K	MC	A	0.5	GA	M	P	C	C	M-461-1	C-02	LT	AJ				PROCESS SAMPLING-DRYWELL AIR SAMPLE
1-8800-2L	MC	A	0.5	GA	M	P	C	C	M-461-1	C-02	LT	AJ				PROCESS SAMPLING-DRYWELL AIR SAMPLE
1-8800-2M	MC	A	0.5	GA	M	P	C	C	M-461-1	C-02	LT	AJ				PROCESS SAMPLING-DRYWELL AIR SAMPLE
1-8800-2N	MC	A	0.5	GA	M	P	C	C	M-461-1	C-02	LT	AJ				PROCESS SAMPLING-DRYWELL AIR SAMPLE
1-8800-2O	MC	A	0.5	GA	M	P	C	C	M-461-1	C-02	LT	AJ				PROCESS SAMPLING-DRYWELL AIR SAMPLE
1-8800-2P	MC	A	0.5	GA	M	P	C	C	M-461-1	C-02	LT	AJ				PROCESS SAMPLING-DRYWELL AIR SAMPLE
1-8800-2Q	MC	A	0.5	GA	M	P	C	C	M-461-1	C-02	LT	AJ				PROCESS SAMPLING-DRYWELL AIR SAMPLE
1-8800-2R	MC	A	0.5	GA	M	P	C	C	M-461-1	C-02	LT	AJ				PROCESS SAMPLING-DRYWELL AIR SAMPLE

Process Sampling (Page 2)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
1-8800-2S	MC	A	0.5	GA	M	P	C	C	M-461-1	C-02	LT	AJ			
		Valve Name	PROCESS SAMPLING-DRYWELL AIR SAMPLE												
1-8800-2T	MC	A	0.5	GA	M	P	C	C	M-461-1	C-02	LT	AJ			
		Valve Name	PROCESS SAMPLING-DRYWELL AIR SAMPLE												
1-8800-2U	MC	A	0.5	GA	M	P	C	C	M-461-1	C-02	LT	AJ			
		Valve Name	PROCESS SAMPLING-DRYWELL AIR SAMPLE												
1-8800-2V	MC	A	0.5	GA	M	P	C	C	M-461-1	C-02	LT	AJ			
		Valve Name	PROCESS SAMPLING-DRYWELL AIR SAMPLE												
1-8800-3B	MC	A	0.5	GA	M	P	C	C	M-461-1	D-02	LT	AJ			
		Valve Name	PROCESS SAMPLING-DRYWELL AIR SAMPLE												
1-8800-3C	MC	A	0.5	GA	M	P	C	C	M-461-1	D-02	LT	AJ			
		Valve Name	PROCESS SAMPLING-DRYWELL AIR SAMPLE												
1-8800-3D	MC	A	0.5	GA	M	P	C	C	M-461-1	D-02	LT	AJ			
		Valve Name	PROCESS SAMPLING-DRYWELL AIR SAMPLE												
1-8800-3E	MC	A	0.5	GA	M	P	C	C	M-461-1	D-02	LT	AJ			
		Valve Name	PROCESS SAMPLING-DRYWELL AIR SAMPLE												
1-8800-3F	MC	A	0.5	GA	M	P	C	C	M-461-1	D-02	LT	AJ			
		Valve Name	PROCESS SAMPLING-DRYWELL AIR SAMPLE												
1-8800-3G	MC	A	0.5	GA	M	P	C	C	M-461-1	D-02	LT	AJ			
		Valve Name	PROCESS SAMPLING-DRYWELL AIR SAMPLE												
1-8800-3H	MC	A	0.5	GA	M	P	C	C	M-461-1	D-02	LT	AJ			
		Valve Name	PROCESS SAMPLING-DRYWELL AIR SAMPLE												
1-8800-3I	MC	A	0.5	GA	M	P	C	C	M-461-1	D-02	LT	AJ			
		Valve Name	PROCESS SAMPLING-DRYWELL AIR SAMPLE												
1-8800-3J	MC	A	0.5	GA	M	P	C	C	M-461-1	D-02	LT	AJ			
		Valve Name	PROCESS SAMPLING-DRYWELL AIR SAMPLE												
1-8800-3K	MC	A	0.5	GA	M	P	C	C	M-461-1	D-02	LT	AJ			
		Valve Name	PROCESS SAMPLING-DRYWELL AIR SAMPLE												
1-8800-3L	MC	A	0.5	GA	M	P	C	C	M-461-1	D-02	LT	AJ			
		Valve Name	PROCESS SAMPLING-DRYWELL AIR SAMPLE												
1-8800-3M	MC	A	0.5	GA	M	P	C	C	M-461-1	D-02	LT	AJ			
		Valve Name	PROCESS SAMPLING-DRYWELL AIR SAMPLE												
1-8800-3N	MC	A	0.5	GA	M	P	C	C	M-461-1	D-02	LT	AJ			
		Valve Name	PROCESS SAMPLING-DRYWELL AIR SAMPLE												

Process Sampling (Page 3)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
1-8800-3O	MC	A	0.5	GA	M	P	C	C	M-461-1	D-02	LT	AJ			
	Valve Name	PROCESS SAMPLING-DRYWELL AIR SAMPLE													
1-8800-3P	MC	A	0.5	GA	M	P	C	C	M-461-1	D-02	LT	AJ			
	Valve Name	PROCESS SAMPLING-DRYWELL AIR SAMPLE													
1-8800-3Q	MC	A	0.5	GA	M	P	C	C	M-461-1	D-02	LT	AJ			
	Valve Name	PROCESS SAMPLING-DRYWELL AIR SAMPLE													
1-8800-3R	MC	A	0.5	GA	M	P	C	C	M-461-1	D-02	LT	AJ			
	Valve Name	PROCESS SAMPLING-DRYWELL AIR SAMPLE													
1-8800-3S	MC	A	0.5	GA	M	P	C	C	M-461-1	D-02	LT	AJ			
	Valve Name	PROCESS SAMPLING-DRYWELL AIR SAMPLE													
1-8800-3T	MC	A	0.5	GA	M	P	C	C	M-461-1	D-02	LT	AJ			
	Valve Name	PROCESS SAMPLING-DRYWELL AIR SAMPLE													
1-8800-3U	MC	A	0.5	GA	M	P	C	C	M-461-1	D-02	LT	AJ			
	Valve Name	PROCESS SAMPLING-DRYWELL AIR SAMPLE													
1-8800-3V	MC	A	0.5	GA	M	P	C	C	M-461-1	D-02	LT	AJ			
	Valve Name	PROCESS SAMPLING-DRYWELL AIR SAMPLE													
1-8801A-AO	MC	A	0.75	DIA	AO	A	O	C	M-461-1	D-03	FC	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
	Valve Name	PROCESS SAMPLING-DRYWELL AIR SAMPLE													
1-8801B-AO	MC	A	0.75	DIA	AO	A	O	C	M-461-1	C-03	FC	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
	Valve Name	PROCESS SAMPLING-DRYWELL AIR SAMPLE													
1-8801C-AO	MC	A	0.75	DIA	AO	A	O	C	M-461-1	B-03	FC	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
	Valve Name	PROCESS SAMPLING-DRYWELL AIR SAMPLE													

Process Sampling (Page 4)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
1-8801D-AO	MC	A	0.75	DIA	AO	A	O	C	M-461-1	B-03	FC	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name	PROCESS SAMPLING-TORUS AIR SAMPLE												
1-8802A-AO	MC	A	0.75	DIA	AO	A	O	C	M-461-1	D-04	FC	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name	PROCESS SAMPLING-DRYWELL AIR SAMPLE												
1-8802B-AO	MC	A	0.75	DIA	AO	A	O	C	M-461-1	C-04	FC	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name	PROCESS SAMPLING-DRYWELL AIR SAMPLE												
1-8802C-AO	MC	A	0.75	DIA	AO	A	O	C	M-461-1	B-04	FC	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name	PROCESS SAMPLING-DRYWELL AIR SAMPLE												
1-8802D-AO	MC	A	0.75	DIA	AO	A	O	C	M-461-1	B-04	FC	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name	PROCESS SAMPLING-TORUS AIR SAMPLE												
1-8803-AO	MC	A	2	GL	AO	A	O	C	M-461-1	D-06	FC	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name	PROCESS SAMPLING-CONTAINMENT AIR SAMPLE RETURN												

Process Sampling (Page 5)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
1-8804-AO	MC	A	2	GL	AO	A	O	C	M-461-1	D-05	FC	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name	PROCESS SAMPLING-CONTAINMENT AIR SAMPLE RETURN												
2-8800-2B	MC	A	0.5	GA	M	P	C	C	M-463-1	G-07	LT	AJ			
		Valve Name	PROCESS SAMPLING-DRYWELL AIR SAMPLE												
2-8800-2C	MC	A	0.5	GA	M	P	C	C	M-463-1	G-07	LT	AJ			
		Valve Name	PROCESS SAMPLING-DRYWELL AIR SAMPLE												
2-8800-2D	MC	A	0.5	GA	M	P	C	C	M-463-1	G-07	LT	AJ			
		Valve Name	PROCESS SAMPLING-DRYWELL AIR SAMPLE												
2-8800-2E	MC	A	0.5	GA	M	P	C	C	M-463-1	G-07	LT	AJ			
		Valve Name	PROCESS SAMPLING-DRYWELL AIR SAMPLE												
2-8800-2F	MC	A	0.5	GA	M	P	C	C	M-463-1	G-07	LT	AJ			
		Valve Name	PROCESS SAMPLING-DRYWELL AIR SAMPLE												
2-8800-2G	MC	A	0.5	GA	M	P	C	C	M-463-1	G-07	LT	AJ			
		Valve Name	PROCESS SAMPLING-DRYWELL AIR SAMPLE												
2-8800-2H	MC	A	0.5	GA	M	P	C	C	M-463-1	G-07	LT	AJ			
		Valve Name	PROCESS SAMPLING-DRYWELL AIR SAMPLE												
2-8800-2I	MC	A	0.5	GA	M	P	C	C	M-463-1	G-07	LT	AJ			
		Valve Name	PROCESS SAMPLING-DRYWELL AIR SAMPLE												
2-8800-2J	MC	A	0.5	GA	M	P	C	C	M-463-1	G-07	LT	AJ			
		Valve Name	PROCESS SAMPLING-DRYWELL AIR SAMPLE												
2-8800-2K	MC	A	0.5	GA	M	P	C	C	M-463-1	G-07	LT	AJ			
		Valve Name	PROCESS SAMPLING-DRYWELL AIR SAMPLE												
2-8800-2L	MC	A	0.5	GA	M	P	C	C	M-463-1	G-07	LT	AJ			
		Valve Name	PROCESS SAMPLING-DRYWELL AIR SAMPLE												
2-8800-2M	MC	A	0.5	GA	M	P	C	C	M-463-1	G-07	LT	AJ			
		Valve Name	PROCESS SAMPLING-DRYWELL AIR SAMPLE												
2-8800-2N	MC	A	0.5	GA	M	P	C	C	M-463-1	G-07	LT	AJ			
		Valve Name	PROCESS SAMPLING-DRYWELL AIR SAMPLE												
2-8800-2O	MC	A	0.5	GA	M	P	C	C	M-463-1	G-07	LT	AJ			
		Valve Name	PROCESS SAMPLING-DRYWELL AIR SAMPLE												
2-8800-2P	MC	A	0.5	GA	M	P	C	C	M-463-1	G-07	LT	AJ			
		Valve Name	PROCESS SAMPLING-DRYWELL AIR SAMPLE												

Process Sampling (Page 6)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
2-8800-2Q	MC	A	0.5	GA	M	P	C	C	M-463-1	G-07	LT	AJ			
		Valve Name	PROCESS SAMPLING-DRYWELL AIR SAMPLE												
2-8800-2R	MC	A	0.5	GA	M	P	C	C	M-463-1	G-07	LT	AJ			
		Valve Name	PROCESS SAMPLING-DRYWELL AIR SAMPLE												
2-8800-2S	MC	A	0.5	GA	M	P	C	C	M-463-1	G-07	LT	AJ			
		Valve Name	PROCESS SAMPLING-DRYWELL AIR SAMPLE												
2-8800-2T	MC	A	0.5	GA	M	P	C	C	M-463-1	G-07	LT	AJ			
		Valve Name	PROCESS SAMPLING-DRYWELL AIR SAMPLE												
2-8800-2U	MC	A	0.5	GA	M	P	C	C	M-463-1	G-07	LT	AJ			
		Valve Name	PROCESS SAMPLING-DRYWELL AIR SAMPLE												
2-8800-2V	MC	A	0.5	GA	M	P	C	C	M-463-1	G-07	LT	AJ			
		Valve Name	PROCESS SAMPLING-DRYWELL AIR SAMPLE												
2-8800-3B	MC	A	0.5	GA	M	P	C	C	M-463-1	G-07	LT	AJ			
		Valve Name	PROCESS SAMPLING-DRYWELL AIR SAMPLE												
2-8800-3C	MC	A	0.5	GA	M	P	C	C	M-463-1	G-07	LT	AJ			
		Valve Name	PROCESS SAMPLING-DRYWELL AIR SAMPLE												
2-8800-3D	MC	A	0.5	GA	M	P	C	C	M-463-1	G-07	LT	AJ			
		Valve Name	PROCESS SAMPLING-DRYWELL AIR SAMPLE												
2-8800-3E	MC	A	0.5	GA	M	P	C	C	M-463-1	G-07	LT	AJ			
		Valve Name	PROCESS SAMPLING-DRYWELL AIR SAMPLE												
2-8800-3F	MC	A	0.5	GA	M	P	C	C	M-463-1	G-07	LT	AJ			
		Valve Name	PROCESS SAMPLING-DRYWELL AIR SAMPLE												
2-8800-3G	MC	A	0.5	GA	M	P	C	C	M-463-1	G-07	LT	AJ			
		Valve Name	PROCESS SAMPLING-DRYWELL AIR SAMPLE												
2-8800-3H	MC	A	0.5	GA	M	P	C	C	M-463-1	G-07	LT	AJ			
		Valve Name	PROCESS SAMPLING-DRYWELL AIR SAMPLE												
2-8800-3I	MC	A	0.5	GA	M	P	C	C	M-463-1	G-07	LT	AJ			
		Valve Name	PROCESS SAMPLING-DRYWELL AIR SAMPLE												
2-8800-3J	MC	A	0.5	GA	M	P	C	C	M-463-1	G-07	LT	AJ			
		Valve Name	PROCESS SAMPLING-DRYWELL AIR SAMPLE												
2-8800-3K	MC	A	0.5	GA	M	P	C	C	M-463-1	G-07	LT	AJ			
		Valve Name	PROCESS SAMPLING-DRYWELL AIR SAMPLE												
2-8800-3L	MC	A	0.5	GA	M	P	C	C	M-463-1	G-07	LT	AJ			
		Valve Name	PROCESS SAMPLING-DRYWELL AIR SAMPLE												

Process Sampling (Page 7)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
2-8800-3M	MC	A	0.5	GA	M	P	C	C	M-463-1	G-07	LT	AJ			
		Valve Name	PROCESS SAMPLING-DRYWELL AIR SAMPLE												
2-8800-3N	MC	A	0.5	GA	M	P	C	C	M-463-1	G-07	LT	AJ			
		Valve Name	PROCESS SAMPLING-DRYWELL AIR SAMPLE												
2-8800-3O	MC	A	0.5	GA	M	P	C	C	M-463-1	G-07	LT	AJ			
		Valve Name	PROCESS SAMPLING-DRYWELL AIR SAMPLE												
2-8800-3P	MC	A	0.5	GA	M	P	C	C	M-463-1	G-07	LT	AJ			
		Valve Name	PROCESS SAMPLING-DRYWELL AIR SAMPLE												
2-8800-3Q	MC	A	0.5	GA	M	P	C	C	M-463-1	G-07	LT	AJ			
		Valve Name	PROCESS SAMPLING-DRYWELL AIR SAMPLE												
2-8800-3R	MC	A	0.5	GA	M	P	C	C	M-463-1	G-07	LT	AJ			
		Valve Name	PROCESS SAMPLING-DRYWELL AIR SAMPLE												
2-8800-3S	MC	A	0.5	GA	M	P	C	C	M-463-1	G-07	LT	AJ			
		Valve Name	PROCESS SAMPLING-DRYWELL AIR SAMPLE												
2-8800-3T	MC	A	0.5	GA	M	P	C	C	M-463-1	G-07	LT	AJ			
		Valve Name	PROCESS SAMPLING-DRYWELL AIR SAMPLE												
2-8800-3U	MC	A	0.5	GA	M	P	C	C	M-463-1	G-07	LT	AJ			
		Valve Name	PROCESS SAMPLING-DRYWELL AIR SAMPLE												
2-8800-3V	MC	A	0.5	GA	M	P	C	C	M-463-1	G-07	LT	AJ			
		Valve Name	PROCESS SAMPLING-DRYWELL AIR SAMPLE												
2-8801A-AO	MC	A	0.75	DIA	AO	A	O	C	M-463-1	E-02	FC	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name	PROCESS SAMPLING-DRYWELL AIR SAMPLE												
2-8801B-AO	MC	A	0.75	DIA	AO	A	O	C	M-463-1	E-02	FC	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name	PROCESS SAMPLING-DRYWELL AIR SAMPLE												

Process Sampling (Page 8)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
2-8801C-AO	MC	A	0.75	DIA	AO	A	O	C	M-463-1	D-02	FC	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name	PROCESS SAMPLING-DRYWELL AIR SAMPLE												
2-8801D-AO	MC	A	0.75	DIA	AO	A	O	C	M-463-1	F-02	FC	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name	PROCESS SAMPLING-TORUS AIR SAMPLE												
2-8802A-AO	MC	A	0.75	DIA	AO	A	O	C	M-463-1	E-01	FC	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name	PROCESS SAMPLING-DRYWELL AIR SAMPLE												
2-8802B-AO	MC	A	0.75	DIA	AO	A	O	C	M-463-1	E-01	FC	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name	PROCESS SAMPLING-DRYWELL AIR SAMPLE												
2-8802C-AO	MC	A	0.75	DIA	AO	A	O	C	M-463-1	D-01	FC	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name	PROCESS SAMPLING-DRYWELL AIR SAMPLE												
2-8802D-AO	MC	A	0.75	DIA	AO	A	O	C	M-463-1	F-01	FC	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name	PROCESS SAMPLING-TORUS AIR SAMPLE												

Process Sampling (Page 9)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
2-8803-AO	MC	A	2	GL	AO	A	O	C	M-463-1	C-02	FC	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name	PROCESS SAMPLING-CONTAINMENT AIR SAMPLE RETURN												
2-8804-AO	MC	A	2	GL	AO	A	O	C	M-463-1	C-02	FC	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name	PROCESS SAMPLING-CONTAINMENT AIR SAMPLE RETURN												

Emergency Diesel Generator Cooling Water (Page 1)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
0-3999-085	3	C	8	CK	SA	A	C	O/C	M-22-3	B-08	CCD	CM			
											COF	CM			
		Valve Name	EDG COOLING WATER PUMP DISCH CHECK												
0-3999-089	3	B	6	GA	M	A	C	O/C	M-22-3	D-06	EC	M3			
											EO	M3			
		Valve Name	EDG COOLING WATER UNIT 0 CROSS-TIE TO UNIT 1												
1-3999-086	3	C	8	CK	SA	A	C	O/C	M-22-3	F-08	CCD	CM			
											COF	CM			
		Valve Name	EDG COOLING WATER PUMP DISCH CHECK												
1-3999-088	3	C	6	CK	SA	A	C	O/C	M-22-3	D-06	CC	M3			
											CO	M3			
		Valve Name	EDG COOLING WATER DISCH CROSS-TIE CHECK VALVE												
1-3999-560	3	C	2.5	CK	SA	A	C	C	M-22-1	D-08	BDO	M3			014
											CC	M3			
		Valve Name	SERVICE WATER TO HPCI RM CLR CHECK												
1-3999-561	3	C	4	CK	SA	A	C	O	M-22-5	D-02	BDC	M3			014
											CO	M3			
		Valve Name	EDG COOLING WATER TO HPCI ROOM COOLER CHECK												
1-3999-700	SR	C	2.5	CK	SA	A	C	C	M-22-1	E-08	BDO	M3			014
											CC	M3			
		Valve Name	SERVICE WATER TO HPCI RM CLR CHECK												
2-3999-086	3	C	8	CK	SA	A	C	O/C	M-69-3	C-08	CCD	CM			
											COF	CM			
		Valve Name	EDG COOLING WATER PUMP DISCH CHECK												
2-3999-088	3	C	6	CK	SA	A	C	O/C	M-69-3	E-06	CC	M3			
											CO	M3			
		Valve Name	EDG COOLING WATER DISCH CROSS-TIE CHECK VALVE												
2-3999-089	3	B	6	GA	M	A	C	O/C	M-69-3	F-06	EC	M3			
											EO	M3			
		Valve Name	EDG COOLING WATER DISCH CROSS-TIE ISOLATION VALVE												
2-3999-139	3	C	6	CK	SA	A	C	O	M-69-3	F-05	BDC	M3			014
											CO	M3			
		Valve Name	EDG COOLING WATER TRAIN CROSS-TIE CHECK												
2-3999-560	3	C	2.5	CK	SA	A	C	C	M-69-1	D-09	BDO	M3			014
											CC	M3			
		Valve Name	SERVICE WATER TO HPCI RM CLR CHECK												

Emergency Diesel Generator Cooling Water (Page 2)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
2-3999-561	3	C	4	CK	SA	A	C	O	M-69-5	E-03	BDC	M3			014
											CO	M3			
		Valve Name	EDG COOLING WATER TO HPCI ROOM COOLER CHECK												
2-3999-700	SR	C	2.5	CK	SA	A	C	C	M-69-1	D-09	BDO	M3			014
											CC	M3			
		Valve Name	SERVICE WATER TO HPCI RM CLR CHECK												

Emergency Diesel Generator Fuel Oil Transfer (Page 1)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
0-5201-RV	SR	C	1	RV	SA	A	C	O/C	M-29-2	C-05	RT	Y10			
		Valve Name	EDG FUEL OIL XFER PUMP DISCH RELIEF VALVE												
0-5206-CK1	SR	S	0.5	CK	SA	A	C	O/C	M-29-2	D-07	CC	M6			007
											CO	M3			007
		Valve Name	EDG FUEL OIL DUPLEX FILTER 10PSI CHECK												
0-5206-CK2	SR	S	0.5	CK	SA	A	C	O/C	M-29-2	D-07	CC	M6			007
											CO	M3			007
		Valve Name	EDG FUEL OIL DUPLEX FILTER 10 PSI CHECK												
0-5206-CK3	SR	S	0.5	CK	SA	A	C	O/C	M-29-2	D-07	CC	M6			007
											CO	M3			007
		Valve Name	EDG FUEL OIL DUPLEX FILTER 65 PSI CHECK												
0-5299-005	SR	C	1.5	CK	SA	A	C	O	M-29-2	C-05	BDC	M3			014
											CO	M3			
		Valve Name	EDG FUEL OIL XFER PUMP DISCH CHECK												
0-5299-042	SR	S	0.5	CK	SA	A	C	O	M-29-2	D-06	BDC	M6			007, 014
											CO	M3			007
		Valve Name	EDG ENGINE-DRIVEN FUEL OIL PUMP DISCH CHECK												
0-5299-157	SR	S	0.5	CK	SA	A	O	C	M-29-2	D-06	CC	M3			007
		Valve Name	EDG FUEL PRIME PUMP DISCH CHECK												
0-5299-158	SR	S	0.375	CK	SA	A	C	O	M-29-2	D-06	BDC	M6			007, 014
											CO	M3			007
		Valve Name	EDG FUEL OIL EXCESS FUEL RETURN VALVE												
1-5201-RV	SR	C	1	RV	SA	A	C	O/C	M-29-2	D-02	RT	Y10			
		Valve Name	EDG FUEL OIL XFER PUMP DISCH RELIEF VALVE												
1-5206-CK1	SR	S	0.5	CK	SA	A	C	O/C	M-29-2	D-04	CC	M6			007
											CO	M3			007
		Valve Name	EDG FUEL OIL DUPLEX FILTER 10 PSI CHECK												
1-5206-CK2	SR	S	0.5	CK	SA	A	C	O/C	M-29-2	D-04	CC	M6			007
											CO	M3			007
		Valve Name	EDG FUEL OIL DUPLEX FILTER 10 PSI CHECK												
1-5206-CK3	SR	S	0.5	CK	SA	A	C	O/C	M-29-2	D-04	CC	M6			007
											CO	M3			007
		Valve Name	EDG FUEL OIL DUPLEX FILTER 65 PSI CHECK												
1-5299-005	SR	C	1.5	CK	SA	A	C	O	M-29-2	D-02	BDC	M3			014
											CO	M3			
		Valve Name	EDG FUEL OIL XFER PUMP DISCH CHECK												

Emergency Diesel Generator Fuel Oil Transfer (Page 2)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
1-5299-042	SR	S	0.5	CK	SA	A	C	O	M-29-2	D-04	BDC	M6			007, 014
											CO	M3			007
		Valve Name	EDG ENGINE-DRIVEN FUEL OIL PUMP DISCH CHECK												
1-5299-157	SR	S	0.5	CK	SA	A	O	C	M-29-2	D-04	CC	M3			007
		Valve Name	EDG FUEL PRIME PUMP DISCH CHECK												
1-5299-158	SR	S	0.375	CK	SA	A	C	O	M-29-2	D-03	BDC	M6			007, 014
											CO	M3			007
		Valve Name	EDG FUEL OIL EXCESS FUEL RETURN VALVE												
2-5201-RV	SR	C	1	RV	SA	A	C	O/C	M-29-2	C-07	RT	Y10			
		Valve Name	EDG FUEL OIL XFER PUMP DISCH RELIEF VALVE												
2-5206-CK1	SR	S	0.5	CK	SA	A	C	O/C	M-29-2	D-10	CC	M6			007
											CO	M3			007
		Valve Name	EDG FUEL OIL DUPLEX FILTER 10 PSI CHECK												
2-5206-CK2	SR	S	0.5	CK	SA	A	C	O/C	M-29-2	D-10	CC	M6			007
											CO	M3			007
		Valve Name	EDG FUEL OIL DUPLEX FILTER 10 PSI CHECK												
2-5206-CK3	SR	S	0.5	CK	SA	A	C	O/C	M-29-2	D-10	CC	M6			007
											CO	M3			007
		Valve Name	EDG FUEL OIL DUPLEX FILTER 65 PSI CHECK												
2-5299-005	SR	C	1.5	CK	SA	A	C	O	M-29-2	C-08	BDC	M3			014
											CO	M3			
		Valve Name	EDG FUEL OIL XFER PUMP DISCH CHECK												
2-5299-042	SR	S	0.5	CK	SA	A	C	O	M-29-2	D-09	BDC	M6			007, 014
											CO	M3			007
		Valve Name	EDG ENGINE-DRIVEN FUEL OIL PUMP DISCH CHECK												
2-5299-157	SR	S	0.5	CK	SA	A	O	C	M-29-2	D-09	CC	M3			007
		Valve Name	EDG FUEL PRIME PUMP DISCH CHECK												
2-5299-158	SR	S	0.375	CK	SA	A	C	O	M-29-2	C-09	BDC	M6			007, 014
											CO	M3			007
		Valve Name	EDG FUEL OIL EXCESS FUEL RETURN VALVE												

Fire Protection (Page 1)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
0-4199-315-AO	SR	B	1	GA	AO	P	C	C	M-27-2	F-08	PIC	Y2			
		Valve Name	CONTR RM HVAC - AFU FIRE PROTEC SPARGER ISOL VALVE												

Feedwater (Page 1)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
1-0220-058A	1	A/C	18	CK	SA	A	O	O/C	M-15-1	E-03	CCF	CM			
											COF	CM			
											LTJ	AJ			
		Valve Name RX FEED-A LOOP INBOARD FEEDWATER CHECK													
1-0220-058B	1	A/C	18	CK	SA	A	O	O/C	M-15-1	E-03	CCF	CM			
											COF	CM			
											LTJ	AJ			
		Valve Name RX FEED-B LOOP INBOARD FEEDWATER CHECK													
1-0220-059A	NS	C	18	CK	SA	A	O	C	M-15-1	E-02	CCD	CM			
											COD	CM			
											COF	CM			
		Valve Name RX FEED-A LOOP 2ND OUTBOARD FEEDWATER CHECK													
1-0220-059B	2	C	18	CK	SA	A	O	C	M-15-1	E-01	CCD	CM			
											COD	CM			
											COF	CM			
		Valve Name RX FEED-B LOOP 2ND OUTBOARD FEEDWATER CHECK													
1-0220-062A	1	A/C	18	CK	SA	A	O	O/C	M-15-1	E-02	CCF	CM			
											COF	CM			
											LTJ	AJ			
		Valve Name RX FEED-A LOOP OUTBOARD FEEDWATER CHECK													
1-0220-062B	1	A/C	18	CK	SA	A	O	O/C	M-15-1	E-02	CCF	CM			
											COF	CM			
											LTJ	AJ			
		Valve Name RX FEED-B LOOP OUTBOARD FEEDWATER CHECK													
2-0220-058A	1	A/C	18	CK	SA	A	O	O/C	M-62-1	E-03	CCF	CM			
											COF	CM			
											LTJ	AJ			
		Valve Name RX FEED-A LOOP INBOARD FEEDWATER CHECK													
2-0220-058B	1	A/C	18	CK	SA	A	O	O/C	M-62-1	E-03	CCF	CM			
											COF	CM			
											LTJ	AJ			
		Valve Name RX FEED-B LOOP INBOARD FEEDWATER CHECK													
2-0220-059A	NS	C	18	CK	SA	A	O	C	M-62-1	E-02	CCD	CM			
											COD	CM			
											COF	CM			
		Valve Name RX FEED-A LOOP 2ND OUTBOARD FEEDWATER CHECK													

Feedwater (Page 2)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
2-0220-059B	2	C	18	CK	SA	A	O	C	M-62-1	E-02	CCD	CM			
											COD	CM			
											COF	CM			
		Valve Name	RX FEED-B LOOP 2ND OUTBOARD FEEDWATER CHECK												
2-0220-062A	1	A/C	18	CK	SA	A	O	O/C	M-62-1	E-02	CCF	CM			
											COF	CM			
											LTJ	AJ			
		Valve Name	RX FEED-A LOOP OUTBOARD FEEDWATER CHECK												
2-0220-062B	1	A/C	18	CK	SA	A	O	O/C	M-62-1	E-02	CCF	CM			
											COF	CM			
											LTJ	AJ			
		Valve Name	RX FEED-B LOOP OUTBOARD FEEDWATER CHECK												

High Pressure Coolant Injection (Page 1)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
1-2301-003-MO	2	B	10	GA	MO	A	C	O	M-46-2	A-06	DIA	MOV	RV-02		
											SC	M3			
											SO	M3			
Valve Name HPCI-STEAM SUPPLY/BLOCKING VALVE															
1-2301-004-MO	1	A	10	GA	MO	A	O	O/C	M-46-2	E-07	DIA	MOV	RV-02		
											LT	AJ			
											SC	M3			
											SO	M3			
Valve Name HPCI-INBOARD STEAM SUPPLY FROM RPV-PCIV															
1-2301-005-MO	1	A	10	GA	MO	A	O	O/C	M-46-2	C-09	DIA	MOV	RV-02		
											LT	AJ			
											SC	M3			
											SO	M3			
Valve Name HPCI-OUTBOARD STEAM SUPPLY FROM RPV-PCIV															
1-2301-006-MO	SR	B	16	GA	MO	A	O	O/C	M-46-1	G-01	DIA	MOV	RV-02		
											SC	Y2			
											SO	Y2			
Valve Name HPCI-SUCTION SUPPLY LINE FROM CCST ISOLATION VALVE															
1-2301-007	2	C	14	CK	SA	A	C	O	M-46-1	E-09	CCD	CM			
											COD	CM			
Valve Name HPCI-INJECTION LINE TO FEEDWATER CHECK															
1-2301-008-MO	2	B	14	GA	MO	A	C	O/C	M-46-1	E-08	DIA	MOV	RV-02		
											SC	M3			
											SO	M3			
Valve Name HPCI-INJECTION LINE TO FEEDWATER ISOLATION VALVE															
1-2301-009-MO	2	B	14	GA	MO	A	O	O	M-46-1	E-07	DIA	MOV	RV-02		
											SC	M3			
											SO	M3			
Valve Name HPCI-INJECTION LINE TO FEEDWATER ISOLATION VALVE															
1-2301-010-MO	2	B	12	GL	MO	A	C	C	M-46-1	F-07	DIA	MOV	RV-02		
											SC	M3			
											SO	M3			
Valve Name HPCI-FULL FLOW TEST RETURN TO CCST ISOLATION VALVE															
1-2301-014-MO	2	B	4	GL	MO	A	C	C	M-46-1	C-07	DIA	MOV	RV-02		
											SC	M3			
											SO	M3			
Valve Name HPCI-MIN FLOW RECIRC LINE ISOLATION TO TORUS ISOL															

High Pressure Coolant Injection (Page 2)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
1-2301-020	2	C	16	CK	SA	A	C	O/C	M-46-1	F-01	CCD	CM			
											COF	CM			
		Valve Name	HPCI-SUCTION SUPPLY LINE FROM CCST CHECK												
1-2301-023-RV	2	C	1.5	RV	SA	A	C	O/C	M-46-1	A-02	RT	Y10			
		Valve Name	HPCI-BOOSTER PUMP SUCT LINE RELIEF VALVE												
1-2301-026	2	A/C	0.5	XFC	SA	A	O	C	M-46-2	F-09	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name	HPCI-STM SUPPLY DP/P HI SIDE EXCESS FLOW CHECK												
1-2301-027	2	A/C	0.5	XFC	SA	A	O	C	M-46-2	F-09	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name	HPCI-STM SUPPLY DP/P LO SIDE EXCESS FLOW CHECK												
1-2301-028-AO	2	B	1	GL	AO	A	C	O	M-46-2	C-07	FO	M3			013
											PIC	Y2			
											PIO	Y2			
											STO	M3			
		Valve Name	HPCI-SUPPLY STM CONDENSATE TO STM EXH DRN POT VLV												
1-2301-029-AO	2	B	1	GL	AO	A	O	C	M-46-2	C-07	FC	M3			013
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name	HPCI-STM LINE DRN POT TO MAIN CONDENSER VLV												
1-2301-032-SO	2	S	0.75	GL	SO	A	C	O	M-46-2	D-02	SO	M3	RV-04		007
		Valve Name	HPCI-EXHAUST LINE DRN POT TO GS COND SOLENOID												
1-2301-034	2	A/C	2	CK	SA	A	C	O/C	M-46-2	E-04	CCF	CM			
											COF	CM			
											LTJ	AJ			
		Valve Name	HPCI-EXHAUST LINE DRN POT DISCH TO TORUS CHECK												
1-2301-035-MO	2	B	16	GA	MO	A	C	O/C	M-46-1	F-01	DIA	MOV	RV-02		
											SC	Y2			
											SO	Y2			
		Valve Name	HPCI-SUCTION SUPPLY LINE FROM TORUS ISOL VALVE												
1-2301-036-MO	2	B	16	GA	MO	A	C	O/C	M-46-1	F-03	DIA	MOV	RV-02		
											SC	Y2			
											SO	Y2			
		Valve Name	HPCI-SUCTION SUPPLY LINE FROM TORUS ISOL VALVE												

High Pressure Coolant Injection (Page 3)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
1-2301-039	2	C	16	CK	SA	A	C	O/C	M-46-1	F-02	CCD	CM			
											COD	CM			
		Valve Name HPCI-SUCTION SUPPLY LINE FROM TORUS CHECK													
1-2301-040	2	C	4	CK	SA	A	C	O	M-46-1	C-08	CCD	CM			
											COD	CM			
		Valve Name HPCI-MINIMUM FLOW RECIRC LINE TO TORUS CHECK													
1-2301-045	2	C	24	CK	SA	A	C	O/C	M-46-2	C-04	CCD	CM			
											COF	CM			
		Valve Name HPCI-TURBINE EXHAUST TO TORUS CHECK													
1-2301-048-MO	2	B	4	GA	MO	A	O	O	M-46-1	B-04	DIA	MOV	RV-02		
											SC	M3			
											SO	M3			
		Valve Name HPCI-LUBE OIL/GS CLG WTR RTN TO BSTR PMP ISOL VLV													
1-2301-049-MO	2	B	4	GA	MO	A	C	C	M-46-1	F-06	DIA	MOV	RV-02		
											SC	M3			
											SO	M3			
		Valve Name HPCI-LUBE OIL/GS CLG WTR RTN TO CCST ISOL VALVE													
1-2301-050	2	C	4	CK	SA	A	C	O	M-46-1	D-05	CCD	CM			
											COD	CM			
		Valve Name HPCI-LUBE OIL/GS CLG WTR FROM BSTR PMP CHECK													
1-2301-051	2	C	4	CK	SA	A	C	C	M-46-1	D-05	CCF	CM			
											COD	CM			
		Valve Name HPCI-LUBE OIL/GS CLG WTR PUMP DISCHARGE CHECK													
1-2301-053-RV	2	C	4	RV	SA	A	C	O/C	M-46-1	D-03	RT	Y10			
		Valve Name HPCI-LUBE OIL/GS CLG WTR RELIEF VALVE													
1-2301-064-AO	2	B	1	GL	AO	A	O	C	M-46-2	B-05	FC	M3			013
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name HPCI-STOP VALVE ABOVE SEAT DRN DISCHARGE VLV													
1-2301-068-RPD	2	D	16	RPD	SA	A	C	O/C	M-46-2	A-04	DT	Y5			
		Valve Name HPCI-TURB EXHAUST LINE RUPTURE DIAPHRAGM													
1-2301-069-RPD	NS	D	16	RPD	SA	A	C	O/C	M-46-2	A-04	DT	Y5			
		Valve Name HPCI-TURB EXHAUST LINE RUPTURE DIAPHRAGM													

High Pressure Coolant Injection (Page 4)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
1-2301-071	2	A/C	2	SCK	SA	A	C	O/C	M-46-2	E-04	CCD	CM			
											CCF	CM			
											COD	CM			
											COF	CM			
											LTJ	AJ			
		Valve Name HPCI-EXHAUST LINE DRN POT DISCH TO TORUS STOP CK													
1-2301-074	2	C	12	SCK	SA	A	C	O/C	M-46-2	D-04	CCD	CM			
											COF	CM			
		Valve Name HPCI-TURBINE EXHAUST TO TORUS STOP CHECK													
1-2301-075	2	C	4	CK	SA	A	C	O	M-46-1	E-03	CCD	CM			
											COD	CM			
		Valve Name HPCI-LUBE OIL/GS CLG WTR RTN TO CCST/BSTR PMP CK													
1-2301-076	2	C	2	CK	SA	A	C	O/C	M-46-1	E-03	CC	M3			
											CO	M3			
		Valve Name HPCI-GLAND SEAL CONDENSATE PUMP DISCHARGE CHECK													
1-2317-HO	2	S	10	PPT	HO	A	C	O/C	M-46-2	A-05	FC	M3			007, 013
											PIC	Y2			007
											PIO	Y2			007
											SC	M3			007
											SO	M3			007
		Valve Name HPCI-TURBINE STOP VALVE													
1-2399-040-MO	MC	A	4	GA	MO	A	O	O/C	M-46-2	E-06	DIA	MOV	RV-02		
											LT	AJ			
											SC	Y2			
											SO	Y2			
		Valve Name HPCI-TURB EXH VAC BREAKER LINE ISOL-PCIV													
1-2399-041-MO	2	A	4	GA	MO	A	O	O/C	M-46-2	D-06	DIA	MOV	RV-02		
											LT	AJ			
											SC	Y2			
											SO	Y2			
		Valve Name HPCI-TURB EXH VAC BREAKER LINE ISOL-PCIV													
1-2399-064	MC	C	4	CK	SA	A	C	O/C	M-46-2	E-05	CCD	CM			
											COD	CM			
		Valve Name HPCI-TURBINE EXHAUST LINE VACUUM BREAKER													
1-2399-065	MC	C	4	CK	SA	A	C	O/C	M-46-2	E-06	CCD	CM			
											COD	CM			
		Valve Name HPCI-TURBINE EXHAUST LINE VACUUM BREAKER													

High Pressure Coolant Injection (Page 5)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
1-2399-066	2	C	4	CK	SA	A	C	O/C	M-46-2	E-05	CCD	CM			
											COD	CM			
		Valve Name HPCI-TURBINE EXHAUST LINE VACUUM BREAKER													
1-2399-067	2	C	4	CK	SA	A	C	O/C	M-46-2	E-06	CCD	CM			
											COD	CM			
		Valve Name HPCI-TURBINE EXHAUST LINE VACUUM BREAKER													
1-2399-075	2	C	0.75	CK	SA	A	C	C	M-46-1	C-01	BDO	M3			014
											CC	M3			
		Valve Name HPCI-KEEP FILL SUPPLY CHECK													
2-2301-003-MO	2	B	10	GA	MO	A	C	O	M-87-2	A-06	DIA	MOV	RV-02		
											SC	M3			
											SO	M3			
		Valve Name HPCI-STEAM SUPPLY/BLOCKING VALVE													
2-2301-004-MO	1	A	10	GA	MO	A	O	O/C	M-87-2	E-07	DIA	MOV	RV-02		
											LT	AJ			
											SC	M3			
											SO	M3			
		Valve Name HPCI-INBOARD STEAM SUPPLY FROM RPV-PCIV													
2-2301-005-MO	1	A	10	GA	MO	A	O	O/C	M-87-2	C-09	DIA	MOV	RV-02		
											LT	AJ			
											SC	M3			
											SO	M3			
		Valve Name HPCI-OUTBOARD STEAM SUPPLY FROM RPV-PCIV													
2-2301-006-MO	SR	B	16	GA	MO	A	O	O/C	M-87-1	G-01	DIA	MOV	RV-02		
											SC	Y2			
											SO	Y2			
		Valve Name HPCI-SUCTION SUPPLY LINE FROM CCST ISOLATION VALVE													
2-2301-007	2	C	14	CK	SA	A	C	O	M-87-1	E-09	CCD	CM			
											COD	CM			
		Valve Name HPCI-INJECTION LINE TO FEEDWATER CHECK													
2-2301-008-MO	2	B	14	GA	MO	A	C	O/C	M-87-1	E-08	DIA	MOV	RV-02		
											SC	M3			
											SO	M3			
		Valve Name HPCI-INJECTION LINE TO FEEDWATER ISOLATION VALVE													

High Pressure Coolant Injection (Page 6)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
2-2301-009-MO	2	B	14	GA	MO	A	O	O	M-87-1	E-07	DIA	MOV	RV-02		
											SC	M3			
											SO	M3			
		Valve Name HPCI-INJECTION LINE TO FEEDWATER ISOLATION VALVE													
2-2301-010-MO	2	B	12	GL	MO	A	C	C	M-87-1	F-07	DIA	MOV	RV-02		
											SC	M3			
											SO	M3			
		Valve Name HPCI-FULL FLOW TEST RETURN TO CCST ISOLATION VALVE													
2-2301-014-MO	2	B	4	GL	MO	A	C	C	M-87-1	C-07	DIA	MOV	RV-02		
											SC	M3			
											SO	M3			
		Valve Name HPCI-MIN FLOW RECIRC LINE ISOLATION TO TORUS ISOL													
2-2301-020	2	C	16	CK	SA	A	C	O/C	M-87-1	F-01	CCD	CM			
											COF	CM			
		Valve Name HPCI-SUCTION SUPPLY LINE FROM CCST CHECK													
2-2301-023-RV	2	C	1.5	RV	SA	A	C	O/C	M-87-1	A-03	RT	Y10			
		Valve Name HPCI-BOOSTER PUMP SUCT LINE RELIEF VALVE													
2-2301-026	2	A/C	0.5	XFC	SA	A	O	C	M-87-2	F-09	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name HPCI-STM SUPPLY DP/P HI SIDE EXCESS FLOW CHECK													
2-2301-027	2	A/C	0.5	XFC	SA	A	O	C	M-87-2	F-09	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name HPCI-STM SUPPLY DP/P LO SIDE EXCESS FLOW CHECK													
2-2301-028-AO	2	B	1	GL	AO	A	C	O	M-87-2	C-07	FO	M3			013
											PIC	Y2			
											PIO	Y2			
											STO	M3			
		Valve Name HPCI-SUPPLY STM CONDENSATE TO STM EXH DRN POT VLV													
2-2301-029-AO	2	B	1	GL	AO	A	O	C	M-87-2	C-07	FC	M3			013
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name HPCI-STM LINE DRN POT TO MAIN CONDENSER VLV													
2-2301-032-SO	2	S	0.75	GL	SO	A	C	O	M-87-2	D-02	SO	M3	RV-04		007
		Valve Name HPCI-EXHAUST LINE DRN POT TO GS COND SOLENOID													

High Pressure Coolant Injection (Page 7)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
2-2301-034	2	A/C	2	CK	SA	A	C	O/C	M-87-2	E-04	CCF	CM			
											COF	CM			
											LTJ	AJ			
		Valve Name	HPCI-AUX OIL PUMP DISCHARGE TO OIL COOLER CHECK												
2-2301-035-MO	2	B	16	GA	MO	A	C	O/C	M-87-1	F-02	DIA	MOV	RV-02		
											SC	Y2			
											SO	Y2			
		Valve Name	HPCI-SUCTION SUPPLY LINE FROM TORUS ISOL VALVE												
2-2301-036-MO	2	B	16	GA	MO	A	C	O/C	M-87-1	F-03	DIA	MOV	RV-02		
											SC	Y2			
											SO	Y2			
		Valve Name	HPCI-SUCTION SUPPLY LINE FROM TORUS ISOL VALVE												
2-2301-039	2	C	16	CK	SA	A	C	O/C	M-87-1	F-02	CCD	CM			
											COD	CM			
		Valve Name	HPCI-SUCTION SUPPLY LINE FROM TORUS CHECK												
2-2301-040	2	C	4	CK	SA	A	C	O	M-87-1	C-08	CCD	CM			
											COD	CM			
		Valve Name	HPCI-MINIMUM FLOW RECIRC LINE TO TORUS CHECK												
2-2301-045	2	C	24	CK	SA	A	C	O/C	M-87-2	C-04	CCD	CM			
											COF	CM			
		Valve Name	HPCI-TURBINE EXHAUST TO TORUS CHECK												
2-2301-048-MO	2	B	4	GA	MO	A	O	O	M-87-1	B-04	DIA	MOV	RV-02		
											SC	M3			
											SO	M3			
		Valve Name	HPCI-LUBE OIL/GS CLG WTR RTN TO BSTR PMP ISOL VLV												
2-2301-049-MO	2	B	4	GA	MO	A	C	C	M-87-1	F-06	DIA	MOV	RV-02		
											SC	M3			
											SO	M3			
		Valve Name	HPCI-LUBE OIL/GS CLG WTR RTN TO CCST ISOL VALVE												
2-2301-050	2	C	4	CK	SA	A	C	O	M-87-1	D-05	CCD	CM			
											COD	CM			
		Valve Name	HPCI-LUBE OIL/GS CLG WTR FROM BSTR PMP CHECK												
2-2301-051	2	C	4	CK	SA	A	C	C	M-87-1	D-05	CCF	CM			
											COD	CM			
		Valve Name	HPCI-LUBE OIL/GS CLG WTR PUMP DISCHARGE CHECK												
2-2301-053-RV	2	C	4	RV	SA	A	C	O/C	M-87-1	D-03	RT	Y10			
		Valve Name	HPCI-LUBE OIL/GS CLG WTR RELIEF VALVE												

High Pressure Coolant Injection (Page 8)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
2-2301-064-AO	2	B	1	GL	AO	A	O	C	M-87-2	B-05	FC	M3			013
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name	HPCI-STOP VALVE ABOVE SEAT DRN DISCHARGE VLV												
2-2301-068-RPD	2	D	16	RPD	SA	A	C	O/C	M-87-2	A-04	DT	Y5			
		Valve Name	HPCI-TURB EXHAUST LINE RUPTURE DIAPHRAGM												
2-2301-069-RPD	NS	D	16	RPD	SA	A	C	O/C	M-87-2	A-04	DT	Y5			
		Valve Name	HPCI-TURB EXHAUST LINE RUPTURE DIAPHRAGM												
2-2301-071	2	A/C	2	SCK	SA	A	C	O/C	M-87-2	E-04	CCD	CM			
											CCF	CM			
											COD	CM			
											COF	CM			
											LTJ	AJ			
		Valve Name	HPCI-EXHAUST LINE DRN POT DISCH TO TORUS STOP CK												
2-2301-074	2	C	12	SCK	SA	A	C	O/C	M-87-2	D-04	CCD	CM			
											COF	CM			
		Valve Name	HPCI-TURBINE EXHAUST TO TORUS STOP CHECK												
2-2301-075	2	C	4	CK	SA	A	C	O	M-87-1	E-03	CCD	CM			
											COD	CM			
		Valve Name	HPCI-LUBE OIL/GS CLG WTR RTN TO CCST/BSTR PMP CK												
2-2301-076	2	C	2	CK	SA	A	C	O/C	M-87-1	E-03	CC	M3			
											CO	M3			
		Valve Name	HPCI-GLAND SEAL CONDENSATE PUMP DISCHARGE CHECK												
2-2317-HO	2	S	10	PPT	HO	A	C	O/C	M-87-2	A-05	FC	M3			007, 013
											PIC	Y2			007
											PIO	Y2			007
											SC	M3			007
											SO	M3			007
		Valve Name	HPCI-TURBINE STOP VALVE												
2-2399-040-MO	MC	A	4	GA	MO	A	O	O/C	M-87-2	E-06	DIA	MOV	RV-02		
											LT	AJ			
											SC	Y2			
											SO	Y2			
		Valve Name	HPCI-TURB EXH VAC BREAKER LINE ISOL-PCIV												

High Pressure Coolant Injection (Page 9)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
2-2399-041-MO	2	A	4	GA	MO	A	O	O/C	M-87-2	D-06	DIA	MOV	RV-02		
											LT	AJ			
											SC	Y2			
											SO	Y2			
		Valve Name	HPCI-TURB EXH VAC BREAKER LINE ISOL-PCIV												
2-2399-064	MC	C	4	CK	SA	A	C	O/C	M-87-2	E-05	CCD	CM			
											COD	CM			
		Valve Name	HPCI-TURBINE EXHAUST LINE VACUUM BREAKER												
2-2399-065	MC	C	4	CK	SA	A	C	O/C	M-87-2	E-06	CCD	CM			
											COD	CM			
		Valve Name	HPCI-TURBINE EXHAUST LINE VACUUM BREAKER												
2-2399-066	2	C	4	CK	SA	A	C	O/C	M-87-2	E-05	CCD	CM			
											COD	CM			
		Valve Name	HPCI-TURBINE EXHAUST LINE VACUUM BREAKER												
2-2399-067	2	C	4	CK	SA	A	C	O/C	M-87-2	E-06	CCD	CM			
											COD	CM			
		Valve Name	HPCI-TURBINE EXHAUST LINE VACUUM BREAKER												
2-2399-075	2	C	0.75	CK	SA	A	C	C	M-87-1	C-01	BDO	M3			014
											CC	M3			
		Valve Name	HPCI-KEEP FILL SUPPLY CHECK												

High Radiation Sampling (Page 1)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
1-8941-101-XCV	SR	B	0.5	DIA	AO	A	C	C	M-1057	C-07	FC	M3			013
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name	SBGT/CAS-SAMPLING ISOLATION VALVE												
1-8941-705-XCV	2	B	0.5	DIA	AO	A	C	C	M-1056-1	C-07	FC	M3			013
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name	CORE SPRAY-SAMPLING SELECT VALVE												
2-8941-101-XCV	SR	B	0.5	DIA	AO	A	C	C	M-1062	C-07	FC	M3			013
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name	SBGT/CAS-SAMPLING ISOLATION VALVE												
2-8941-705-XCV	2	B	0.5	DIA	AO	A	C	C	M-1061-1	C-07	FC	M3			013
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name	CORE SPRAY-SAMPLING SELECT VALVE												

Instrument Air (Page 1)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
1-4720-PCV	MC	A	1	GA	AO	A	O	C	M-24-13	D-06	FC	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name	IA-PCIV, AIR SUCT FOR INST AIR FROM DW												
1-4721-PCV	MC	A	1	GA	AO	A	O	C	M-24-13	D-07	FC	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name	IA-PCIV, AIR SUCT FOR INST AIR FROM DW												
1-4799-155	MC	A/C	2	CK	SA	A	O	C	M-24-13	C-04	CCF	CM			
											COF	CM			
											LTJ	AJ			
		Valve Name	IA-PCIV, DW PNEUMATIC SUPPLY TO DRYWELL												
1-4799-156	MC	A/C	2	CK	SA	A	O	C	M-24-13	C-06	CCF	CM			
											COF	CM			
											LTJ	AJ			
		Valve Name	IA-PCIV, DW PNEUMATIC SUPPLY TO DRYWELL												
1-4799-158	MC	A/C	0.5	CK	SA	A	O	C	M-24-13	E-07	CCF	CM			
											COF	CM			
											LTJ	AJ			
		Valve Name	IA-PCIV, DW PNEUMATIC SUPPLY TO TORUS												
1-4799-159	MC	A/C	0.5	CK	SA	A	O	C	M-24-13	E-08	CCF	CM			
											COF	CM			
											LTJ	AJ			
		Valve Name	IA-PCIV, DW PNEUMATIC SUPPLY TO TORUS												
1-4799-176	MC	A	0.75	GL	M	P	LC	C	M-24-13	B-06	LT	AJ			
		Valve Name	IA-PCIV, DW VENT DAMPER CONTROL LINE ISOLATION												
1-4799-488A	MC	A	0.75	GL	M	P	LC	C	M-24-13	B-06	LT	AJ			
		Valve Name	IA-PCIV, DW VENT DAMPER CONTROL LINE ISOLATION												
1-4799-488B	MC	A	0.75	GL	M	P	LC	C	M-24-13	B-06	LT	AJ			
		Valve Name	IA-PCIV, DW VENT DAMPER CONTROL LINE ISOLATION												
1-4799-488C	MC	A	0.75	GL	M	P	LC	C	M-24-13	B-06	LT	AJ			
		Valve Name	IA-PCIV, DW VENT DAMPER CONTROL LINE ISOLATION												

Instrument Air (Page 2)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
1-4799-488D	MC	A	0.75	GL	M	P	LC	C	M-24-13	B-06	LT	AJ			
		Valve Name	IA-PCIV, DW VENT DAMPER CONTROL LINE ISOLATION												
1-4799-488E	MC	A	0.75	GL	M	P	LC	C	M-24-13	B-06	LT	AJ			
		Valve Name	IA-PCIV, DW VENT DAMPER CONTROL LINE ISOLATION												
1-4799-488F	MC	A	0.75	GL	M	P	LC	C	M-24-13	B-06	LT	AJ			
		Valve Name	IA-PCIV, DW VENT DAMPER CONTROL LINE ISOLATION												
1-4799-488G	MC	A	0.75	GL	M	P	LC	C	M-24-13	B-06	LT	AJ			
		Valve Name	IA-PCIV, DW VENT DAMPER CONTROL LINE ISOLATION												
1-4799-489A	MC	A	0.75	GL	M	P	LC	C	M-24-13	B-06	LT	AJ			
		Valve Name	IA-PCIV, DW VENT DAMPER CONTROL LINE ISOLATION												
1-4799-489B	MC	A	0.75	GL	M	P	LC	C	M-24-13	B-06	LT	AJ			
		Valve Name	IA-PCIV, DW VENT DAMPER CONTROL LINE ISOLATION												
1-4799-489C	MC	A	0.75	GL	M	P	LC	C	M-24-13	B-06	LT	AJ			
		Valve Name	IA-PCIV, DW VENT DAMPER CONTROL LINE ISOLATION												
1-4799-489D	MC	A	0.75	GL	M	P	LC	C	M-24-13	B-06	LT	AJ			
		Valve Name	IA-PCIV, DW VENT DAMPER CONTROL LINE ISOLATION												
1-4799-489E	MC	A	0.75	GL	M	P	LC	C	M-24-13	B-06	LT	AJ			
		Valve Name	IA-PCIV, DW VENT DAMPER CONTROL LINE ISOLATION												
1-4799-489F	MC	A	0.75	GL	M	P	LC	C	M-24-13	B-06	LT	AJ			
		Valve Name	IA-PCIV, DW VENT DAMPER CONTROL LINE ISOLATION												
1-4799-489G	MC	A	0.75	GL	M	P	LC	C	M-24-13	B-06	LT	AJ			
		Valve Name	IA-PCIV, DW VENT DAMPER CONTROL LINE ISOLATION												
1-4799-489H	MC	A	0.75	GL	M	P	LC	C	M-24-13	B-06	LT	AJ			
		Valve Name	IA-PCIV, DW VENT DAMPER CONTROL LINE ISOLATION												
1-4799-489J	MC	A	0.75	GL	M	P	LC	C	M-24-13	B-06	LT	AJ			
		Valve Name	IA-PCIV, DW VENT DAMPER CONTROL LINE ISOLATION												
1-4799-489K	MC	A	0.75	GL	M	P	LC	C	M-24-13	B-06	LT	AJ			
		Valve Name	IA-PCIV, DW VENT DAMPER CONTROL LINE ISOLATION												
1-4799-489L	MC	A	0.75	GL	M	P	LC	C	M-24-13	B-06	LT	AJ			
		Valve Name	IA-PCIV, DW VENT DAMPER CONTROL LINE ISOLATION												
1-4799-489M	MC	A	0.75	GL	M	P	LC	C	M-24-13	B-06	LT	AJ			
		Valve Name	IA-PCIV, DW VENT DAMPER CONTROL LINE ISOLATION												
1-4799-489N	MC	A	0.75	GL	M	P	LC	C	M-24-13	B-06	LT	AJ			
		Valve Name	IA-PCIV, DW VENT DAMPER CONTROL LINE ISOLATION												

Instrument Air (Page 3)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
1-4799-489P	MC	A	0.75	GL	M	P	LC	C	M-24-13	B-06	LT	AJ			
		Valve Name	IA-PCIV, DW VENT DAMPER CONTROL LINE ISOLATION												
1-4799-489Q	MC	A	0.75	GL	M	P	LC	C	M-24-13	B-06	LT	AJ			
		Valve Name	IA-PCIV, DW VENT DAMPER CONTROL LINE ISOLATION												
1-4799-489R	MC	A	0.75	GL	M	P	LC	C	M-24-13	B-06	LT	AJ			
		Valve Name	IA-PCIV, DW VENT DAMPER CONTROL LINE ISOLATION												
1-4799-489S	MC	A	0.75	GL	M	P	LC	C	M-24-13	B-06	LT	AJ			
		Valve Name	IA-PCIV, DW VENT DAMPER CONTROL LINE ISOLATION												
1-4799-489T	MC	A	0.75	GL	M	P	LC	C	M-24-13	B-06	LT	AJ			
		Valve Name	IA-PCIV, DW VENT DAMPER CONTROL LINE ISOLATION												
1-4799-489U	MC	A	0.75	GL	M	P	LC	C	M-24-13	B-06	LT	AJ			
		Valve Name	IA-PCIV, DW VENT DAMPER CONTROL LINE ISOLATION												
1-4799-489V	MC	A	0.75	GL	M	P	LC	C	M-24-13	B-06	LT	AJ			
		Valve Name	IA-PCIV, DW VENT DAMPER CONTROL LINE ISOLATION												
1-4799-489W	MC	A	0.75	GL	M	P	LC	C	M-24-13	B-06	LT	AJ			
		Valve Name	IA-PCIV, DW VENT DAMPER CONTROL LINE ISOLATION												
1-4799-489X	MC	A	0.75	GL	M	P	LC	C	M-24-13	B-06	LT	AJ			
		Valve Name	IA-PCIV, DW VENT DAMPER CONTROL LINE ISOLATION												
1-4799-489Y	MC	A	0.75	GL	M	P	LC	C	M-24-13	B-06	LT	AJ			
		Valve Name	IA-PCIV, DW VENT DAMPER CONTROL LINE ISOLATION												
1-4799-489Z	MC	A	0.75	GL	M	P	LC	C	M-24-13	B-06	LT	AJ			
		Valve Name	IA-PCIV, DW VENT DAMPER CONTROL LINE ISOLATION												
1-4799-490A	MC	A	0.75	GL	M	P	LC	C	M-24-13	C-06	LT	AJ			
		Valve Name	IA-PCIV, DW VENT DAMPER CONTROL LINE ISOLATION												
1-4799-490B	MC	A	0.75	GL	M	P	LC	C	M-24-13	C-06	LT	AJ			
		Valve Name	IA-PCIV, DW VENT DAMPER CONTROL LINE ISOLATION												
1-4799-490C	MC	A	0.75	GL	M	P	LC	C	M-24-13	C-06	LT	AJ			
		Valve Name	IA-PCIV, DW VENT DAMPER CONTROL LINE ISOLATION												
1-4799-490D	MC	A	0.75	GL	M	P	LC	C	M-24-13	C-06	LT	AJ			
		Valve Name	IA-PCIV, DW VENT DAMPER CONTROL LINE ISOLATION												
1-4799-490E	MC	A	0.75	GL	M	P	LC	C	M-24-13	C-06	LT	AJ			
		Valve Name	IA-PCIV, DW VENT DAMPER CONTROL LINE ISOLATION												
1-4799-490F	MC	A	0.75	GL	M	P	LC	C	M-24-13	C-06	LT	AJ			
		Valve Name	IA-PCIV, DW VENT DAMPER CONTROL LINE ISOLATION												

Instrument Air (Page 4)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
1-4799-490G	MC	A	0.75	GL	M	P	LC	C	M-24-13	C-06	LT	AJ			
		Valve Name IA-PCIV, DW VENT DAMPER CONTROL LINE ISOLATION													
2-4720-PCV	MC	A	1	GA	AO	A	O	C	M-71-8	D-05	FC	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name IA-PCIV, AIR SUCT FOR INST AIR FROM DW													
2-4721-PCV	MC	A	1	GA	AO	A	O	C	M-71-8	D-06	FC	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name IA-PCIV, AIR SUCT FOR INST AIR FROM DW													
2-4799-155	MC	A/C	2	CK	SA	A	O	C	M-71-8	C-04	CCF	CM			
											COF	CM			
											LTJ	AJ			
		Valve Name IA-PCIV, DW PNEUMATIC SUPPLY TO DRYWELL													
2-4799-156	MC	A/C	2	CK	SA	A	O	C	M-71-8	C-06	CCF	CM			
											COF	CM			
											LTJ	AJ			
		Valve Name IA-PCIV, DW PNEUMATIC SUPPLY TO DRYWELL													
2-4799-158	MC	A/C	0.5	CK	SA	A	O	C	M-71-2	E-07	CCF	CM			
											COF	CM			
											LTJ	AJ			
		Valve Name IA-PCIV, DW PNEUMATIC SUPPLY TO TORUS													
2-4799-159	MC	A/C	0.5	CK	SA	A	O	C	M-71-2	E-08	CCF	CM			
											COF	CM			
											LTJ	AJ			
		Valve Name IA-PCIV, DW PNEUMATIC SUPPLY TO TORUS													
2-4799-176	MC	A	0.75	GL	M	P	LC	C	M-71-8	B-05	LT	AJ			
		Valve Name IA-PCIV, DW VENT DAMPER CONTROL LINE ISOLATION													
2-4799-353	NS	A/C	0.5	CK	SA	A	O	C	M-71-8	C-07	CCF	CM			
											COF	CM			
											LTJ	AJ			
		Valve Name IA-SRM/IRM PURGE CHECK													

Instrument Air (Page 5)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
2-4799-354	NS	A/C	0.5	CK	SA	A	O	C	M-71-8	C-07	CCF	CM			
											COF	CM			
											LTJ	AJ			
		Valve Name	IA-SRM/IRM PURGE CHECK												
2-4799-477A	MC	A	0.75	GL	M	P	LC	C	M-71-8	B-05	LT	AJ			
		Valve Name	IA-PCIV, DW VENT DAMPER CONTROL LINE ISOLATION												
2-4799-477B	MC	A	0.75	GL	M	P	LC	C	M-71-8	B-05	LT	AJ			
		Valve Name	IA-PCIV, DW VENT DAMPER CONTROL LINE ISOLATION												
2-4799-477C	MC	A	0.75	GL	M	P	LC	C	M-71-8	B-05	LT	AJ			
		Valve Name	IA-PCIV, DW VENT DAMPER CONTROL LINE ISOLATION												
2-4799-477D	MC	A	0.75	GL	M	P	LC	C	M-71-8	B-05	LT	AJ			
		Valve Name	IA-PCIV, DW VENT DAMPER CONTROL LINE ISOLATION												
2-4799-477E	MC	A	0.75	GL	M	P	LC	C	M-71-8	B-05	LT	AJ			
		Valve Name	IA-PCIV, DW VENT DAMPER CONTROL LINE ISOLATION												
2-4799-477F	MC	A	0.75	GL	M	P	LC	C	M-71-8	B-05	LT	AJ			
		Valve Name	IA-PCIV, DW VENT DAMPER CONTROL LINE ISOLATION												
2-4799-477G	MC	A	0.75	GL	M	P	LC	C	M-71-8	B-05	LT	AJ			
		Valve Name	IA-PCIV, DW VENT DAMPER CONTROL LINE ISOLATION												
2-4799-479A	MC	A	0.75	GL	M	P	LC	C	M-71-8	B-05	LT	AJ			
		Valve Name	IA-PCIV, DW VENT DAMPER CONTROL LINE ISOLATION												
2-4799-479B	MC	A	0.75	GL	M	P	LC	C	M-71-8	B-05	LT	AJ			
		Valve Name	IA-PCIV, DW VENT DAMPER CONTROL LINE ISOLATION												
2-4799-479C	MC	A	0.75	GL	M	P	LC	C	M-71-8	B-05	LT	AJ			
		Valve Name	IA-PCIV, DW VENT DAMPER CONTROL LINE ISOLATION												
2-4799-479D	MC	A	0.75	GL	M	P	LC	C	M-71-8	B-05	LT	AJ			
		Valve Name	IA-PCIV, DW VENT DAMPER CONTROL LINE ISOLATION												
2-4799-479E	MC	A	0.75	GL	M	P	LC	C	M-71-8	B-05	LT	AJ			
		Valve Name	IA-PCIV, DW VENT DAMPER CONTROL LINE ISOLATION												
2-4799-479F	MC	A	0.75	GL	M	P	LC	C	M-71-8	B-05	LT	AJ			
		Valve Name	IA-PCIV, DW VENT DAMPER CONTROL LINE ISOLATION												
2-4799-479G	MC	A	0.75	GL	M	P	LC	C	M-71-8	B-05	LT	AJ			
		Valve Name	IA-PCIV, DW VENT DAMPER CONTROL LINE ISOLATION												
2-4799-479H	MC	A	0.75	GL	M	P	LC	C	M-71-8	B-05	LT	AJ			
		Valve Name	IA-PCIV, DW VENT DAMPER CONTROL LINE ISOLATION												

Instrument Air (Page 6)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
2-4799-479J	MC	A	0.75	GL	M	P	LC	C	M-71-8	B-05	LT	AJ			
Valve Name IA-PCIV, DW VENT DAMPER CONTROL LINE ISOLATION															
2-4799-479K	MC	A	0.75	GL	M	P	LC	C	M-71-8	B-05	LT	AJ			
Valve Name IA-PCIV, DW VENT DAMPER CONTROL LINE ISOLATION															
2-4799-479L	MC	A	0.75	GL	M	P	LC	C	M-71-8	B-05	LT	AJ			
Valve Name IA-PCIV, DW VENT DAMPER CONTROL LINE ISOLATION															
2-4799-479M	MC	A	0.75	GL	M	P	LC	C	M-71-8	B-05	LT	AJ			
Valve Name IA-PCIV, DW VENT DAMPER CONTROL LINE ISOLATION															
2-4799-479N	MC	A	0.75	GL	M	P	LC	C	M-71-8	B-05	LT	AJ			
Valve Name IA-PCIV, DW VENT DAMPER CONTROL LINE ISOLATION															
2-4799-479P	MC	A	0.75	GL	M	P	LC	C	M-71-8	B-05	LT	AJ			
Valve Name IA-PCIV, DW VENT DAMPER CONTROL LINE ISOLATION															
2-4799-479Q	MC	A	0.75	GL	M	P	LC	C	M-71-8	B-05	LT	AJ			
Valve Name IA-PCIV, DW VENT DAMPER CONTROL LINE ISOLATION															
2-4799-479R	MC	A	0.75	GL	M	P	LC	C	M-71-8	B-05	LT	AJ			
Valve Name IA-PCIV, DW VENT DAMPER CONTROL LINE ISOLATION															
2-4799-479S	MC	A	0.75	GL	M	P	LC	C	M-71-8	B-05	LT	AJ			
Valve Name IA-PCIV, DW VENT DAMPER CONTROL LINE ISOLATION															
2-4799-479T	MC	A	0.75	GL	M	P	LC	C	M-71-8	B-05	LT	AJ			
Valve Name IA-PCIV, DW VENT DAMPER CONTROL LINE ISOLATION															
2-4799-479U	MC	A	0.75	GL	M	P	LC	C	M-71-8	B-05	LT	AJ			
Valve Name IA-PCIV, DW VENT DAMPER CONTROL LINE ISOLATION															
2-4799-479V	MC	A	0.75	GL	M	P	LC	C	M-71-8	B-05	LT	AJ			
Valve Name IA-PCIV, DW VENT DAMPER CONTROL LINE ISOLATION															
2-4799-479W	MC	A	0.75	GL	M	P	LC	C	M-71-8	B-05	LT	AJ			
Valve Name IA-PCIV, DW VENT DAMPER CONTROL LINE ISOLATION															
2-4799-479X	MC	A	0.75	GL	M	P	LC	C	M-71-8	B-05	LT	AJ			
Valve Name IA-PCIV, DW VENT DAMPER CONTROL LINE ISOLATION															
2-4799-479Y	MC	A	0.75	GL	M	P	LC	C	M-71-8	B-05	LT	AJ			
Valve Name IA-PCIV, DW VENT DAMPER CONTROL LINE ISOLATION															
2-4799-479Z	MC	A	0.75	GL	M	P	LC	C	M-71-8	B-05	LT	AJ			
Valve Name IA-PCIV, DW VENT DAMPER CONTROL LINE ISOLATION															
2-4799-480A	MC	A	0.75	GL	M	P	LC	C	M-71-8	C-05	LT	AJ			
Valve Name IA-PCIV, DW VENT DAMPER CONTROL LINE ISOLATION															

Instrument Air (Page 7)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
2-4799-480B	MC	A	0.75	GL	M	P	LC	C	M-71-8	C-05	LT	AJ			
		Valve Name	IA-PCIV, DW VENT DAMPER CONTROL LINE ISOLATION												
2-4799-480C	MC	A	0.75	GL	M	P	LC	C	M-71-8	C-05	LT	AJ			
		Valve Name	IA-PCIV, DW VENT DAMPER CONTROL LINE ISOLATION												

Main Steam (Page 1)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
1-0203-001A-AO	1	A	20	GL	AO	A	O	C	M-13-1	B-07	FC	RR		ROJ-30B	013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											SP	M3			
											STC (LTL)	CS	RV-07	CSJ-30B	
											STC (STL)	CS	RV-07	CSJ-30B	
		Valve Name 1A INBOARD MAIN STEAM ISOLATION VALVE (MSIV)													
1-0203-001AD	SR	A/C	1	CK	SA	A	O	C	M-13-1	A-10	BDO	RR		ROJ-47A	014
											CC	RR		ROJ-47A	
											LT	Y2			
		Valve Name 1A MSIV ACCUMULATOR CHECK													
1-0203-001B-AO	1	A	20	GL	AO	A	O	C	M-13-1	C-07	FC	RR		ROJ-30B	013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											SP	M3			
											STC (LTL)	CS	RV-07	CSJ-30B	
											STC (STL)	CS	RV-07	CSJ-30B	
		Valve Name 1B INBOARD MAIN STEAM ISOLATION VALVE (MSIV)													
1-0203-001BD	SR	A/C	1	CK	SA	A	O	C	M-13-1	A-10	BDO	RR		ROJ-47A	014
											CC	RR		ROJ-47A	
											LT	Y2			
		Valve Name 1B MSIV ACCUMULATOR CHECK													
1-0203-001C-AO	1	A	20	GL	AO	A	O	C	M-13-1	E-07	FC	RR		ROJ-30B	013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											SP	M3			
											STC (LTL)	CS	RV-07	CSJ-30B	
											STC (STL)	CS	RV-07	CSJ-30B	
		Valve Name 1C INBOARD MAIN STEAM ISOLATION VALVE (MSIV)													

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Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
1-0203-001CD	SR	A/C	1	CK	SA	A	O	C	M-13-1	A-10	BDO	RR		ROJ-47A	014
											CC	RR		ROJ-47A	
											LT	Y2			
Valve Name 1C MSIV ACCUMULATOR CHECK															
1-0203-001D-AO	1	A	20	GL	AO	A	O	C	M-13-1	F-07	FC	RR		ROJ-30B	013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											SP	M3			
											STC (LTL)	CS	RV-07	CSJ-30B	
											STC (STL)	CS	RV-07	CSJ-30B	
Valve Name 1D INBOARD MAIN STEAM ISOLATION VALVE (MSIV)															
1-0203-001DD	SR	A/C	1	CK	SA	A	O	C	M-13-1	A-10	BDO	RR		ROJ-47A	014
											CC	RR		ROJ-47A	
											LT	Y2			
Valve Name 1D MSIV ACCUMULATOR CHECK															
1-0203-002A-AO	1	A	20	GL	AO	A	O	C	M-13-2	A-01	FC	CS		CSJ-30A	013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											SP	M3			
											STC (LTL)	CS	RV-07	CSJ-30B	
											STC (STL)	CS	RV-07	CSJ-30B	
Valve Name 2A OUTBOARD MAIN STEAM ISOLATION VALVE (MSIV)															
1-0203-002AC	SR	A/C	1	CK	SA	A	O	C	M-13-2	F-01	BDO	RR		ROJ-47A	014
											CC	RR		ROJ-47A	
											LT	Y2			
Valve Name 2A MSIV ACCUMULATOR CHECK															

Main Steam (Page 3)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
1-0203-002B-AO	1	A	20	GL	AO	A	O	C	M-13-2	B-01	FC	CS		CSJ-30A	013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											SP	M3			
											STC (LTL)	CS	RV-07	CSJ-30B	
											STC (STL)	CS	RV-07	CSJ-30B	
		Valve Name 2B OUTBOARD MAIN STEAM ISOLATION VALVE (MSIV)													
1-0203-002BC	SR	A/C	1	CK	SA	A	O	C	M-13-2	F-01	BDO	RR		ROJ-47A	014
											CC	RR		ROJ-47A	
											LT	Y2			
		Valve Name 2B MSIV ACCUMULATOR CHECK													
1-0203-002C-AO	1	A	20	GL	AO	A	O	C	M-13-2	D-01	FC	CS		CSJ-30A	013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											SP	M3			
											STC (LTL)	CS	RV-07	CSJ-30B	
											STC (STL)	CS	RV-07	CSJ-30B	
		Valve Name 2C OUTBOARD MAIN STEAM ISOLATION VALVE (MSIV)													
1-0203-002CC	SR	A/C	1	CK	SA	A	O	C	M-13-2	F-01	BDO	RR		ROJ-47A	014
											CC	RR		ROJ-47A	
											LT	Y2			
		Valve Name 2C MSIV ACCUMULATOR CHECK													
1-0203-002D-AO	1	A	20	GL	AO	A	O	C	M-13-2	F-01	FC	CS		CSJ-30A	013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											SP	M3			
											STC (LTL)	CS	RV-07	CSJ-30B	
											STC (STL)	CS	RV-07	CSJ-30B	
		Valve Name 2D OUTBOARD MAIN STEAM ISOLATION VALVE (MSIV)													

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Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
1-0203-002DC	SR	A/C	1	CK	SA	A	O	C	M-13-2	F-01	BDO	RR		ROJ-47A	014
											CC	RR		ROJ-47A	
											LT	Y2			
		Valve Name 2D MSIV ACCUMULATOR CHECK													
1-0203-003AD	SR	A/C	0.5	CK	SA	A	O	C	M-13-1	A-05	BDO	RR		ROJ-47A	014
											CC	RR		ROJ-47A	
											LT	Y2			
		Valve Name MS-3A SFTY/RLF VLV (TARGET ROCK) ACCUM CHECK													
1-0203-003A-RV	1	B/C	6.625	RV	DF	A	C	O/C	M-13-1	A-03	RT	Y5	RV-05		010
		Valve Name MS-3A SAFETY/RELIEF VLV (TARGET ROCK)													
1-0203-003B-RV	1	B/C	6	RV	SO	A	C	O/C	M-13-1	C-03	RT	Y5			010
		Valve Name MS-3B ELECTROMATIC RELIEF VALVE													
1-0203-003C-RV	1	B/C	6	RV	SO	A	C	O/C	M-13-1	D-02	RT	Y5			010
		Valve Name MS-3C ELECTROMATIC RELIEF VALVE													
1-0203-003D-RV	1	B/C	6	RV	SO	A	C	O/C	M-13-1	F-02	RT	Y5			010
		Valve Name MS-3D ELECTROMATIC RELIEF VALVE													
1-0203-003E-RV	1	B/C	6	RV	SO	A	C	O/C	M-13-1	C-02	RT	Y5			010
		Valve Name MS-3E ELECTROMATIC RELIEF VALVE													
1-0203-004A-RV	1	C	6	RV	SA	A	C	O/C	M-13-1	A-01	RT	Y5	RV-05, RV-06		
		Valve Name MS-4A SAFETY VALVE													
1-0203-004B-RV	1	C	6	RV	SA	A	C	O/C	M-13-1	C-05	RT	Y5	RV-05, RV-06		
		Valve Name MS-4B SAFETY VALVE													
1-0203-004C-RV	1	C	6	RV	SA	A	C	O/C	M-13-1	D-04	RT	Y5	RV-05, RV-06		
		Valve Name MS-4C SAFETY VALVE													
1-0203-004D-RV	1	C	6	RV	SA	A	C	O/C	M-13-1	F-04	RT	Y5	RV-05, RV-06		
		Valve Name MS-4D SAFETY VALVE													
1-0203-004E-RV	1	C	6	RV	SA	A	C	O/C	M-13-1	A-01	RT	Y5	RV-05, RV-06		
		Valve Name MS-4E SAFETY VALVE													
1-0203-004F-RV	1	C	6	RV	SA	A	C	O/C	M-13-1	C-06	RT	Y5	RV-05, RV-06		
		Valve Name MS-4F SAFETY VALVE													
1-0203-004G-RV	1	C	6	RV	SA	A	C	O/C	M-13-1	D-05	RT	Y5	RV-05, RV-06		
		Valve Name MS-4G SAFETY VALVE													

Main Steam (Page 5)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
1-0203-004H-RV	1	C	6	RV	SA	A	C	O/C	M-13-1	F-05	RT	Y5	RV-05, RV-06		
		Valve Name MS-4H SAFETY VALVE													
1-0220-001-MO	2	A	3	GA	MO	A	C	C	M-13-1	D-07	DIA	MOV	RV-02		
											LT	AJ			
											SC	CS		CSJ-30C	
											SO	CS		CSJ-30C	
		Valve Name MS-INBRD MAIN STEAM LINE DRAIN ISOLATION VALVE													
1-0220-002-MO	2	A	3	GA	MO	A	C	C	M-13-2	C-01	DIA	MOV	RV-02		
											LT	AJ			
											SC	CS		CSJ-30C	
											SO	CS		CSJ-30C	
		Valve Name MS-OUTBRD MAIN STEAM LINE DRAIN ISOLATION VALVE													
1-0220-017A	2	A/C	0.5	XFC	SA	A	O	C	M-13-1	B-08	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name 1A MAIN STM INST LINE EXCESS FLOW CHECK													
1-0220-017B	2	A/C	0.5	XFC	SA	A	O	C	M-13-1	C-08	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name 1B MAIN STM INST LINE EXCESS FLOW CHECK													
1-0220-017C	2	A/C	0.5	XFC	SA	A	O	C	M-13-1	E-08	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name 1C MAIN STM INST LINE EXCESS FLOW CHECK													
1-0220-017D	2	A/C	0.5	XFC	SA	A	O	C	M-13-1	F-08	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name 1D MAIN STM INST LINE EXCESS FLOW CHECK													
1-0220-018A	2	A/C	0.5	XFC	SA	A	O	C	M-13-1	B-08	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name 1A MAIN STM INST LINE EXCESS FLOW CHECK													
1-0220-018B	2	A/C	0.5	XFC	SA	A	O	C	M-13-1	D-08	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name 1B MAIN STM INST LINE EXCESS FLOW CHECK													

Main Steam (Page 6)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
1-0220-018C	2	A/C	0.5	XFC	SA	A	O	C	M-13-1	E-08	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name 1C MAIN STM INST LINE EXCESS FLOW CHECK													
1-0220-018D	2	A/C	0.5	XFC	SA	A	O	C	M-13-1	G-08	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name 1D MAIN STM INST LINE EXCESS FLOW CHECK													
1-0220-081A	SR	C	1	CK	SA	A	C	C	M-13-1	B-04	CC	RR		ROJ-30A	
											CO	RR		ROJ-30A	
		Valve Name PRESS SUPP-SAFETY VLV DISCH VAC BREAKERS													
1-0220-081B	SR	C	1	CK	SA	A	C	C	M-13-1	C-05	CC	RR		ROJ-30A	
											CO	RR		ROJ-30A	
		Valve Name PRESS SUPP-SAFETY VLV DISCH VAC BREAKERS													
1-0220-081C	SR	C	1	CK	SA	A	C	C	M-13-1	E-03	CC	RR		ROJ-30A	
											CO	RR		ROJ-30A	
		Valve Name PRESS SUPP-SAFETY VLV DISCH VAC BREAKERS													
1-0220-081D	SR	C	1	CK	SA	A	C	C	M-13-1	F-03	CC	RR		ROJ-30A	
											CO	RR		ROJ-30A	
		Valve Name PRESS SUPP-SAFETY VLV DISCH VAC BREAKERS													
1-0220-081E	SR	C	1	CK	SA	A	C	C	M-13-1	C-03	CC	RR		ROJ-30A	
											CO	RR		ROJ-30A	
		Valve Name PRESS SUPP-SAFETY VLV DISCH VAC BREAKERS													
1-0220-105A	SR	C	8	CK	SA	A	C	O/C	M-13-1	A-04	CCX	CM			
											COX	CM			
		Valve Name PRESS SUPP-SAFETY VLV DISCH VAC BREAKERS													
1-0220-105B	SR	C	8	CK	SA	A	C	O/C	M-13-1	B-05	CCX	CM			
											COX	CM			
		Valve Name PRESS SUPP-SAFETY VLV DISCH VAC BREAKERS													
1-0220-105C	SR	C	8	CK	SA	A	C	O/C	M-13-1	D-03	CCX	CM			
											COX	CM			
		Valve Name PRESS SUPP-SAFETY VLV DISCH VAC BREAKERS													
1-0220-105D	SR	C	8	CK	SA	A	C	O/C	M-13-1	F-03	CCX	CM			
											COX	CM			
		Valve Name PRESS SUPP-SAFETY VLV DISCH VAC BREAKERS													

Main Steam (Page 7)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
1-0220-105E	SR	C	8	CK	SA	A	C	O/C	M-13-1	C-03	CCX	CM			
											COX	CM			
		Valve Name PRESS SUPP-SAFETY VLV DISCH VAC BREAKERS													
2-0203-001A-AO	1	A	20	GL	AO	A	O	C	M-60-1	B-07	FC	RR		ROJ-30B	013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											SP	M3			
											STC (LTL)	CS	RV-07	CSJ-30B	
											STC (STL)	CS	RV-07	CSJ-30B	
		Valve Name 1A INBOARD MAIN STEAM ISOLATION VALVE (MSIV)													
2-0203-001AD	SR	A/C	1	CK	SA	A	O	C	M-60-1	A-10	BDO	RR		ROJ-47A	014
											CC	RR		ROJ-47A	
											LT	Y2			
		Valve Name 1A MSIV ACCUMULATOR CHECK													
2-0203-001B-AO	1	A	20	GL	AO	A	O	C	M-60-1	C-07	FC	RR		ROJ-30B	013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											SP	M3			
											STC (LTL)	CS	RV-07	CSJ-30B	
											STC (STL)	CS	RV-07	CSJ-30B	
		Valve Name 1B INBOARD MAIN STEAM ISOLATION VALVE (MSIV)													
2-0203-001BD	SR	A/C	1	CK	SA	A	O	C	M-60-1	A-10	BDO	RR		ROJ-47A	014
											CC	RR		ROJ-47A	
											LT	Y2			
		Valve Name 1B MSIV ACCUMULATOR CHECK													
2-0203-001C-AO	1	A	20	GL	AO	A	O	C	M-60-1	E-07	FC	RR		ROJ-30B	013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											SP	M3			
											STC (LTL)	CS	RV-07	CSJ-30B	
											STC (STL)	CS	RV-07	CSJ-30B	
		Valve Name 1C INBOARD MAIN STEAM ISOLATION VALVE (MSIV)													

Main Steam (Page 8)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
2-0203-001CD	SR	A/C	1	CK	SA	A	O	C	M-60-1	A-10	BDO	RR		ROJ-47A	014
											CC	RR		ROJ-47A	
											LT	Y2			
Valve Name 1C MSIV ACCUMULATOR CHECK															
2-0203-001D-AO	1	A	20	GL	AO	A	O	C	M-60-1	F-07	FC	RR		ROJ-30B	013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											SP	M3			
											STC (LTL)	CS	RV-07	CSJ-30B	
											STC (STL)	CS	RV-07	CSJ-30B	
Valve Name 1D INBOARD MAIN STEAM ISOLATION VALVE (MSIV)															
2-0203-001DD	SR	A/C	1	CK	SA	A	O	C	M-60-1	A-10	BDO	RR		ROJ-47A	014
											CC	RR		ROJ-47A	
											LT	Y2			
Valve Name 1D MSIV ACCUMULATOR CHECK															
2-0203-002A-AO	1	A	20	GL	AO	A	O	C	M-60-2	A-01	FC	CS		CSJ-30A	013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											SP	M3			
											STC (LTL)	CS	RV-07	CSJ-30B	
											STC (STL)	CS	RV-07	CSJ-30B	
Valve Name 2A OUTBOARD MAIN STEAM ISOLATION VALVE (MSIV)															
2-0203-002AC	SR	A/C	1	CK	SA	A	O	C	M-60-2	F-01	BDO	RR		ROJ-47A	014
											CC	RR		ROJ-47A	
											LT	Y2			
Valve Name 2A MSIV ACCUMULATOR CHECK															

Main Steam (Page 9)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
2-0203-002B-AO	1	A	20	GL	AO	A	O	C	M-60-2	C-01	FC	CS		CSJ-30A	013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											SP	M3			
											STC (LTL)	CS	RV-07	CSJ-30B	
											STC (STL)	CS	RV-07	CSJ-30B	
		Valve Name 2B OUTBOARD MAIN STEAM ISOLATION VALVE (MSIV)													
2-0203-002BC	SR	A/C	1	CK	SA	A	O	C	M-60-2	F-01	BDO	RR		ROJ-47A	014
											CC	RR		ROJ-47A	
											LT	Y2			
		Valve Name 2B MSIV ACCUMULATOR CHECK													
2-0203-002C-AO	1	A	20	GL	AO	A	O	C	M-60-2	D-01	FC	CS		CSJ-30A	013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											SP	M3			
											STC (LTL)	CS	RV-07	CSJ-30B	
											STC (STL)	CS	RV-07	CSJ-30B	
		Valve Name 2C OUTBOARD MAIN STEAM ISOLATION VALVE (MSIV)													
2-0203-002CC	SR	A/C	1	CK	SA	A	O	C	M-60-2	F-01	BDO	RR		ROJ-47A	014
											CC	RR		ROJ-47A	
											LT	Y2			
		Valve Name 2C MSIV ACCUMULATOR CHECK													
2-0203-002D-AO	1	A	20	GL	AO	A	O	C	M-60-2	E-01	FC	CS		CSJ-30A	013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											SP	M3			
											STC (LTL)	CS	RV-07	CSJ-30B	
											STC (STL)	CS	RV-07	CSJ-30B	
		Valve Name 2D OUTBOARD MAIN STEAM ISOLATION VALVE (MSIV)													

Main Steam (Page 10)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
2-0203-002DC	SR	A/C	1	CK	SA	A	O	C	M-60-2	F-01	BDO	RR		ROJ-47A	014
											CC	RR		ROJ-47A	
											LT	Y2			
		Valve Name 2D MSIV ACCUMULATOR CHECK													
2-0203-003AD	SR	A/C	0.5	CK	SA	A	O	C	M-60-1	A-05	BDO	RR		ROJ-47A	014
											CC	RR		ROJ-47A	
											LT	Y2			
		Valve Name IA-3A SFTY/RLF VLV (TARGET ROCK) ACCUM CHECK													
2-0203-003A-RV	1	B/C	6.625	RV	DF	A	C	O/C	M-60-1	A-02	RT	Y5	RV-05		010
		Valve Name MS-3A SAFETY/RELIEF VLV (TARGET ROCK)													
2-0203-003B-RV	1	B/C	6	RV	SO	A	C	O/C	M-60-1	C-04	RT	Y5			010
		Valve Name MS-3B POWER OPERATED RELIEF VALVE													
2-0203-003C-RV	1	B/C	6	RV	SO	A	C	O/C	M-60-1	D-01	RT	Y5			010
		Valve Name MS-3C POWER OPERATED RELIEF VALVE													
2-0203-003D-RV	1	B/C	6	RV	SO	A	C	O/C	M-60-1	F-03	RT	Y5			010
		Valve Name MS-3D POWER OPERATED RELIEF VALVE													
2-0203-003E-RV	1	B/C	6	RV	SO	A	C	O/C	M-60-1	C-01	RT	Y5			010
		Valve Name MS-3E POWER OPERATED RELIEF VALVE													
2-0203-004A-RV	1	C	6	RV	SA	A	C	O/C	M-60-1	A-01	RT	Y5	RV-05, RV-06		
		Valve Name MS-4A SAFETY VALVE													
2-0203-004B-RV	1	C	6	RV	SA	A	C	O/C	M-60-1	C-03	RT	Y5	RV-05, RV-06		
		Valve Name MS-4B SAFETY VALVE													
2-0203-004C-RV	1	C	6	RV	SA	A	C	O/C	M-60-1	D-04	RT	Y5	RV-05, RV-06		
		Valve Name MS-4C SAFETY VALVE													
2-0203-004D-RV	1	C	6	RV	SA	A	C	O/C	M-60-1	F-01	RT	Y5	RV-05, RV-06		
		Valve Name MS-4D SAFETY VALVE													
2-0203-004E-RV	1	C	6	RV	SA	A	C	O/C	M-60-1	A-01	RT	Y5	RV-05, RV-06		
		Valve Name MS-4E SAFETY VALVE													
2-0203-004F-RV	1	C	6	RV	SA	A	C	O/C	M-60-1	C-05	RT	Y5	RV-05, RV-06		
		Valve Name MS-4F SAFETY VALVE													
2-0203-004G-RV	1	C	6	RV	SA	A	C	O/C	M-60-1	D-04	RT	Y5	RV-05, RV-06		
		Valve Name MS-4G SAFETY VALVE													

Main Steam (Page 11)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
2-0203-004H-RV	1	C	6	RV	SA	A	C	O/C	M-60-1	F-02	RT	Y5	RV-05, RV-06		
		Valve Name MS-4H SAFETY VALVE													
2-0220-001-MO	2	A	3	GA	MO	A	C	C	M-60-1	D-07	DIA	MOV	RV-02		
											LT	AJ			
											SC	CS		CSJ-30C	
											SO	CS		CSJ-30C	
		Valve Name MS-INBRD MAIN STEAM LINE DRAIN ISOLATION VALVE													
2-0220-002-MO	2	A	3	GA	MO	A	C	C	M-60-2	C-01	DIA	MOV	RV-02		
											LT	AJ			
											SC	CS		CSJ-30C	
											SO	CS		CSJ-30C	
		Valve Name MS-OUTBRD MAIN STEAM LINE DRAIN ISOLATION VALVE													
2-0220-017A	2	A/C	0.5	XFC	SA	A	O	C	M-60-1	B-08	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name 2A MAIN STM INST LINE EXCESS FLOW CHECK													
2-0220-017B	2	A/C	0.5	XFC	SA	A	O	C	M-60-1	C-08	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name 2B MAIN STM INST LINE EXCESS FLOW CHECK													
2-0220-017C	2	A/C	0.5	XFC	SA	A	O	C	M-60-1	E-08	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name 2C MAIN STM INST LINE EXCESS FLOW CHECK													
2-0220-017D	2	A/C	0.5	XFC	SA	A	O	C	M-60-1	G-08	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name 2D MAIN STM INST LINE EXCESS FLOW CHECK													
2-0220-018A	2	A/C	0.5	XFC	SA	A	O	C	M-60-1	B-08	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name 2A MAIN STM INST LINE EXCESS FLOW CHECK													
2-0220-018B	2	A/C	0.5	XFC	SA	A	O	C	M-60-1	D-08	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name 2B MAIN STM INST LINE EXCESS FLOW CHECK													

Main Steam (Page 12)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
2-0220-018C	2	A/C	0.5	XFC	SA	A	O	C	M-60-1	E-08	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name 2C MAIN STM INST LINE EXCESS FLOW CHECK													
2-0220-018D	2	A/C	0.5	XFC	SA	A	O	C	M-60-1	G-08	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name 2D MAIN STM INST LINE EXCESS FLOW CHECK													
2-0220-081A	SR	C	1	CK	SA	A	C	C	M-60-1	B-04	CC	RR		ROJ-30A	
											CO	RR		ROJ-30A	
		Valve Name PRESS SUPP-SAFETY VLV DISCH VAC BREAKER													
2-0220-081B	SR	C	1	CK	SA	A	C	C	M-60-1	C-05	CC	RR		ROJ-30A	
											CO	RR		ROJ-30A	
		Valve Name PRESS SUPP-SAFETY VLV DISCH VAC BREAKER													
2-0220-081C	SR	C	1	CK	SA	A	C	C	M-60-1	E-03	CC	RR		ROJ-30A	
											CO	RR		ROJ-30A	
		Valve Name PRESS SUPP-SAFETY VLV DISCH VAC BREAKER													
2-0220-081D	SR	C	1	CK	SA	A	C	C	M-60-1	F-05	CC	RR		ROJ-30A	
											CO	RR		ROJ-30A	
		Valve Name PRESS SUPP-SAFETY VLV DISCH VAC BREAKER													
2-0220-081E	SR	C	1	CK	SA	A	C	C	M-60-1	C-03	CC	RR		ROJ-30A	
											CO	RR		ROJ-30A	
		Valve Name PRESS SUPP-SAFETY VLV DISCH VAC BREAKER													
2-0220-105A	SR	C	8	CK	SA	A	C	O/C	M-60-1	A-04	CCX	CM			
											COX	CM			
		Valve Name PRESS SUPP-SAFETY VLV DISCH VAC BREAKER													
2-0220-105B	SR	C	8	CK	SA	A	C	O/C	M-60-1	C-05	CCX	CM			
											COX	CM			
		Valve Name PRESS SUPP-SAFETY VLV DISCH VAC BREAKER													
2-0220-105C	SR	C	8	CK	SA	A	C	O/C	M-60-1	D-03	CCX	CM			
											COX	CM			
		Valve Name PRESS SUPP-SAFETY VLV DISCH VAC BREAKER													
2-0220-105D	SR	C	8	CK	SA	A	C	O/C	M-60-1	F-05	CCX	CM			
											COX	CM			
		Valve Name PRESS SUPP-SAFETY VLV DISCH VAC BREAKER													

Main Steam (Page 13)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
2-0220-105E	SR	C	8	CK	SA	A	C	O/C	M-60-1	C-02	CCX	CM			
											COX	CM			

Valve Name PRESS SUPP-SAFETY VLV DISCH VAC BREAKER

Neutron Monitoring / RBM (Page 1)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
1-0737-001B-SO	MC	A	0.375	BAL	SO	A	C	C	M-584-1	C-04	FC	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name	TIP-PRIMARY CONTAINMENT ISOLATION VALVE												
1-0737-001C-SO	MC	A	0.375	BAL	SO	A	C	C	M-584-1	C-04	FC	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name	TIP-PRIMARY CONTAINMENT ISOLATION VALVE												
1-0737-001D-SO	MC	A	0.375	BAL	SO	A	C	C	M-584-1	C-04	FC	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name	TIP-PRIMARY CONTAINMENT ISOLATION VALVE												
1-0737-001E-SO	MC	A	0.375	BAL	SO	A	C	C	M-584-1	C-04	FC	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name	TIP-PRIMARY CONTAINMENT ISOLATION VALVE												
1-0737-001F-SO	MC	A	0.375	BAL	SO	A	C	C	M-584-1	C-04	FC	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name	TIP-PRIMARY CONTAINMENT ISOLATION VALVE												
1-0737-002B	MC	D	0.375	SHR	EXP	A	OKL	C	M-584-1	C-04	DT	S2			
		Valve Name	TIP-PRIMARY CONTAINMENT ISOLATION VALVE												
1-0737-002C	MC	D	0.375	SHR	EXP	A	OKL	C	M-584-1	B-04	DT	S2			
		Valve Name	TIP-PRIMARY CONTAINMENT ISOLATION VALVE												
1-0737-002D	MC	D	0.375	SHR	EXP	A	OKL	C	M-584-1	C-04	DT	S2			
		Valve Name	TIP-PRIMARY CONTAINMENT ISOLATION VALVE												

Neutron Monitoring / RBM (Page 2)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
1-0737-002E	MC	D	0.375	SHR	EXP	A	OKL	C	M-584-1	C-04	DT	S2			
		Valve Name	TIP-PRIMARY CONTAINMENT ISOLATION VALVE												
1-0737-002F	MC	D	0.375	SHR	EXP	A	OKL	C	M-584-1	C-04	DT	S2			
		Valve Name	TIP-PRIMARY CONTAINMENT ISOLATION VALVE												
1-0743	MC	A/C	0.375	CK	SA	A	O	C	M-584-1	C-05	CCF	CM			
											COF	CM			
											LTJ	AJ			
		Valve Name	TIP-NITROGEN PURGE CHECK, PCIV												
2-0737-001B-SO	MC	A	0.375	BAL	SO	A	C	C	M-584-2	C-07	FC	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name	TIP-PRIMARY CONTAINMENT ISOLATION VALVE												
2-0737-001C-SO	MC	A	0.375	BAL	SO	A	C	C	M-584-2	C-07	FC	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name	TIP-PRIMARY CONTAINMENT ISOLATION VALVE												
2-0737-001D-SO	MC	A	0.375	BAL	SO	A	C	C	M-584-2	C-07	FC	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name	TIP-PRIMARY CONTAINMENT ISOLATION VALVE												
2-0737-001E-SO	MC	A	0.375	BAL	SO	A	C	C	M-584-2	C-07	FC	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name	TIP-PRIMARY CONTAINMENT ISOLATION VALVE												

Neutron Monitoring / RBM (Page 3)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
2-0737-001F-SO	MC	A	0.375	BAL	SO	A	C	C	M-584-2	C-07	FC	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name	TIP-PRIMARY CONTAINMENT ISOLATION VALVE												
2-0737-002B	MC	D	0.375	SHR	EXP	A	OKL	C	M-584-2	C-07	DT	S2			
		Valve Name	TIP-PRIMARY CONTAINMENT ISOLATION VALVE												
2-0737-002C	MC	D	0.375	SHR	EXP	A	OKL	C	M-584-2	C-06	DT	S2			
		Valve Name	TIP-PRIMARY CONTAINMENT ISOLATION VALVE												
2-0737-002D	MC	D	0.375	SHR	EXP	A	OKL	C	M-584-2	C-07	DT	S2			
		Valve Name	TIP-PRIMARY CONTAINMENT ISOLATION VALVE												
2-0737-002E	MC	D	0.375	SHR	EXP	A	OKL	C	M-584-2	B-07	DT	S2			
		Valve Name	TIP-PRIMARY CONTAINMENT ISOLATION VALVE												
2-0737-002F	MC	D	0.375	SHR	EXP	A	OKL	C	M-584-2	B-07	DT	S2			
		Valve Name	TIP PRIMARY CONTAINMENT ISOLATION VALVE												
2-0743	MC	A/C	0.375	CK	SA	A	O	C	M-584-2	C-06	CCF	CM			
											COF	CM			
											LTJ	AJ			
		Valve Name	TIP-NITROGEN PURGE CHECK, PCIV												

Primary Containment (Page 1)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
1-1601-020A-AO	MC	A	20	BTF	AO	A	C	O/C	M-34-1	C-09	FO	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
											STO	M3			
		Valve Name PRESS SUPP-PRIMARY/SECNDARY CONT VAC BKR													
1-1601-020B-AO	MC	A	20	BTF	AO	A	C	O/C	M-34-1	D-09	FO	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
											STO	M3			
		Valve Name PRESS SUPP-PRIMARY/SECNDARY CONT VAC BKR													
1-1601-021-AO	MC	A	18	BTF	AO	A	C	C	M-34-1	B-06	FC	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name PRESS SUPP-DRYWELL INERT & PURGE													
1-1601-022-AO	MC	A	18	BTF	AO	A	C	C	M-34-1	B-08	FC	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name PRESS SUPP-DRYWELL INERT & PURGE													
1-1601-023-AO	MC	A	18	BTF	AO	A	C	C	M-34-1	B-02	FC	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name PRESS SUPP-DRYWELL VENT													
1-1601-024-AO	MC	A	18	BTF	AO	A	C	C	M-34-1	B-01	FC	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name PRESS SUPP-DW/TORUS VENT TO RX BLDG													

Primary Containment (Page 2)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
1-1601-031A	MC	A/C	20	CK	SA	A	C	O/C	M-34-1	C-10	CC	M3			
											CO	M3			
											LT	AJ			
		Valve Name	PRESS SUPP-PRIMARY/SECNDARY CONT VAC BKR												
1-1601-031B	MC	A/C	20	CK	SA	A	C	O/C	M-34-1	D-10	CC	M3			
											CO	M3			
											LT	AJ			
		Valve Name	PRESS SUPP-PRIMARY/SECNDARY CONT VAC BKR												
1-1601-032A	MC	A/C	18	CK	SA	A	C	O/C	M-34-1	E-02	CC	M3			
											CO	M3			
											LT	RR			
											PIC	Y2			
											PIO	Y2			
		Valve Name	PRESS SUPP-DW/TORUS VACUUM BREAKER												
1-1601-032B	MC	A/C	18	CK	SA	A	C	O/C	M-34-1	E-02	CC	M3			
											CO	M3			
											LT	RR			
											PIC	Y2			
											PIO	Y2			
		Valve Name	PRESS SUPP-DW/TORUS VACUUM BREAKER												
1-1601-032C	MC	A/C	18	CK	SA	A	C	O/C	M-34-1	E-02	CC	M3			
											CO	M3			
											LT	RR			
											PIC	Y2			
											PIO	Y2			
		Valve Name	PRESS SUPP-DW/TORUS VACUUM BREAKER												
1-1601-032D	MC	A/C	18	CK	SA	A	C	O/C	M-34-1	E-02	CC	M3			
											CO	M3			
											LT	RR			
											PIC	Y2			
											PIO	Y2			
		Valve Name	PRESS SUPP-DW/TORUS VACUUM BREAKER												

Primary Containment (Page 3)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
1-1601-032E	MC	A/C	18	CK	SA	A	C	O/C	M-34-1	E-02	CC	M3			
											CO	M3			
											LT	RR			
											PIC	Y2			
											PIO	Y2			
		Valve Name	PRESS SUPP-DW/TORUS VACUUM BREAKER												
1-1601-032F	MC	A/C	18	CK	SA	A	C	O/C	M-34-1	E-03	CC	M3			
											CO	M3			
											LT	RR			
											PIC	Y2			
											PIO	Y2			
		Valve Name	PRESS SUPP-DW/TORUS VACUUM BREAKER												
1-1601-033A	MC	A/C	18	CK	SA	A	C	O/C	M-34-1	E-07	CC	M3			
											CO	M3			
											LT	RR			
											PIC	Y2			
											PIO	Y2			
		Valve Name	PRESS SUPP-DW/TORUS VACUUM BREAKER												
1-1601-033B	MC	A/C	18	CK	SA	A	C	O/C	M-34-1	E-07	CC	M3			
											CO	M3			
											LT	RR			
											PIC	Y2			
											PIO	Y2			
		Valve Name	PRESS SUPP-DW/TORUS VACUUM BREAKER												
1-1601-033C	MC	A/C	18	CK	SA	A	C	O/C	M-34-1	E-07	CC	M3			
											CO	M3			
											LT	RR			
											PIC	Y2			
											PIO	Y2			
		Valve Name	PRESS SUPP-DW/TORUS VACUUM BREAKER												
1-1601-033D	MC	A/C	18	CK	SA	A	C	O/C	M-34-1	E-07	CC	M3			
											CO	M3			
											LT	RR			
											PIC	Y2			
											PIO	Y2			
		Valve Name	PRESS SUPP-DW/TORUS VACUUM BREAKER												

Primary Containment (Page 4)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
1-1601-033E	MC	A/C	18	CK	SA	A	C	O/C	M-34-1	E-07	CC	M3			
											CO	M3			
											LT	RR			
											PIC	Y2			
											PIO	Y2			
		Valve Name	PRESS SUPP-DW/TORUS VACUUM BREAKER												
1-1601-033F	MC	A/C	18	CK	SA	A	C	O/C	M-34-1	E-07	CC	M3			
											CO	M3			
											LT	RR			
											PIC	Y2			
											PIO	Y2			
		Valve Name	PRESS SUPP-DW/TORUS VACUUM BREAKER												
1-1601-055-AO	MC	A	4	GA	AO	A	O	C	M-34-1	A-06	FC	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name	PRESS SUPP-N2 MAKE-UP/PUMPBACK SUCTION												
1-1601-056-AO	MC	A	18	BTF	AO	A	O	C	M-34-1	C-07	FC	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name	PRESS SUPP-CONTAINMENT INERT/PUMPBK SUCT												
1-1601-057-MO	MC	A	1	GL	MO	A	O	C	M-34-1	B-09	DIA	MOV	RV-02		
											LT	AJ			
											SC	M3			
											SO	M3			
		Valve Name	PRESS SUPP-N2 MAKE-UP/PUMPBACK DISCH												
1-1601-058-AO	MC	A	1	GL	AO	A	C	C	M-34-1	C-08	FC	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name	PRESS SUPP-N2 MU/PUMPBK ISOL FROM TORUS												

Primary Containment (Page 5)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
1-1601-059-AO	MC	A	1	GL	AO	A	O	C	M-34-1	C-06	FC	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name	PRESS SUPP-N2 MAKE-UP/PUMPBK DISCH												
1-1601-060-AO	MC	A	18	BTF	AO	A	C	C	M-34-1	E-01	FC	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name	PRESS SUPP-TORUS VENT												
1-1601-061-AO	MC	A	2	GL	AO	A	C	C	M-34-1	F-01	FC	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name	PRESS SUPP-TORUS VENT BYPASS & SBGT SUCT												
1-1601-062-AO	MC	A	2	GL	AO	A	C	C	M-34-1	A-03	FC	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name	PRESS SUPP-DW VENT BYPASS & SBGT SUCTION												
1-1601-063-AO	MC	A	6	BTF	AO	A	C	C	M-34-1	A-02	FC	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name	PRESS SUPP-SBGT CONNECT TO PRIMARY CONT												
1-8799-214-RV	MC	A/C	1.5	RV	SA	A	C	O/C	M-34-1	B-08	LT	AJ			
											RT	Y10			
		Valve Name	PRESS SUPP-N2 MAKE-UP RELIEF VALVE												

Primary Containment (Page 6)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
2-1601-020A-AO	MC	A	20	BTF	AO	A	C	O/C	M-76-1	C-09	FO	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
											STO	M3			
		Valve Name	PRESS SUPP-PRIMARY/SECNDARY CONT VAC BKR												
2-1601-020B-AO	MC	A	20	BTF	AO	A	C	O/C	M-76-1	D-09	FO	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
											STO	M3			
		Valve Name	PRESS SUPP-PRIMARY/SECNDARY CONT VAC BKR												
2-1601-021-AO	MC	A	18	BTF	AO	A	C	C	M-76-1	B-06	FC	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name	PRESS SUPP-DRYWELL INERT & PURGE												
2-1601-022-AO	MC	A	18	BTF	AO	A	C	C	M-76-1	B-07	FC	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name	PRESS SUPP-DRYWELL INERT & PURGE												
2-1601-023-AO	MC	A	18	BTF	AO	A	C	C	M-76-1	B-02	FC	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name	PRESS SUPP-DRYWELL VENT												
2-1601-024-AO	MC	A	18	BTF	AO	A	C	C	M-76-1	A-01	FC	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name	PRESS SUPP-DW/TORUS VENT TO RX BLDG												

Primary Containment (Page 7)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
2-1601-031A	MC	A/C	20	CK	SA	A	C	O/C	M-76-1	C-10	CC	M3			
											CO	M3			
											LT	AJ			
Valve Name PRESS SUPP-PRIMARY/SECNDARY CONT VAC BKR															
2-1601-031B	MC	A/C	20	CK	SA	A	C	O/C	M-76-1	D-10	CC	M3			
											CO	M3			
											LT	AJ			
Valve Name PRESS SUPP-PRIMARY/SECNDARY CONT VAC BKR															
2-1601-032A	MC	A/C	18	CK	SA	A	C	O/C	M-76-1	E-02	CC	M3			
											CO	M3			
											LT	RR			
											PIC	Y2			
											PIO	Y2			
Valve Name PRESS SUPP-DW/TORUS VACUUM BREAKER															
2-1601-032B	MC	A/C	18	CK	SA	A	C	O/C	M-76-1	E-02	CC	M3			
											CO	M3			
											LT	RR			
											PIC	Y2			
											PIO	Y2			
Valve Name PRESS SUPP-DW/TORUS VACUUM BREAKER															
2-1601-032C	MC	A/C	18	CK	SA	A	C	O/C	M-76-1	E-02	CC	M3			
											CO	M3			
											LT	RR			
											PIC	Y2			
											PIO	Y2			
Valve Name PRESS SUPP-DW/TORUS VACUUM BREAKER															
2-1601-032D	MC	A/C	18	CK	SA	A	C	O/C	M-76-1	E-02	CC	M3			
											CO	M3			
											LT	RR			
											PIC	Y2			
											PIO	Y2			
Valve Name PRESS SUPP-DW/TORUS VACUUM BREAKER															

Primary Containment (Page 8)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
2-1601-032E	MC	A/C	18	CK	SA	A	C	O/C	M-76-1	E-02	CC	M3			
											CO	M3			
											LT	RR			
											PIC	Y2			
											PIO	Y2			
		Valve Name	PRESS SUPP-DW/TORUS VACUUM BREAKER												
2-1601-032F	MC	A/C	18	CK	SA	A	C	O/C	M-76-1	E-03	CC	M3			
											CO	M3			
											LT	RR			
											PIC	Y2			
											PIO	Y2			
		Valve Name	PRESS SUPP-DW/TORUS VACUUM BREAKER												
2-1601-033A	MC	A/C	18	CK	SA	A	C	O/C	M-76-1	E-07	CC	M3			
											CO	M3			
											LT	RR			
											PIC	Y2			
											PIO	Y2			
		Valve Name	PRESS SUPP-DW/TORUS VACUUM BREAKER												
2-1601-033B	MC	A/C	18	CK	SA	A	C	O/C	M-76-1	E-07	CC	M3			
											CO	M3			
											LT	RR			
											PIC	Y2			
											PIO	Y2			
		Valve Name	PRESS SUPP-DW/TORUS VACUUM BREAKER												
2-1601-033C	MC	A/C	18	CK	SA	A	C	O/C	M-76-1	E-07	CC	M3			
											CO	M3			
											LT	RR			
											PIC	Y2			
											PIO	Y2			
		Valve Name	PRESS SUPP-DW/TORUS VACUUM BREAKER												
2-1601-033D	MC	A/C	18	CK	SA	A	C	O/C	M-76-1	E-07	CC	M3			
											CO	M3			
											LT	RR			
											PIC	Y2			
											PIO	Y2			
		Valve Name	PRESS SUPP-DW/TORUS VACUUM BREAKER												

Primary Containment (Page 9)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
2-1601-033E	MC	A/C	18	CK	SA	A	C	O/C	M-76-1	E-07	CC	M3			
											CO	M3			
											LT	RR			
											PIC	Y2			
											PIO	Y2			
		Valve Name	PRESS SUPP-DW/TORUS VACUUM BREAKER												
2-1601-033F	MC	A/C	18	CK	SA	A	C	O/C	M-76-1	E-07	CC	M3			
											CO	M3			
											LT	RR			
											PIC	Y2			
											PIO	Y2			
		Valve Name	PRESS SUPP-DW/TORUS VACUUM BREAKER												
2-1601-055-AO	MC	A	4	GA	AO	A	O	C	M-76-1	A-06	FC	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name	PRESS SUPP-N2 MAKE-UP/PUMPBACK SUCTION												
2-1601-056-AO	MC	A	18	BTF	AO	A	O	C	M-76-1	C-08	FC	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name	PRESS SUPP-CONTAINMENT INERT/PUMPBK SUCT												
2-1601-057-MO	MC	A	1	GL	MO	A	O	C	M-76-1	B-08	DIA	MOV	RV-02		
											LT	AJ			
											SC	M3			
											SO	M3			
		Valve Name	PRESS SUPP-N2 MAKE-UP/PUMPBACK DISCH												
2-1601-058-AO	MC	A	1	GL	AO	A	C	C	M-76-1	C-08	FC	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name	PRESS SUPP-N2 MU/PUMPBK ISOL FROM TORUS												

Primary Containment (Page 10)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
2-1601-059-AO	MC	A	1	GL	AO	A	O	C	M-76-1	C-06	FC	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name	PRESS SUPP-N2 MAKEUP/PUMPBK DISCH												
2-1601-060-AO	MC	A	18	BTF	AO	A	C	C	M-76-1	E-01	FC	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name	PRESS SUPP-TORUS VENT												
2-1601-061-AO	MC	A	2	GL	AO	A	C	C	M-76-1	F-01	FC	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name	PRESS SUPP-TORUS VENT BYPASS & SBGT SUCT												
2-1601-062-AO	MC	A	2	GL	AO	A	C	C	M-76-1	A-03	FC	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name	PRESS SUPP-DW VENT BYPASS & SBGT SUCTION												
2-1601-063-AO	MC	A	6	BTF	AO	A	C	C	M-76-1	A-02	FC	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name	PRESS SUPP-SBGT CONNECT TO PRIMARY CONT												
2-8799-214-RV	MC	A/C	1.5	RV	SA	A	C	O/C	M-76-1	B-08	LT	AJ			
											RT	Y10			
		Valve Name	PRESS SUPP-N2 MAKE-UP RELIEF VALVE												

Reactor Building Closed Cooling Water (Page 1)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
1-3702-MO	MC	A	8	GA	MO	A	O	C	M-33-2	C-09	DIA	MOV	RV-02		
											LT	AJ			
											SC	CS		CSJ-37A	
											SO	CS		CSJ-37A	
		Valve Name	RBCCW SUPPLY-PRIMARY CONTAINMENT ISOLATION VALVE												
1-3703-MO	MC	A	8	GA	MO	A	O	C	M-33-2	D-09	DIA	MOV	RV-02		
											LT	AJ			
											SC	CS		CSJ-37A	
											SO	CS		CSJ-37A	
		Valve Name	RBCCW RETURN-PRIMARY CONTAINMENT ISOLATION VALVE												
1-3706-MO	MC	A	8	GA	MO	A	O	C	M-33-2	D-09	DIA	MOV	RV-02		
											LT	AJ			
											SC	CS		CSJ-37A	
											SO	CS		CSJ-37A	
		Valve Name	RBCCW RETURN-PRIMARY CONTAINMENT ISOLATION VALVE												
1-3799-031	MC	A/C	8	CK	SA	A	O	C	M-33-2	C-09	CCF	CM			
											COF	CM			
											LTJ	AJ			
		Valve Name	RBCCW-PRIMARY CONTAINMENT ISOLATION VALVE												
2-3702-MO	MC	A	8	GA	MO	A	O	C	M-75-2	F-07	DIA	MOV	RV-02		
											LT	AJ			
											SC	CS		CSJ-37A	
											SO	CS		CSJ-37A	
		Valve Name	RBCCW SUPPLY-PRIMARY CONTAINMENT ISOLATION VALVE												
2-3703-MO	MC	A	8	GA	MO	A	O	C	M-75-2	F-06	DIA	MOV	RV-02		
											LT	AJ			
											SC	CS		CSJ-37A	
											SO	CS		CSJ-37A	
		Valve Name	RBCCW RETURN-PRIMARY CONTAINMENT ISOLATION VALVE												
2-3706-MO	MC	A	8	GA	MO	A	O	C	M-75-2	E-06	DIA	MOV	RV-02		
											LT	AJ			
											SC	CS		CSJ-37A	
											SO	CS		CSJ-37A	
		Valve Name	RBCCW RETURN-PRIMARY CONTAINMENT ISOLATION VALVE												

Reactor Building Closed Cooling Water (Page 2)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
2-3799-031	MC	A/C	8	CK	SA	A	O	C	M-75-2	E-07	CCF	CM			
											COF	CM			
											LTJ	AJ			

Valve Name RBCCW-PRIMARY CONTAINMENT ISOLATION VALVE

Residual Heat Removal (Page 1)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
1-1001-002A	3	C	12	CK	SA	A	C	O/C	M-37	D-01	CC	M3			
											CO	M3			
		Valve Name	RHRSW-A PUMP DISCHARGE CHECK												
1-1001-002B	3	C	12	CK	SA	A	C	O/C	M-37	F-01	CC	M3			
											CO	M3			
		Valve Name	RHRSW-B PUMP DISCHARGE CHECK												
1-1001-002C	3	C	12	CK	SA	A	C	O/C	M-37	D-10	CC	M3			
											CO	M3			
		Valve Name	RHRSW-C PUMP DISCHARGE CHECK												
1-1001-002D	3	C	12	CK	SA	A	C	O/C	M-37	F-10	CC	M3			
											CO	M3			
		Valve Name	RHRSW-D PUMP DISCHARGE CHECK												
1-1001-004A-MO	3	B	16	GA	MO	P	O/C	O/C	M-37	A-01	PIC	Y2			
											PIO	Y2			
		Valve Name	RHRSW-A LOOP RHR HT EXCHNGR FLUSH CONTRL												
1-1001-004B-MO	3	B	16	GA	MO	P	O/C	O/C	M-37	A-10	PIC	Y2			
											PIO	Y2			
		Valve Name	RHRSW-B LOOP RHR HT EXCHNGR FLUSH CONTRL												
1-1001-005A-MO	3	B	12	GL	MO	A	C	O	M-37	B-03	DIA	MOV	RV-02		
											SC	M3			
											SO	M3			
		Valve Name	RHRSW-A LOOP RHRSW FLOW CONTROL VALVE												
1-1001-005B-MO	3	B	12	GL	MO	A	C	O	M-37	B-08	DIA	MOV	RV-02		
											SC	M3			
											SO	M3			
		Valve Name	RHRSW-B LOOP RHRSW FLOW CONTROL VALVE												
1-1001-007A-MO	2	B	14	GA	MO	A	O	O/C	M-39-2	C-05	DIA	MOV	RV-02		
											SC	Y2			
											SO	Y2			
		Valve Name	RHR-A PUMP TORUS SUCTION LINE ISOLATION												
1-1001-007B-MO	2	B	14	GA	MO	A	O	O/C	M-39-2	F-05	DIA	MOV	RV-02		
											SC	Y2			
											SO	Y2			
		Valve Name	RHR-B PUMP TORUS SUCTION LINE ISOLATION												

Residual Heat Removal (Page 2)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
1-1001-007C-MO	2	B	14	GA	MO	A	O	O/C	M-39-2	C-06	DIA	MOV	RV-02		
											SC	Y2			
											SO	Y2			
Valve Name RHR-C PUMP TORUS SUCTION LINE ISOLATION															
1-1001-007D-MO	2	B	14	GA	MO	A	O	O/C	M-39-2	F-06	DIA	MOV	RV-02		
											SC	Y2			
											SO	Y2			
Valve Name RHR-D PUMP TORUS SUCTION LINE ISOLATION															
1-1001-016A-MO	2	B	18	GL	MO	A	O	O/C	M-39-2	B-03	DIA	MOV	RV-02		
											SC	M3			
											SO	M3			
Valve Name RHR-A LOOP HT EXCHANGER BYPASS LINE ISOL VALVE															
1-1001-016B-MO	2	B	18	GL	MO	A	O	O/C	M-39-2	B-08	DIA	MOV	RV-02		
											SC	M3			
											SO	M3			
Valve Name RHR-B LOOP HT EXCHANGER BYPASS LINE ISOL VALVE															
1-1001-018A-MO	2	B	3	GA	MO	A	O	O/C	M-39-1	D-03	DIA	MOV	RV-02		
											SC	M3			
											SO	M3			
Valve Name RHR-A LOOP MINIMUM FLOW RECIRC LINE ISOL VALVE															
1-1001-018B-MO	2	B	3	GA	MO	A	O	O/C	M-39-1	D-08	DIA	MOV	RV-02		
											SC	M3			
											SO	M3			
Valve Name RHR-A LOOP MINIMUM FLOW RECIRC LINE ISOL VALVE															
1-1001-019A-MO	2	B	18	GA	MO	A	O	O	M-39-1	F-02	DIA	MOV	RV-02		
											SC	Y2			
											SO	Y2			
Valve Name RHR-A LOOP CROSS TIE LINE ISOLATION															
1-1001-019B-MO	2	B	18	GA	MO	A	O	O	M-39-1	F-08	DIA	MOV	RV-02		
											SC	Y2			
											SO	Y2			
Valve Name RHR-B LOOP CROSS TIE LINE ISOLATION															
1-1001-020-MO	2	B	3	GA	MO	A	C	C	M-39-1	F-08	DIA	MOV	RV-02		
											SC	Y2			
											SO	Y2			
Valve Name RHR-TRANSFER LINE TO RADWASTE ISOLATION															

Residual Heat Removal (Page 3)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
1-1001-021-MO	SR	B	3	GA	MO	A	C	C	M-39-1	F-07	DIA	MOV	RV-02		
											SC	Y2			
											SO	Y2			
		Valve Name	RHR-TRANSFER LINE TO RADWASTE ISOLATION												
1-1001-022A-RV	2	C	1	RV	SA	A	C	O/C	M-39-1	B-02	RT	Y10			
		Valve Name	RHR-A LOOP RELIEF VALVE												
1-1001-022B-RV	2	C	1	RV	SA	A	C	O/C	M-39-1	B-08	RT	Y10			
		Valve Name	RHR-B LOOP RELIEF VALVE												
1-1001-023A-MO	2	B	10	GA	MO	A	C	O/C	M-39-1	B-04	DIA	MOV	RV-02		
											SC	Y2			
											SO	Y2			
		Valve Name	RHR-A LOOP OUTBOARD DW SPRAY ISOLATION												
1-1001-023B-MO	2	B	10	GA	MO	A	C	O/C	M-39-1	B-07	DIA	MOV	RV-02		
											SC	Y2			
											SO	Y2			
		Valve Name	RHR-B LOOP OUTBOARD DW SPRAY ISOLATION												
1-1001-026A-MO	2	A	10	GA	MO	A	C	O/C	M-39-1	B-04	DIA	MOV	RV-02		
											LT	AJ			
											SC	Y2			
											SO	Y2			
		Valve Name	RHR-A LOOP INBOARD DW SPRAY ISOLATION												
1-1001-026B-MO	2	A	10	GA	MO	A	C	O/C	M-39-1	B-06	DIA	MOV	RV-02		
											LT	AJ			
											SC	Y2			
											SO	Y2			
		Valve Name	RHR-B LOOP INBOARD DW SPRAY ISOLATION												
1-1001-028A-MO	2	B	16	GL	MO	A	O	O/C	M-39-1	C-03	DIA	MOV	RV-02		
											SC	Y2			
											SO	Y2			
		Valve Name	RHR-A LOOP OUTBOARD RX VESSEL INJECTION												
1-1001-028B-MO	2	B	16	GL	MO	A	O	O/C	M-39-1	C-07	DIA	MOV	RV-02		
											SC	Y2			
											SO	Y2			
		Valve Name	RHR-B LOOP OUTBOARD RX VESSEL INJECTION												

Residual Heat Removal (Page 4)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
1-1001-029A-MO	1	A	16	GA	MO	A	C	O/C	M-39-1	C-04	DIA	MOV	RV-02		
											LT	AJ			
											LT.	AJ	RV-03		
											SC	Y2			
											SO	Y2			
		Valve Name	RHR-A LOOP INBOARD RX VESSEL INJECTION												
1-1001-029B-MO	1	A	16	GA	MO	A	C	O/C	M-39-1	C-07	DIA	MOV	RV-02		
											LT	AJ			
											LT.	AJ	RV-03		
											SC	Y2			
											SO	Y2			
		Valve Name	RHR-B LOOP INBOARD RX VESSEL INJECTION												
1-1001-033A	1	B	16	GA	M	P	LO	O	M-39-1	C-05	PIC	Y2			
											PIO	Y2			
		Valve Name	RHR-A LOOP RX VESSEL INJECT MANUAL ISOLATION VALVE												
1-1001-033B	1	B	16	GA	M	P	LO	O	M-39-1	C-06	PIC	Y2			
											PIO	Y2			
		Valve Name	RHR-B LOOP RX VESSEL INJECT MANUAL ISOLATION VALVE												
1-1001-034A-MO	2	B	16	GA	MO	A	C	O/C	M-39-1	B-03	DIA	MOV	RV-02		
											SC	M3			
											SO	M3			
		Valve Name	RHR-A LOOP TORUS COOLING & SPRAY ISOLATION VALVE												
1-1001-034B-MO	2	B	16	GA	MO	A	C	O/C	M-39-1	C-07	DIA	MOV	RV-02		
											SC	M3			
											SO	M3			
		Valve Name	RHR-B LOOP TORUS COOLING & SPRAY ISOLATION VALVE												
1-1001-036A-MO	2	A	14	GL	MO	A	C	O/C	M-39-1	C-03	DIA	MOV	RV-02		
											LT	AJ			
											SC	M3			
											SO	M3			
		Valve Name	RHR-A LOOP TORUS COOLING ISOLATION												
1-1001-036B-MO	2	A	14	GL	MO	A	C	O/C	M-39-1	C-07	DIA	MOV	RV-02		
											LT	AJ			
											SC	M3			
											SO	M3			
		Valve Name	RHR-B LOOP TORUS COOLING ISOLATION												

Residual Heat Removal (Page 5)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
1-1001-037A-MO	2	A	6	GL	MO	A	C	O/C	M-39-1	C-03	DIA	MOV	RV-02		
											LT	AJ			
											SC	Y2			
											SO	Y2			
		Valve Name RHR-A LOOP TORUS SPRAY ISOLATION													
1-1001-037B-MO	2	A	6	GL	MO	A	C	O/C	M-39-1	C-07	DIA	MOV	RV-02		
											LT	AJ			
											SC	Y2			
											SO	Y2			
		Valve Name RHR-B LOOP TORUS SPRAY ISOLATION													
1-1001-043A-MO	2	B	14	GA	MO	A	C	C	M-39-2	C-04	DIA	MOV	RV-02		
											SC	Y2			
											SO	Y2			
		Valve Name RHR-A PUMP SHUTDOWN COOLING SUCTION ISOL VALVE													
1-1001-043B-MO	2	B	14	GA	MO	A	C	C	M-39-2	E-04	DIA	MOV	RV-02		
											SC	Y2			
											SO	Y2			
		Valve Name RHR-B PUMP SHUTDOWN COOLING SUCTION ISOL VALVE													
1-1001-043C-MO	2	B	14	GA	MO	A	C	C	M-39-2	C-07	DIA	MOV	RV-02		
											SC	Y2			
											SO	Y2			
		Valve Name RHR-C PUMP SHUTDOWN COOLING SUCTION ISOL VALVE													
1-1001-043D-MO	2	B	14	GA	MO	A	C	C	M-39-2	E-07	DIA	MOV	RV-02		
											SC	Y2			
											SO	Y2			
		Valve Name RHR-D PUMP SHUTDOWN COOLING SUCTION ISOL VALVE													
1-1001-047-MO	1	A	20	GA	MO	A	C	C	M-39-1	E-05	DIA	MOV	RV-02		
											LT	AJ			
											LT.	AJ	RV-03		
											SC	CS		CSJ-10A	
											SO	CS		CSJ-10A	
		Valve Name RHR-OUTBOARD SHUTDOWN COOLING ISOLATION													

Residual Heat Removal (Page 6)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
1-1001-050-MO	1	A	20	GA	MO	A	C	C	M-39-1	D-05	DIA	MOV	RV-02		
											LT	AJ			
											LT.	AJ	RV-03		
											SC	CS		CSJ-10A	
											SO	CS		CSJ-10A	
		Valve Name	RHR-INBOARD SHUTDOWN COOLING ISOLATION												
1-1001-059-RV	2	C	1	RV	SA	P	C	C	M-39-1	B-09	RT	Y10			
		Valve Name	RHR-HEAD SPRAY LINE RELIEF VALVE												
1-1001-067A	2	C	12	CK	SA	A	C	O/C	M-39-2	C-03	CC	M3			
											CO	M3			
		Valve Name	RHR-A PUMP DISCHARGE CHECK												
1-1001-067B	2	C	12	CK	SA	A	C	O/C	M-39-2	E-02	CC	M3			
											CO	M3			
		Valve Name	RHR-B PUMP DISCHARGE CHECK												
1-1001-067C	2	C	12	CK	SA	A	C	O/C	M-39-2	C-08	CC	M3			
											CO	M3			
		Valve Name	RHR-C PUMP DISCHARGE CHECK												
1-1001-067D	2	C	12	CK	SA	A	C	O/C	M-39-2	E-08	CC	M3			
											CO	M3			
		Valve Name	RHR-D PUMP DISCHARGE CHECK												
1-1001-068A	1	A/C	16	CK	SA	A	C	O/C	M-39-1	C-04	CC	RR		ROJ-00A	
											CO	CS		ROJ-10A	
											LT.	AJ	RV-03		
											PIC	Y2			
											PIO	Y2			
		Valve Name	RHR-A LOOP RX VESSEL INJECTION CHECK												
1-1001-068B	1	A/C	16	CK	SA	A	C	O/C	M-39-1	C-06	CC	RR		ROJ-00A	
											CO	CS		ROJ-10A	
											LT.	AJ	RV-03		
											PIC	Y2			
											PIO	Y2			
		Valve Name	RHR-B LOOP RX VESSEL INJECTION CHECK												
1-1001-125A-RV	2	C	1	RV	SA	A	C	O/C	M-39-2	C-05	RT	Y10			
		Valve Name	RHR-A PUMP SUCTION RELIEF VALVE												
1-1001-125B-RV	2	C	1	RV	SA	A	C	O/C	M-39-2	F-05	RT	Y10			
		Valve Name	RHR-B PUMP SUCTION RELIEF VALVE												

Residual Heat Removal (Page 7)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
1-1001-125C-RV	2	C	1	RV	SA	A	C	O/C	M-39-2	C-06	RT	Y10			
		Valve Name	RHR-C PUMP SUCTION RELIEF VALVE												
1-1001-125D-RV	2	C	1	RV	SA	A	C	O/C	M-39-2	F-06	RT	Y10			
		Valve Name	RHR-D PUMP SUCTION RELIEF VALVE												
1-1001-131	2	C	3	CK	SA	A	C	C	M-39-1	F-03	CCF	CM			
											CCR	CM			
											COF	CM			
		Valve Name	RHR-CONDENSATE MAKEUP TRANSFER LINE ISOL VALVE												
1-1001-136A	2	C	3	CK	SA	A	C	C	M-39-1	C-02	CCF	CM			
											CCR	CM			
											COF	CM			
		Valve Name	RHR-CONDENSATE MAKEUP TRANSFER LINE ISOL VALVE												
1-1001-136B	2	C	3	CK	SA	A	C	C	M-39-1	C-09	CCF	CM			
											CCR	CM			
											COF	CM			
		Valve Name	RHR-CONDENSATE MAKEUP TRANSFER LINE ISOL VALVE												
1-1001-139	2	C	3	CK	SA	A	C	C	M-39-1	A-09	CCF	CM			
											CCR	CM			
											COF	CM			
		Valve Name	RHR-CONDENSATE MAKEUP TRANSFER LINE ISOL VALVE												
1-1001-142A	2	C	2	CK	SA	A	C	O/C	M-39-2	C-03	CCR	CM			
											COR	CM			
		Valve Name	RHR-A PUMP MINIMUM FLOW RECIRC LINE CHECK												
1-1001-142B	2	C	2	CK	SA	A	C	O/C	M-39-2	E-03	CCR	CM			
											COR	CM			
		Valve Name	RHR-B PUMP MINIMUM FLOW RECIRC LINE CHECK												
1-1001-142C	2	C	2	CK	SA	A	C	O/C	M-39-2	C-07	CCR	CM			
											COR	CM			
		Valve Name	RHR-C PUMP MINIMUM FLOW RECIRC LINE CHECK												
1-1001-142D	2	C	2	CK	SA	A	C	O/C	M-39-2	E-08	CCR	CM			
											COR	CM			
		Valve Name	RHR-D PUMP MINIMUM FLOW RECIRC LINE CHECK												
1-1001-143A	NS	C	6	CK	SA	A	C	O	M-39-3	F-05	CCD	CM			
											COD	CM			
		Valve Name	RHR SYSTEM DRAIN ISOLATION CHECK VALVE TRAIN A												

Residual Heat Removal (Page 8)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
1-1001-143B	NS	C	6	CK	SA	A	C	O	M-39-3	F-06	CCD	CM			
											COD	CM			
		Valve Name	RHR SYSTEM DRAIN ISOLATION CHECK VALVE TRAIN B												
1-1001-165A-RV	3	C	4	RV	SA	A	C	O/C	M-37	A-02	RT	Y10			
		Valve Name	RHRSW-A HT EXCHANGER THERMAL RELIEF VALVE												
1-1001-165B-RV	3	C	4	RV	SA	A	C	O/C	M-37	A-09	RT	Y10			
		Valve Name	RHRSW-B HT EXCHANGER THERMAL RELIEF VALVE												
1-1001-166A-RV	2	C	1	RV	SA	A	C	O/C	M-39-2	B-02	RT	Y10			
		Valve Name	RHR-A HT EXCHANGER THERMAL RELIEF VALVE												
1-1001-166B-RV	2	C	1	RV	SA	A	C	O/C	M-39-2	B-09	RT	Y10			
		Valve Name	RHR-B HT EXCHANGER THERMAL RELIEF VALVE												
1-1001-185	2	C	1	CK	SA	A	C	C	M-39-1	A-08	CCF	CM			
											COF	CM			
		Valve Name	RHR-ESS KEEP FILL SUPPLY LINE ISOLATION												
1-1001-185A-MO	3	B	12	GA	MO	P	C	O/C	M-37	A-03	PIC	Y2			
											PIO	Y2			
		Valve Name	RHRSW-A LOOP RHR HT EXCHNGR FLUSH CONTRL												
1-1001-185B-MO	3	B	12	GA	MO	P	C	O/C	M-37	A-08	PIC	Y2			
											PIO	Y2			
		Valve Name	RHRSW-B LOOP RHR HT EXCHNGR FLUSH CONTRL												
1-1001-186A-MO	3	B	12	GA	MO	P	O/C	O/C	M-37	A-03	PIC	Y2			
											PIO	Y2			
		Valve Name	RHRSW-A LOOP RHR HT EXCHNGR FLUSH CONTRL												
1-1001-186B-MO	3	B	12	GA	MO	P	O/C	O/C	M-37	A-08	PIC	Y2			
											PIO	Y2			
		Valve Name	RHRSW-B LOOP RHR HT EXCHNGR FLUSH CONTRL												
1-1001-187A-MO	3	B	12	GA	MO	P	O/C	O/C	M-37	B-02	PIC	Y2			
											PIO	Y2			
		Valve Name	RHRSW-A LOOP RHR HT EXCHNGR FLUSH CONTRL												
1-1001-187B-MO	3	B	12	GA	MO	P	O/C	O/C	M-37	B-09	PIC	Y2			
											PIO	Y2			
		Valve Name	RHRSW-B LOOP RHR HT EXCHNGR FLUSH CONTRL												

Residual Heat Removal (Page 9)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
1-1099-092A-AO	2	B	1	GL	AO	A	C	C	M-39-2	B-01	FC	M3			013
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name	RHR-A LOOP SAMPLING SELECT VALVE												
1-1099-092B-AO	2	B	1	GL	AO	A	C	C	M-39-2	B-10	FC	M3			013
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name	RHR-B LOOP SAMPLING SELECT VALVE												
1-1099-166	2	A	6	GA	M	P	LC	C	M-39-1	A-04	LT	AJ			
		Valve Name	RHR-FIRE PROTECTION SYSTEM SUPPLY ISOL VALVE												
2-1001-002A	3	C	12	CK	SA	A	C	O/C	M-79	D-01	CC	M3			
											CO	M3			
		Valve Name	RHRSW-A PUMP DISCHARGE CHECK												
2-1001-002B	3	C	12	CK	SA	A	C	O/C	M-79	F-01	CC	M3			
											CO	M3			
		Valve Name	RHRSW-B PUMP DISCHARGE CHECK												
2-1001-002C	3	C	12	CK	SA	A	C	O/C	M-79	D-10	CC	M3			
											CO	M3			
		Valve Name	RHRSW-C PUMP DISCHARGE CHECK												
2-1001-002D	3	C	12	CK	SA	A	C	O/C	M-79	F-10	CC	M3			
											CO	M3			
		Valve Name	RHRSW-D PUMP DISCHARGE CHECK												
2-1001-004A-MO	3	B	16	GA	MO	P	O/C	O/C	M-79	A-01	PIC	Y2			
											PIO	Y2			
		Valve Name	RHRSW-A LOOP RHR HT EXCHNGR FLUSH CONTRL												
2-1001-004B-MO	3	B	16	GA	MO	P	O/C	O/C	M-79	A-10	PIC	Y2			
											PIO	Y2			
		Valve Name	RHRSW-B LOOP RHR HT EXCHNGR FLUSH CONTRL												
2-1001-005A-MO	3	B	12	GL	MO	A	C	O	M-79	B-03	DIA	MOV	RV-02		
											SC	M3			
											SO	M3			
		Valve Name	RHRSW-A LOOP RHRSW FLOW CONTROL VALVE												

Residual Heat Removal (Page 10)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
2-1001-005B-MO	3	B	12	GL	MO	A	C	O	M-79	B-08	DIA	MOV	RV-02		
											SC	M3			
											SO	M3			
		Valve Name	RHRSW-B LOOP RHRSW FLOW CONTROL VALVE												
2-1001-007A-MO	2	B	14	GA	MO	A	O	O/C	M-81-2	C-05	DIA	MOV	RV-02		
											SC	Y2			
											SO	Y2			
		Valve Name	RHR-A PUMP TORUS SUCTION LINE ISOLATION												
2-1001-007B-MO	2	B	14	GA	MO	A	O	O/C	M-81-2	F-05	DIA	MOV	RV-02		
											SC	Y2			
											SO	Y2			
		Valve Name	RHR-B PUMP TORUS SUCTION LINE ISOLATION												
2-1001-007C-MO	2	B	14	GA	MO	A	O	O/C	M-81-2	C-06	DIA	MOV	RV-02		
											SC	Y2			
											SO	Y2			
		Valve Name	RHR-C PUMP TORUS SUCTION LINE ISOLATION												
2-1001-007D-MO	2	B	14	GA	MO	A	O	O/C	M-81-2	F-06	DIA	MOV	RV-02		
											SC	Y2			
											SO	Y2			
		Valve Name	RHR-D PUMP TORUS SUCTION LINE ISOLATION												
2-1001-016A-MO	2	B	18	GL	MO	A	O	O/C	M-81-2	A-03	DIA	MOV	RV-02		
											SC	M3			
											SO	M3			
		Valve Name	RHR-A LOOP HT EXCHANGER BYPASS LINE ISOL VALVE												
2-1001-016B-MO	2	B	18	GL	MO	A	O	O/C	M-81-2	A-08	DIA	MOV	RV-02		
											SC	M3			
											SO	M3			
		Valve Name	RHR-B LOOP HT EXCHANGER BYPASS LINE ISOL VALVE												
2-1001-018A-MO	2	B	3	GA	MO	A	O	O/C	M-81-1	D-03	DIA	MOV	RV-02		
											SC	M3			
											SO	M3			
		Valve Name	RHR-A LOOP MINIMUM FLOW RECIRC LINE ISOL VALVE												
2-1001-018B-MO	2	B	3	GA	MO	A	O	O/C	M-81-1	D-08	DIA	MOV	RV-02		
											SC	M3			
											SO	M3			
		Valve Name	RHR-B LOOP MINIMUM FLOW RECIRC LINE ISOL VALVE												

Residual Heat Removal (Page 11)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
2-1001-019A-MO	2	B	18	GA	MO	A	O	O	M-81-1	F-02	DIA	MOV	RV-02		
											SC	Y2			
											SO	Y2			
		Valve Name	RHR-A LOOP CROSS TIE LINE ISOLATION												
2-1001-019B-MO	2	B	18	GA	MO	A	O	O	M-81-1	F-09	DIA	MOV	RV-02		
											SC	Y2			
											SO	Y2			
		Valve Name	RHR-B LOOP CROSS TIE LINE ISOLATION												
2-1001-020-MO	2	B	3	GA	MO	A	C	C	M-81-1	F-03	DIA	MOV	RV-02		
											SC	Y2			
											SO	Y2			
		Valve Name	RHR-TRANSFER LINE TO RADWASTE ISOLATION												
2-1001-021-MO	SR	B	3	GA	MO	A	C	C	M-81-1	F-03	DIA	MOV	RV-02		
											SC	Y2			
											SO	Y2			
		Valve Name	RHR-TRANSFER LINE TO RADWASTE ISOLATION												
2-1001-022A-RV	2	C	1	RV	SA	A	C	O/C	M-81-1	B-02	RT	Y10			
		Valve Name	RHR-A LOOP RELIEF VALVE												
2-1001-022B-RV	2	C	1	RV	SA	A	C	O/C	M-81-1	B-08	RT	Y10			
		Valve Name	RHR-B LOOP RELIEF VALVE												
2-1001-023A-MO	2	B	10	GA	MO	A	C	O/C	M-81-1	B-04	DIA	MOV	RV-02		
											SC	Y2			
											SO	Y2			
		Valve Name	RHR-A LOOP OUTBOARD DW SPRAY ISOLATION												
2-1001-023B-MO	2	B	10	GA	MO	A	C	O/C	M-81-1	B-07	DIA	MOV	RV-02		
											SC	Y2			
											SO	Y2			
		Valve Name	RHR-B LOOP OUTBOARD DW SPRAY ISOLATION												
2-1001-026A-MO	2	A	10	GA	MO	A	C	O/C	M-81-1	B-04	DIA	MOV	RV-02		
											LT	AJ			
											SC	Y2			
											SO	Y2			
		Valve Name	RHR-A LOOP INBOARD DW SPRAY ISOLATION												

Residual Heat Removal (Page 12)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
2-1001-026B-MO	2	A	10	GA	MO	A	C	O/C	M-81-1	B-06	DIA	MOV	RV-02		
											LT	AJ			
											SC	Y2			
											SO	Y2			
Valve Name RHR-B LOOP INBOARD DW SPRAY ISOLATION															
2-1001-028A-MO	2	B	16	GL	MO	A	O	O/C	M-81-1	C-03	DIA	MOV	RV-02		
											SC	Y2			
											SO	Y2			
Valve Name RHR-A LOOP OUTBOARD RX VESSEL INJECTION															
2-1001-028B-MO	2	B	16	GL	MO	A	O	O/C	M-81-1	C-07	DIA	MOV	RV-02		
											SC	Y2			
											SO	Y2			
Valve Name RHR-B LOOP OUTBOARD RX VESSEL INJECTION															
2-1001-029A-MO	1	A	16	GA	MO	A	C	O/C	M-81-1	C-04	DIA	MOV	RV-02		
											LT	AJ			
											LT.	AJ	RV-03		
											SC	Y2			
											SO	Y2			
Valve Name RHR-A LOOP INBOARD RX VESSEL INJECTION															
2-1001-029B-MO	1	A	16	GA	MO	A	C	O/C	M-81-1	C-07	DIA	MOV	RV-02		
											LT	AJ			
											LT.	AJ	RV-03		
											SC	Y2			
											SO	Y2			
Valve Name RHR-B LOOP RX INBOARD VESSEL INJECTION															
2-1001-033A	1	B	16	GA	M	P	LO	O	M-81-1	C-05	PIC	Y2			
											PIO	Y2			
Valve Name RHR-A LOOP RX VESSEL INJECT MANUAL ISOLATION VALVE															
2-1001-033B	1	B	16	GA	M	P	LO	O	M-81-1	C-06	PIC	Y2			
											PIO	Y2			
Valve Name RHR-B LOOP RX VESSEL INJECT MANUAL ISOLATION VALVE															
2-1001-034A-MO	2	B	16	GA	MO	A	C	O/C	M-81-1	B-03	DIA	MOV	RV-02		
											SC	M3			
											SO	M3			
Valve Name RHR-A LOOP TORUS COOLING & SPRAY ISOLATION VALVE															

Residual Heat Removal (Page 13)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
2-1001-034B-MO	2	B	16	GA	MO	A	C	O/C	M-81-1	C-07	DIA	MOV	RV-02		
											SC	M3			
											SO	M3			
		Valve Name	RHR-B LOOP TORUS COOLING & SPRAY ISOLATION VALVE												
2-1001-036A-MO	2	A	14	GL	MO	A	C	O/C	M-81-1	C-03	DIA	MOV	RV-02		
											LT	AJ			
											SC	M3			
											SO	M3			
		Valve Name	RHR-A LOOP TORUS COOLING ISOLATION												
2-1001-036B-MO	2	A	14	GL	MO	A	C	O/C	M-81-1	D-07	DIA	MOV	RV-02		
											LT	AJ			
											SC	M3			
											SO	M3			
		Valve Name	RHR-B LOOP TORUS COOLING ISOLATION												
2-1001-037A-MO	2	A	6	GL	MO	A	C	O/C	M-81-1	C-03	DIA	MOV	RV-02		
											LT	AJ			
											SC	Y2			
											SO	Y2			
		Valve Name	RHR-TORUS SPRAY ISOLATION												
2-1001-037B-MO	2	A	6	GL	MO	A	C	O/C	M-81-1	C-07	DIA	MOV	RV-02		
											LT	AJ			
											SC	Y2			
											SO	Y2			
		Valve Name	RHR-TORUS SPRAY ISOLATION												
2-1001-043A-MO	2	B	14	GA	MO	A	C	C	M-81-2	C-04	DIA	MOV	RV-02		
											SC	Y2			
											SO	Y2			
		Valve Name	RHR-A PUMP SHUTDOWN COOLING SUCTION ISOL VALVE												
2-1001-043B-MO	2	B	14	GA	MO	A	C	C	M-81-2	E-04	DIA	MOV	RV-02		
											SC	Y2			
											SO	Y2			
		Valve Name	RHR-B PUMP SHUTDOWN COOLING SUCTION ISOL VALVE												
2-1001-043C-MO	2	B	14	GA	MO	A	C	C	M-81-2	C-07	DIA	MOV	RV-02		
											SC	Y2			
											SO	Y2			
		Valve Name	RHR-C PUMP SHUTDOWN COOLING SUCTION ISOL VALVE												

Residual Heat Removal (Page 14)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
2-1001-043D-MO	2	B	14	GA	MO	A	C	C	M-81-2	E-07	DIA	MOV	RV-02		
											SC	Y2			
											SO	Y2			
Valve Name RHR-**D** PUMP SHUTDOWN COOLING SUCTION ISOL VALVE															
2-1001-047-MO	1	A	20	GA	MO	A	C	C	M-81-1	E-05	DIA	MOV	RV-02		
											LT	AJ			
											LT.	AJ	RV-03		
											SC	CS		CSJ-10A	
											SO	CS		CSJ-10A	
Valve Name RHR-OUTBOARD SHUTDOWN COOLING ISOLATION															
2-1001-050-MO	1	A	20	GA	MO	A	C	C	M-81-1	D-05	DIA	MOV	RV-02		
											LT	AJ			
											LT.	AJ	RV-03		
											SC	CS		CSJ-10A	
											SO	CS		CSJ-10A	
Valve Name RHR-INBOARD SHUTDOWN COOLING ISOLATION															
2-1001-059-RV	2	C	1	RV	SA	P	C	C	M-81-1	A-08	RT	Y10			
Valve Name RHR-HEAD SPRAY LINE RELIEF VALVE															
2-1001-067A	2	C	12	CK	SA	A	C	O/C	M-81-2	C-03	CC	M3			
											CO	M3			
Valve Name RHR-A PUMP DISCHARGE CHECK															
2-1001-067B	2	C	12	CK	SA	A	C	O/C	M-81-2	E-02	CC	M3			
											CO	M3			
Valve Name RHR-B PUMP DISCHARGE CHECK															
2-1001-067C	2	C	12	CK	SA	A	C	O/C	M-81-2	C-08	CC	M3			
											CO	M3			
Valve Name RHR-C PUMP DISCHARGE CHECK															
2-1001-067D	2	C	12	CK	SA	A	C	O/C	M-81-2	E-08	CC	M3			
											CO	M3			
Valve Name RHR-**D** PUMP DISCHARGE CHECK															
2-1001-068A	1	A/C	16	CK	SA	A	C	O/C	M-81-1	C-04	CC	RR		ROJ-00A	
											CO	CS		ROJ-10A	
											LT.	AJ	RV-03		
											PIC	Y2			
											PIO	Y2			
Valve Name RHR-A LOOP RX VESSEL INJECTION CHECK															

Residual Heat Removal (Page 15)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
2-1001-068B	1	A/C	16	CK	SA	A	C	O/C	M-81-1	C-06	CC	RR		ROJ-00A	
											CO	CS		ROJ-10A	
											LT.	AJ	RV-03		
											PIC	Y2			
											PIO	Y2			
		Valve Name	RHR-B LOOP RX VESSEL INJECTION CHECK												
2-1001-125A-RV	2	C	1	RV	SA	A	C	O/C	M-81-2	C-05	RT	Y10			
		Valve Name	RHR-A PUMP SUCTION RELIEF VALVE												
2-1001-125B-RV	2	C	1	RV	SA	A	C	O/C	M-81-2	F-05	RT	Y10			
		Valve Name	RHR-B PUMP SUCTION RELIEF VALVE												
2-1001-125C-RV	2	C	1	RV	SA	A	C	O/C	M-81-2	C-06	RT	Y10			
		Valve Name	RHR-C PUMP SUCTION RELIEF VALVE												
2-1001-125D-RV	2	C	1	RV	SA	A	C	O/C	M-81-2	F-06	RT	Y10			
		Valve Name	RHR-D PUMP SUCTION RELIEF VALVE												
2-1001-131	2	C	3	CK	SA	A	C	C	M-81-1	F-07	CCF	CM			
											CCR	CM			
											COF	CM			
		Valve Name	RHR-CONDENSATE MAKEUP TRANSFER LINE ISOL VALVE												
2-1001-136A	2	C	3	CK	SA	A	C	C	M-81-1	C-02	CCF	CM			
											CCR	CM			
											COF	CM			
		Valve Name	RHR-CONDENSATE MAKEUP TRANSFER LINE ISOL VALVE												
2-1001-136B	2	C	3	CK	SA	A	C	C	M-81-1	C-09	CCF	CM			
											CCR	CM			
											COF	CM			
		Valve Name	RHR-CONDENSATE MAKEUP TRANSFER LINE ISOL VALVE												
2-1001-139	2	C	3	CK	SA	A	C	C	M-81-1	A-09	CCF	CM			
											CCR	CM			
											COF	CM			
		Valve Name	RHR-CONDENSATE MAKEUP TRANSFER LINE ISOL VALVE												
2-1001-142A	2	C	2	CK	SA	A	C	O/C	M-81-2	C-03	CCR	CM			
											COR	CM			
		Valve Name	RHR-A PUMP MINIMUM FLOW RECIRC LINE CHECK												
2-1001-142B	2	C	2	CK	SA	A	C	O/C	M-81-2	E-03	CCR	CM			
											COR	CM			
		Valve Name	RHR-B PUMP MINIMUM FLOW RECIRC LINE CHECK												

Residual Heat Removal (Page 16)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
2-1001-142C	2	C	2	CK	SA	A	C	O/C	M-81-2	C-07	CCR	CM			
											COR	CM			
		Valve Name	RHR-C PUMP MINIMUM FLOW RECIRC LINE CHECK												
2-1001-142D	2	C	2	CK	SA	A	C	O/C	M-81-2	E-08	CCR	CM			
											COR	CM			
		Valve Name	RHR-D PUMP MINIMUM FLOW RECIRC LINE CHECK												
2-1001-143A	NS	C	6	CK	SA	A	C	O	M-81-3	F-05	CCD	CM			
											COD	CM			
		Valve Name	RHR SYSTEM DRAIN ISOLATION CHECK VALVE TRAIN A												
2-1001-143B	NS	C	6	CK	SA	A	C	O	M-81-3	F-06	CCD	CM			
											COD	CM			
		Valve Name	RHR SYSTEM DRAIN ISOLATION CHECK VALVE TRAIN B												
2-1001-165A-RV	3	C	4	RV	SA	A	C	O/C	M-79	A-02	RT	Y10			
		Valve Name	RHR-A HT EXCHANGER THERMAL RELIEF VALVE												
2-1001-165B-RV	3	C	4	RV	SA	A	C	O/C	M-79	A-09	RT	Y10			
		Valve Name	RHR-B HT EXCHANGER THERMAL RELIEF VALVE												
2-1001-166A-RV	2	C	1	RV	SA	A	C	O/C	M-81-2	B-02	RT	Y10			
		Valve Name	RHR-A HT EXCHANGER THERMAL RELIEF VALVE												
2-1001-166B-RV	2	C	1	RV	SA	A	C	O/C	M-81-2	B-09	RT	Y10			
		Valve Name	RHR-B HT EXCHANGER THERMAL RELIEF VALVE												
2-1001-185	2	C	1	CK	SA	A	C	C	M-81-1	B-09	CCF	CM			
											COF	CM			
		Valve Name	RHR-RHR KEEP FILL SUPPLY CHECK												
2-1001-185A-MO	3	B	12	GA	MO	P	C	O/C	M-79	A-03	PIC	Y2			
											PIO	Y2			
		Valve Name	RHRSW-A LOOP RHR HT EXCHNGR FLUSH CONTRL												
2-1001-185B-MO	3	B	12	GA	MO	P	C	O/C	M-79	A-08	PIC	Y2			
											PIO	Y2			
		Valve Name	RHRSW-B LOOP RHR HT EXCHNGR FLUSH CONTRL												
2-1001-186A-MO	3	B	12	GA	MO	P	O/C	O/C	M-79	A-03	PIC	Y2			
											PIO	Y2			
		Valve Name	RHRSW-A LOOP RHR HT EXCHNGR FLUSH CONTRL												
2-1001-186B-MO	3	B	12	GA	MO	P	O/C	O/C	M-79	A-08	PIC	Y2			
											PIO	Y2			
		Valve Name	RHRSW-B LOOP RHR HT EXCHNGR FLUSH CONTRL												

Residual Heat Removal (Page 17)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
2-1001-187A-MO	3	B	12	GA	MO	P	O/C	O/C	M-79	B-02	PIC	Y2			
											PIO	Y2			
		Valve Name	RHRSW-A LOOP RHR HT EXCHNGR FLUSH CONTRL												
2-1001-187B-MO	3	B	12	GA	MO	P	O/C	O/C	M-79	B-09	PIC	Y2			
											PIO	Y2			
		Valve Name	RHRSW-B LOOP RHR HT EXCHNGR FLUSH CONTRL												
2-1099-092A-AO	2	B	1	GL	AO	A	C	C	M-81-2	B-01	FC	M3			013
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name	RHR-A LOOP SAMPLING SELECT VALVE												
2-1099-092B-AO	2	B	1	GL	AO	A	C	C	M-81-2	B-10	FC	M3			013
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name	RHR-B LOOP SAMPLING SELECT VALVE												
2-1099-166	2	A	6	GA	M	P	LC	C	M-81-1	A-04	LT	AJ			
		Valve Name	RHR-FIRE PROTECTION SYSTEM SUPPLY ISOL VALVE												

Reactor Core Isolation Cooling (Page 1)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
1-1301-009-RPD	NS	D	8	RPD	SA	A	C	O/C	M-50-1	B-07	DT	Y5			
		Valve Name RCIC-TURBINE EXHAUST LINE RUPTURE DISC													
1-1301-010-RPD	NS	D	8	RPD	SA	A	C	O/C	M-50-1	B-07	DT	Y5			
		Valve Name RCIC-TURBINE EXHAUST LINE RUPTURE DISC													
1-1301-012-AO	NS	B	1	GL	AO	A	C	C	M-50-1	F-08	FC	M3			013
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name RCIC VLV FROM CONDENSATE PMP TO REACTOR BLDG DRAIN													
1-1301-013-AO	NS	B	1	GL	AO	A	C	C	M-50-1	G-08	FC	M3			013
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name RCIC VLV FROM CONDENSATE PMP TO REACTOR BLDG DRAIN													
1-1301-015A	2	A/C	0.5	XFC	SA	A	O	C	M-50-1	B-01	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name RCIC-STEAM SUPPLY LINE EXCESS FLOW CHECK													
1-1301-015B	2	A/C	0.5	XFC	SA	A	O	C	M-50-1	B-01	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name RCIC-STEAM SUPPLY LINE EXCESS FLOW CHECK													
1-1301-016-MO	2	A	3	GA	MO	A	O	O/C	M-50-1	C-02	DIA	MOV	RV-02		
											LT	AJ			
											SC	M3			
											SO	M3			
		Valve Name RCIC-TURB STEAM SUPPLY ISOLATION - PCIV													
1-1301-017-MO	2	A	3	GA	MO	A	O	O/C	M-50-1	C-03	DIA	MOV	RV-02		
											LT	AJ			
											SC	M3			
											SO	M3			
		Valve Name RCIC-TURB STEAM SUPPLY ISOLATION - PCIV													
1-1301-022-MO	NS	B	6	GA	MO	A	O	O/C	M-50-1	B-02	DIA	MOV	RV-02		
											SC	Y2			
											SO	Y2			
		Valve Name RCIC-SUCTION SUPPLY LINE FROM CCST ISOLATION VALVE													

Reactor Core Isolation Cooling (Page 2)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
1-1301-023	NS	C	6	CK	SA	A	C	O/C	M-50-1	B-03	CC	M3			
											CO	M3			
		Valve Name RCIC-SUCTION SUPPLY LINE FROM CCST CHECK													
1-1301-025-MO	2	B	6	GA	MO	A	C	O/C	M-50-1	G-03	DIA	MOV	RV-02		
											SC	Y2			
											SO	Y2			
		Valve Name RCIC-SUCTION SUPPLY LINE FROM TORUS ISOL VALVE													
1-1301-026-MO	NS	B	6	GA	MO	A	C	O/C	M-50-1	D-04	DIA	MOV	RV-02		
											SC	Y2			
											SO	Y2			
		Valve Name RCIC-SUCTION SUPPLY LINE FROM TORUS ISOL VALVE													
1-1301-027	NS	C	6	CK	SA	A	C	O/C	M-50-1	G-03	CCD	CM			
											CCF	CM			
											COD	CM			
		Valve Name RCIC-SUCTION SUPPLY LINE FROM TORUS CHECK													
1-1301-031-RV	NS	C	1	RV	SA	A	C	O/C	M-50-1	A-04	RT	Y10			
		Valve Name RCIC-SUCTION SUPPLY LINE RELIEF VALVE													
1-1301-032-AO	NS	B	1	GL	AO	A	C	O	M-50-1	B-10	FO	M3			013
											PIC	Y2			
											PIO	Y2			
											STO	M3			
		Valve Name RCIC-STEAM LINE DRAIN POT TRAP BYPASS													
1-1301-034-AO	NS	B	1	GL	AO	A	O	C	M-50-1	C-09	FC	M3			013
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name RCIC-STM LINE DRN POT DISCH TO MAIN COND													
1-1301-035-AO	NS	B	1	GL	AO	A	O	C	M-50-1	C-09	FC	M3			013
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name RCIC-STM LINE DRN POT DISCH TO MAIN COND													
1-1301-040	MC	A/C	2	CK	SA	A	C	C	M-50-1	E-03	CCF	CM			
											COF	CM			
											LTJ	AJ			
		Valve Name RCIC VACUUM PUMP DISCHARGE LINE TO TORUS CHECK													

Reactor Core Isolation Cooling (Page 3)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
1-1301-041	MC	A/C	8	CK	SA	A	C	O/C	M-50-1	E-02	CCD	CM			
											CCF	CM			
											COD	CM			
											COF	CM			
											LTJ	AJ			
		Valve Name	RCIC-TURBINE EXHAUST LINE TO TORUS-PCIV												
1-1301-042-RV	NS	C	1.5	RV	SA	A	C	O/C	M-50-1	E-06	RT	Y10			
		Valve Name	RCIC-LUBE OIL/BAROM COND CLNG RELIEF VALVE												
1-1301-047	2	C	2	CK	SA	A	C	O/C	M-50-1	D-07	CCD	CM			
											COD	CM			
											CPF	CM			
		Valve Name	RCIC-MINIMUM FLOW TO TORUS CHECK												
1-1301-048-MO	NS	B	4	GA	MO	A	O	O	M-50-1	D-04	DIA	MOV	RV-02		
											SC	M3			
											SO	M3			
		Valve Name	RCIC-INJECTION LINE TO FEEDWATER ISOLATION VALVE												
1-1301-049-MO	NS	B	4	GA	MO	A	C	O	M-50-1	D-03	DIA	MOV	RV-02		
											SC	M3			
											SO	M3			
		Valve Name	RCIC-INJECTION LINE TO FEEDWATER ISOLATION VALVE												
1-1301-050	NS	C	4	CK	SA	A	C	O	M-50-1	D-02	CCD	CM			
											COF	CM			
		Valve Name	RCIC-INJECTION LINE TO FEEDWATER CHECK												
1-1301-053-MO	NS	B	4	GL	MO	A	C	C	M-50-1	D-03	DIA	MOV	RV-02		
											SC	M3			
											SO	M3			
		Valve Name	RCIC-FULL FLOW TEST RETURN LINE TO CCST												
1-1301-055	2	A/C	2	SCK	SA	A	C	C	M-50-1	E-02	CCF	CM			
											COF	CM			
											LTJ	AJ			
		Valve Name	RCIC-TURBINE DISCHARGE ISOL VALVE, PCIV												
1-1301-060-MO	NS	B	2	GL	MO	A	C	O/C	M-50-1	D-06	DIA	MOV	RV-02		
											SC	M3			
											SO	M3			
		Valve Name	RCIC-MINIMUM FLOW RECIRC LINE ISOLATION												

Reactor Core Isolation Cooling (Page 4)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
1-1301-061-MO	NS	B	3	GL	MO	A	C	O/C	M-50-1	A-09	DIA	MOV	RV-02		
											SC	M3			
											SO	M3			
		Valve Name RCIC-STEAM SUPPLY BLOCKING VALVE													
1-1301-062-MO	NS	B	2	GL	MO	A	C	O	M-50-1	D-06	DIA	MOV	RV-02		
											SC	M3			
											SO	M3			
		Valve Name RCIC-LUBE OIL/BARO CONDENSR COOLING ISOL VALVE													
1-1301-063	NS	C	2	CK	SA	A	C	C	M-50-1	F-07	CCF	CM			
											COD	CM			
		Valve Name RCIC-BAROMETRIC CONDENSER RETURN CHECK													
1-1301-064	2	A/C	8	SCK	SA	A	C	O/C	M-50-1	E-01	CCF	CM			
											COF	CM			
											LTJ	AJ			
		Valve Name RCIC-TURBINE DISCHARGE ISOL VALVE, PCIV													
1-1399-102	SR	C	2	CK	SA	A	C	O/C	M-50-1	F-01	CCD	CM			
											COD	CM			
		Valve Name RCIC-EXHAUST LINE VACUUM BREAKER													
1-1399-103	SR	C	2	CK	SA	A	C	O/C	M-50-1	F-01	CCD	CM			
											COD	CM			
		Valve Name RCIC-EXHAUST LINE VACUUM BREAKER													
1-1399-151-RV	NS	C	1.25	RV	SA	A	C	O/C	M-50-1	D-09	RT	Y10			
		Valve Name RCIC-BAROMETRIC CONDENSER RELIEF VALVE													
2-1301-009-RPD	NS	D	8	RPD	SA	A	C	O/C	M-89-1	B-07	DT	Y5			
		Valve Name RCIC-TURBINE EXHAUST LINE RUPTURE DISC													
2-1301-010-RPD	NS	D	8	RPD	SA	A	C	O/C	M-89-1	B-07	DT	Y5			
		Valve Name RCIC-TURBINE EXHAUST LINE RUPTURE DISC													
2-1301-012-AO	NS	B	1	GL	AO	A	C	C	M-89-1	F-08	FC	M3			013
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name RCIC VLV FROM CONDENSATE PMP TO REACTOR BLDG DRAIN													
2-1301-013-AO	NS	B	1	GL	AO	A	C	C	M-89-1	G-08	FC	M3			013
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name RCIC VLV FROM CONDENSATE PMP TO REACTOR BLDG DRAIN													

Reactor Core Isolation Cooling (Page 5)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
2-1301-015A	2	A/C	0.5	XFC	SA	A	O	C	M-89-1	B-01	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name	RCIC-STEAM SUPPLY LINE EXCESS FLOW CHECK												
2-1301-015B	2	A/C	0.5	XFC	SA	A	O	C	M-89-1	B-01	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name	RCIC-STEAM SUPPLY LINE EXCESS FLOW CHECK												
2-1301-016-MO	2	A	3	GA	MO	A	O	O/C	M-89-1	C-01	DIA	MOV	RV-02		
											LT	AJ			
											SC	M3			
											SO	M3			
		Valve Name	RCIC-TURB STEAM SUPPLY ISOLATION - PCIV												
2-1301-017-MO	2	A	3	GA	MO	A	O	O/C	M-89-1	C-02	DIA	MOV	RV-02		
											LT	AJ			
											SC	M3			
											SO	M3			
		Valve Name	RCIC-TURB STEAM SUPPLY ISOLATION - PCIV												
2-1301-022-MO	NS	B	6	GA	MO	A	O	O/C	M-89-1	B-03	DIA	MOV	RV-02		
											SC	Y2			
											SO	Y2			
		Valve Name	RCIC-SUCTION SUPPLY LINE FROM CCST ISOLATION VALVE												
2-1301-023	NS	C	6	CK	SA	A	C	O/C	M-89-1	B-03	CC	M3			
											CO	M3			
		Valve Name	RCIC-SUCTION SUPPLY LINE FROM CCST CHECK												
2-1301-025-MO	2	B	6	GA	MO	A	C	O/C	M-89-1	G-03	DIA	MOV	RV-02		
											SC	Y2			
											SO	Y2			
		Valve Name	RCIC-SUCTION SUPPLY LINE FROM TORUS ISOL VALVE												
2-1301-026-MO	NS	B	6	GA	MO	A	C	O/C	M-89-1	D-04	DIA	MOV	RV-02		
											SC	Y2			
											SO	Y2			
		Valve Name	RCIC-SUCTION SUPPLY LINE FROM TORUS ISOL VALVE												
2-1301-027	NS	C	6	CK	SA	A	C	O/C	M-89-1	G-03	CCD	CM			
											CCF	CM			
											COD	CM			
		Valve Name	RCIC-SUCTION SUPPLY LINE FROM TORUS CHECK												

Reactor Core Isolation Cooling (Page 6)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
2-1301-031-RV	NS	C	1	RV	SA	A	C	O/C	M-89-1	A-04	RT	Y10			
		Valve Name RCIC-SUCTION SUPPLY LINE RELIEF VALVE													
2-1301-032-AO	NS	B	1	GL	AO	A	C	O	M-89-1	B-10	FO	M3			013
											PIC	Y2			
											PIO	Y2			
											STO	M3			
		Valve Name RCIC-STEAM LINE DRAIN POT TRAP BYPASS													
2-1301-034-AO	NS	B	1	GL	AO	A	O	C	M-89-1	C-09	FC	M3			013
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name RCIC-STM LINE DRN POT DISCH TO MAIN COND													
2-1301-035-AO	NS	B	1	GL	AO	A	O	C	M-89-1	C-09	FC	M3			013
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name RCIC-STM LINE DRN POT DISCH TO CONDENSER													
2-1301-040	MC	A/C	2	CK	SA	A	C	C	M-89-1	E-03	CCF	CM			
											COF	CM			
											LTJ	AJ			
		Valve Name RCIC VACUUM PUMP DISCHARGE LINE TO TORUS CHECK													
2-1301-041	MC	A/C	8	CK	SA	A	C	O/C	M-89-1	E-02	CCD	CM			
											CCF	CM			
											COD	CM			
											COF	CM			
											LTJ	AJ			
		Valve Name RCIC-TURBINE EXHAUST LINE TO TORUS-PCIV													
2-1301-042-RV	NS	C	1.5	RV	SA	A	C	O/C	M-89-1	E-06	RT	Y10			
		Valve Name RCIC-LUBE OIL/BAROM COND CLNG RELIEF VALVE													
2-1301-047	2	C	2	CK	SA	A	C	O/C	M-89-1	F-06	CCD	CM			
											COD	CM			
											CPF	CM			
		Valve Name RCIC-MINIMUM FLOW TO TORUS CHECK													
2-1301-048-MO	NS	B	4	GA	MO	A	O	O	M-89-1	D-04	DIA	MOV	RV-02		
											SC	M3			
											SO	M3			
		Valve Name RCIC-INJECTION LINE TO FEEDWATER ISOLATION VALVE													

Reactor Core Isolation Cooling (Page 7)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
2-1301-049-MO	NS	B	4	GA	MO	A	C	O	M-89-1	D-03	DIA	MOV	RV-02		
											SC	M3			
											SO	M3			
		Valve Name	RCIC-INJECTION LINE TO FEEDWATER ISOLATION VALVE												
2-1301-050	NS	C	4	CK	SA	A	C	O	M-89-1	D-02	CCD	CM			
											COF	CM			
		Valve Name	RCIC-INJECTION LINE TO FEEDWATER CHECK												
2-1301-053-MO	NS	B	4	GL	MO	A	C	C	M-89-1	D-03	DIA	MOV	RV-02		
											SC	M3			
											SO	M3			
		Valve Name	RCIC-FULL FLOW TEST RETURN LINE TO CCST												
2-1301-055	2	A/C	2	SCK	SA	A	C	C	M-89-1	E-02	CCF	CM			
											COF	CM			
											LTJ	AJ			
		Valve Name	RCIC-TURBINE DISCHARGE ISOL VALVE, PCIV												
2-1301-060-MO	NS	B	2	GL	MO	A	C	O/C	M-89-1	D-05	DIA	MOV	RV-02		
											SC	M3			
											SO	M3			
		Valve Name	RCIC-MINIMUM FLOW RECIRC LINE ISOLATION												
2-1301-061-MO	NS	B	3	GL	MO	A	C	O/C	M-89-1	A-09	DIA	MOV	RV-02		
											SC	M3			
											SO	M3			
		Valve Name	RCIC-STEAM SUPPLY BLOCKING VALVE												
2-1301-062-MO	NS	B	2	GL	MO	A	C	O	M-89-1	D-05	DIA	MOV	RV-02		
											SC	M3			
											SO	M3			
		Valve Name	RCIC-LUBE OIL/BARO CONDENSR COOLING ISOL VALVE												
2-1301-063	NS	C	2	CK	SA	A	C	C	M-89-1	F-08	CCF	CM			
											COD	CM			
		Valve Name	RCIC-BAROMETRIC CONDENSER RETURN CHECK												
2-1301-064	2	A/C	8	SCK	SA	A	C	O/C	M-89-1	E-02	CCF	CM			
											COF	CM			
											LTJ	AJ			
		Valve Name	RCIC-TURBINE DISCHARGE ISOL VALVE, PCIV												
2-1399-102	SR	C	2	CK	SA	A	C	O/C	M-89-1	F-01	CCD	CM			
											COD	CM			
		Valve Name	RCIC-EXHAUST LINE VACUUM BREAKER												

Reactor Core Isolation Cooling (Page 8)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
2-1399-103	SR	C	2	CK	SA	A	C	O/C	M-89-1	F-02	CCD	CM			
											COD	CM			
		Valve Name	RCIC-EXHAUST LINE VACUUM BREAKER												
2-1399-151-RV	NS	C	1.25	RV	SA	A	C	O/C	M-89-1	D-09	RT	Y10			
		Valve Name	RCIC-BAROMETRIC CONDENSER RELIEF VALVE												

Reactor Water Cleanup (Page 1)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
1-1201-002-MO	1	A	6	GA	MO	A	O	C	M-47-1	C-05	DIA	MOV	RV-02		
											LT	AJ			
											SC	CS		CSJ-12A	
											SO	CS		CSJ-12A	
Valve Name RWCU-INBOARD PRIMARY CONT ISOLATION VALVE															
1-1201-005-MO	1	A	6	GA	MO	A	O	C	M-47-1	C-07	DIA	MOV	RV-02		
											LT	AJ			
											SC	CS		CSJ-12A	
											SO	CS		CSJ-12A	
Valve Name RWCU-OUTBOARD PRIMARY CONT ISOLATION VALVE															
1-1201-080-MO	NS	B	4	GL	MO	A	O	C	M-47-1	B-09	PIC	Y2			
											PIO	Y2			
											STC	CS		CSJ-12A	
Valve Name RWCU RETURN ISOLATION VALVE															
1-1299-087-RV	2	A/C	0.75	RV	SA	A	C	O/C	M-47-1	C-06	LT	AJ			
											RT	Y10			
Valve Name RWCU-PCI VOLUME THERMAL OVERPRESSURE RELIEF															
2-1201-002-MO	1	A	6	GA	MO	A	O	C	M-88-1	C-06	DIA	MOV	RV-02		
											LT	AJ			
											SC	CS		CSJ-12A	
											SO	CS		CSJ-12A	
Valve Name RWCU-INBOARD PRIMARY CONT ISOLATION VALVE															
2-1201-005-MO	1	A	6	GA	MO	A	O	C	M-88-1	C-06	DIA	MOV	RV-02		
											LT	AJ			
											SC	CS		CSJ-12A	
											SO	CS		CSJ-12A	
Valve Name RWCU-OUTBOARD PRIMARY CONT ISOLATION VALVE															
2-1201-080-MO	NS	B	4	GL	MO	A	O	C	M-88-1	B-09	PIC	Y2			
											PIO	Y2			
											STC	CS		CSJ-12A	
Valve Name RWCU RETURN ISOLATION VALVE															
2-1299-087-RV	2	A/C	0.75	RV	SA	A	C	O/C	M-88-1	C-06	LT	AJ			
											RT	Y10			
Valve Name RWCU-PCI VOLUME THERMAL OVERPRESSURE RELIEF															

Radwaste (Page 1)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
1-2001-003-AO	MC	A	3	PLG	AO	A	C	C	M-43	F-07	FC	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name	DRYWELL FLOOR DRAIN-PCIV												
1-2001-004-AO	MC	A	3	PLG	AO	A	C	C	M-43	F-07	FC	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name	DRYWELL FLOOR DRAIN-PCIV												
1-2001-015-AO	MC	A	3	GA	AO	A	C	C	M-43	E-03	FC	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name	DRYWELL EQUIPMENT DRAIN-PCIV												
1-2001-016-AO	MC	A	3	GA	AO	A	C	C	M-43	E-03	FC	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name	DRYWELL EQUIPMENT DRAIN-PCIV												
1-2099-907-RV	SR	C	0.75	RV	SA	A	C	O/C	M-43	F-06	RT	Y10			
		Valve Name	DRYWELL FLOOR DRAIN-THERMAL OVERPRESSURE RV												
1-2099-908-RV	SR	C	0.75	RV	SA	A	C	O/C	M-43	E-04	RT	Y10			
		Valve Name	DRYWELL EQUIPMENT DRAIN-THERMAL OVERPRESSURE RV												
2-2001-003-AO	MC	A	3	PLG	AO	A	C	C	M-85	F-07	FC	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name	DRYWELL FLOOR DRAIN-PCIV												

Radwaste (Page 2)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
2-2001-004-AO	MC	A	3	PLG	AO	A	C	C	M-85	F-07	FC	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name	DRYWELL FLOOR DRAIN-PCIV												
2-2001-015-AO	MC	A	3	GA	AO	A	C	C	M-85	E-03	FC	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name	DRYWELL EQUIPMENT DRAIN-PCIV												
2-2001-016-AO	MC	A	3	GA	AO	A	C	C	M-85	E-03	FC	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name	DRYWELL EQUIPMENT DRAIN-PCIV												
2-8941-761-RV	NS	C	1	RV	SA	A	C	O/C	M-1061-1	A-07	RT	Y10			
		Valve Name	DRYWELL EQUIPMENT DRAIN-THERMAL OVERPRESSURE RV												
2-8941-762-RV	NS	C	1	RV	SA	A	C	O/C	M-1061-1	A-06	RT	Y10			
		Valve Name	DRYWELL FLOOR DRAIN-THERMAL OVERPRESSURE RV												

Nuclear Boiler And Reactor Recirculating (Page 1)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
1-0202-005A-MO	1	B	28	GA	MO	A	O	C	M-35-2	C-04	DIA	MOV	RV-02		
											SC	CS		CSJ-02A	
											SO	CS		CSJ-02A	
Valve Name RX RECIRC-1A RECIRC PUMP DISCHARGE VALVE															
1-0202-005B-MO	1	B	28	GA	MO	A	O	C	M-35-2	C-07	DIA	MOV	RV-02		
											SC	CS		CSJ-02A	
											SO	CS		CSJ-02A	
Valve Name RX RECIRC-1B RECIRC PUMP DISCHARGE VALVE															
1-0220-019A	2	A/C	0.5	XFC	SA	A	O	C	M-35-2	G-04	CCF	CM			
											COF	CM			
											LT	Y10			
Valve Name RECIRC PUMP,DPT-261-5A LOW SIDE EXCESS FLOW CHECK															
1-0220-019B	2	A/C	0.5	XFC	SA	A	O	C	M-35-2	F-07	CCF	CM			
											COF	CM			
											LT	Y10			
Valve Name RECIRC PUMP,DPT-261-5B LOW SIDE EXCESS FLOW CHECK															
1-0220-020A	2	A/C	0.5	XFC	SA	A	O	C	M-35-2	F-04	CCF	CM			
											COF	CM			
											LT	Y10			
Valve Name RECIRC PUMP,DPT-261-5A HI SIDE EXCESS FLOW CHECK															
1-0220-020B	2	A/C	0.5	XFC	SA	A	O	C	M-35-2	F-07	CCF	CM			
											COF	CM			
											LT	Y10			
Valve Name RECIRC PUMP,DPT-261-5B HI SIDE EXCESS FLOW CHECK															
1-0220-021A	2	A/C	0.5	XFC	SA	A	O	C	M-35-2	B-01	CCF	CM			
											COF	CM			
											LT	Y10			
Valve Name RECIRC PUMP,FT-261-6A LOW SIDE EXCESS FLOW CHECK															
1-0220-021B	2	A/C	0.5	XFC	SA	A	O	C	M-35-2	C-10	CCF	CM			
											COF	CM			
											LT	Y10			
Valve Name RECIRC PUMP,FT-261-6C LOW SIDE EXCESS FLOW CHECK															
1-0220-022A	2	A/C	0.5	XFC	SA	A	O	C	M-35-2	C-01	CCF	CM			
											COF	CM			
											LT	Y10			
Valve Name RECIRC PUMP,FT-261-6A HIGH SIDE EXCESS FLOW CHECK															

Nuclear Boiler And Reactor Recirculating (Page 2)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
1-0220-022B	2	A/C	0.5	XFC	SA	A	O	C	M-35-2	C-10	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name RECIRC PUMP,FT-261-6C HIGH SIDE EXCESS FLOW CHECK													
1-0220-044-AO	2	A	0.75	GL	AO	A	O	C	M-35-2	B-08	FC	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name RX RECIRC-RX WATER SAMPLE LINE ISOLATION													
1-0220-045-AO	MC	A	0.75	GL	AO	A	O	C	M-35-2	B-10	FC	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name RX RECIRC-RX WATER SAMPLE LINE ISOLATION													
1-0220-046-AO	SR	B	0.75	DIA	AO	P	C	C	M-35-1	B-06	PIC	Y2			
											PIO	Y2			
		Valve Name RX RECIRC-RPV HEAD HIGH POINT VENT													
1-0220-047-AO	2	B	0.75	DIA	AO	P	C	C	M-35-1	B-05	PIC	Y2			
											PIO	Y2			
		Valve Name RX RECIRC-RPV HEAD HIGH POINT VENT													
1-0220-054	2	A/C	0.5	XFC	SA	A	O	C	M-35-1	B-03	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name RX PS-261-20 & PI-261-21 EXCESS FLOW CHECK													
1-0220-067A	2	A/C	0.5	XFC	SA	A	O	C	M-35-2	A-04	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name RECIRC LOOP,DPIS-261-34A A EXCESS FLOW CHECK													
1-0220-067B	2	A/C	0.5	XFC	SA	A	O	C	M-35-2	A-04	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name RECIRC LOOP,DPIS-261-34A B EXCESS FLOW CHECK													

Nuclear Boiler And Reactor Recirculating (Page 3)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
1-0220-067C	2	A/C	0.5	XFC	SA	A	O	C	M-35-2	A-04	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name	RECIRC LOOP,DPIS-261-34C A EXCESS FLOW CHECK												
1-0220-067D	2	A/C	0.5	XFC	SA	A	O	C	M-35-2	A-04	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name	RECIRC LOOP,DPIS-261-34C B EXCESS FLOW CHECK												
1-0220-067E	2	A/C	0.5	XFC	SA	A	O	C	M-35-2	A-07	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name	RECIRC LOOP,DPIS-261-34B A EXCESS FLOW CHECK												
1-0220-067F	2	A/C	0.5	XFC	SA	A	O	C	M-35-2	A-07	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name	RECIRC LOOP,DPIS-261-34B B EXCESS FLOW CHECK												
1-0220-067G	2	A/C	0.5	XFC	SA	A	O	C	M-35-2	A-07	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name	RECIRC LOOP,DPIS-261-34D A EXCESS FLOW CHECK												
1-0220-067H	2	A/C	0.5	XFC	SA	A	O	C	M-35-2	A-07	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name	RECIRC LOOP,DPIS-261-34D B EXCESS FLOW CHECK												
1-0220-089A	2	A/C	0.5	XFC	SA	A	O	C	M-35-2	A-09	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name	RECIRC PUMP SUCTION, PS-261-23A EXCESS FLOW CHECK												
1-0220-089B	2	A/C	0.5	XFC	SA	A	O	C	M-35-2	A-09	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name	RECIRC PUMP SUCTION, PS-261-23B EXCESS FLOW CHECK												
1-0262-2-005A	2	A/C	0.5	XFC	SA	A	O	C	M-35-2	F-02	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name	RECIRC PUMP SEAL CAVITY 2 PI/PT EXCESS FLOW CHECK												

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Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
1-0262-2-005B	2	A/C	0.5	XFC	SA	A	O	C	M-35-2	F-09	CCF	CM			
											COF	CM			
											LT	Y10			
Valve Name RECIRC PUMP SEAL CAVITY 2 PI/PT EXCESS FLOW CHECK															
1-0262-2-006A	2	A/C	0.5	XFC	SA	A	O	C	M-35-2	F-02	CCF	CM			
											COF	CM			
											LT	Y10			
Valve Name RECIRC PUMP SEAL CAVITY 1 PI/PT EXCESS FLOW CHECK															
1-0262-2-006B	2	A/C	0.5	XFC	SA	A	O	C	M-35-2	F-09	CCF	CM			
											COF	CM			
											LT	Y10			
Valve Name RECIRC PUMP SEAL CAVITY 1 PI/PT EXCESS FLOW CHECK															
1-0263-2-011	2	A/C	0.5	XFC	SA	A	O	C	M-35-1	A-03	CCF	CM			
											COF	CM			
											LT	Y10			
Valve Name RX LT-1-263-61 HIGH SIDE EXCESS FLOW CHECK															
1-0263-2-013A	2	A/C	1	XFC	SA	A	O	C	M-35-1	C-03	CCF	CM			
											COF	CM			
											LT	Y10			
Valve Name RX LT-1-263-57 HIGH SIDE EXCESS FLOW CHECK															
1-0263-2-013B	2	A/C	1	XFC	SA	A	O	C	M-35-1	C-07	CCF	CM			
											COF	CM			
											LT	Y10			
Valve Name RX LT-1-263-58 HIGH SIDE EXCESS FLOW CHECK															
1-0263-2-015A	2	A/C	0.5	XFC	SA	A	O	C	M-35-1	D-03	CCF	CM			
											COF	CM			
											LT	Y10			
Valve Name RX LT-1-263-57 LOW SIDE EXCESS FLOW CHECK															
1-0263-2-015B	2	A/C	0.5	XFC	SA	A	O	C	M-35-1	D-07	CCF	CM			
											COF	CM			
											LT	Y10			
Valve Name RX LT-1-263-58 LOW SIDE EXCESS FLOW CHECK															
1-0263-2-017A	2	A/C	0.5	XFC	SA	A	O	C	M-35-1	D-03	CCF	CM			
											COF	CM			
											LT	Y10			
Valve Name RX LT-646A/LT-263-23A LOW SIDE EXCESS FLOW CHECK															

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Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
1-0263-2-017B	2	A/C	0.5	XFC	SA	A	O	C	M-35-1	D-07	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name RX LT-646B/LT-263-23B LOW SIDE EXCESS FLOW CHECK													
1-0263-2-019A	2	A/C	1	XFC	SA	A	O	C	M-35-1	D-03	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name RX LT-646A/PT-647A HIGH SIDE EXCESS FLOW CHECK													
1-0263-2-019B	2	A/C	1	XFC	SA	A	O	C	M-35-1	D-07	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name RX LT-646B/PI-647B HIGH SIDE EXCESS FLOW CHECK													
1-0263-2-020A	2	A/C	0.5	XFC	SA	A	O	C	M-35-1	F-03	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name JET PUMP-1,FT-263-63A HIGH SIDE EXCESS FLOW CHECK													
1-0263-2-020B	2	A/C	0.5	XFC	SA	A	O	C	M-35-1	F-03	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name JET PUMP-6,FT-263-63B HIGH SIDE EXCESS FLOW CHECK													
1-0263-2-020C	2	A/C	0.5	XFC	SA	A	O	C	M-35-1	F-07	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name JET PUMP-11,FT-263-63C HI SIDE EXCESS FLOW CHECK													
1-0263-2-020D	2	A/C	0.5	XFC	SA	A	O	C	M-35-1	F-07	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name JET PUMP-16,FT-263-63D HI SIDE EXCESS FLOW CHECK													
1-0263-2-023A	2	A/C	0.5	XFC	SA	A	O	C	M-35-1	E-03	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name JET PUMP-1,FT-263-63A LOW SIDE EXCESS FLOW CHECK													
1-0263-2-023B	2	A/C	0.5	XFC	SA	A	O	C	M-35-1	E-03	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name JET PUMP-6,FT-263-63B LOW SIDE EXCESS FLOW CHECK													

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Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
1-0263-2-023C	2	A/C	0.5	XFC	SA	A	O	C	M-35-1	E-07	CCF	CM			
											COF	CM			
											LT	Y10			
Valve Name JET PUMP-11,FT-263-63C LOW SIDE EXCESS FLOW CHECK															
1-0263-2-023D	2	A/C	0.5	XFC	SA	A	O	C	M-35-1	E-07	CCF	CM			
											COF	CM			
											LT	Y10			
Valve Name JET PUMP-16,FT-263-63D LOW SIDE EXCESS FLOW CHECK															
1-0263-2-025	2	A/C	0.5	XFC	SA	A	O	C	M-35-1	F-03	CCF	CM			
											COF	CM			
											LT	Y10			
Valve Name RX CORE PLATE DPT-263-62 LO SIDE EXCESS FLOW CHECK															
1-0263-2-027	2	A/C	0.5	XFC	SA	A	O	C	M-35-1	G-03	CCF	CM			
											COF	CM			
											LT	Y10			
Valve Name RX CORE PLATE DPT-263-62 HI SIDE EXCESS FLOW CHECK															
1-0263-2-031B	2	A/C	0.5	XFC	SA	A	O	C	M-35-1	E-03	CCF	CM			
											COF	CM			
											LT	Y10			
Valve Name JET PUMP-2,FT-263-64B LOW SIDE EXCESS FLOW CHECK															
1-0263-2-031C	2	A/C	0.5	XFC	SA	A	O	C	M-35-1	E-03	CCF	CM			
											COF	CM			
											LT	Y10			
Valve Name JET PUMP-3,FT-263-64C LOW SIDE EXCESS FLOW CHECK															
1-0263-2-031D	2	A/C	0.5	XFC	SA	A	O	C	M-35-1	E-03	CCF	CM			
											COF	CM			
											LT	Y10			
Valve Name JET PUMP-4,FT-263-64D LOW SIDE EXCESS FLOW CHECK															
1-0263-2-031E	2	A/C	0.5	XFC	SA	A	O	C	M-35-1	E-03	CCF	CM			
											COF	CM			
											LT	Y10			
Valve Name JET PUMP-5,FT-263-64E LOW SIDE EXCESS FLOW CHECK															
1-0263-2-031G	2	A/C	0.5	XFC	SA	A	O	C	M-35-1	E-03	CCF	CM			
											COF	CM			
											LT	Y10			
Valve Name JET PUMP-7,FT-263-64G LOW SIDE EXCESS FLOW CHECK															

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Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
1-0263-2-031H	2	A/C	0.5	XFC	SA	A	O	C	M-35-1	E-03	CCF	CM			
											COF	CM			
											LT	Y10			
Valve Name JET PUMP-8,FT-263-64H LOW SIDE EXCESS FLOW CHECK															
1-0263-2-031J	2	A/C	0.5	XFC	SA	A	O	C	M-35-1	E-03	CCF	CM			
											COF	CM			
											LT	Y10			
Valve Name JET PUMP-9,FT-263-64J LOW SIDE EXCESS FLOW CHECK															
1-0263-2-031K	2	A/C	0.5	XFC	SA	A	O	C	M-35-1	E-03	CCF	CM			
											COF	CM			
											LT	Y10			
Valve Name JET PUMP-10,FT-263-64K LOW SIDE EXCESS FLOW CHECK															
1-0263-2-031M	2	A/C	0.5	XFC	SA	A	O	C	M-35-1	E-07	CCF	CM			
											COF	CM			
											LT	Y10			
Valve Name JET PUMP-13,FT-263-64M LOW SIDE EXCESS FLOW CHECK															
1-0263-2-031N	2	A/C	0.5	XFC	SA	A	O	C	M-35-1	E-07	CCF	CM			
											COF	CM			
											LT	Y10			
Valve Name JET PUMP-13,FT-263-64N LOW SIDE EXCESS FLOW CHECK															
1-0263-2-031P	2	A/C	0.5	XFC	SA	A	O	C	M-35-1	E-07	CCF	CM			
											COF	CM			
											LT	Y10			
Valve Name JET PUMP-14,FT-263-64P LOW SIDE EXCESS FLOW CHECK															
1-0263-2-031R	2	A/C	0.5	XFC	SA	A	O	C	M-35-1	E-07	CCF	CM			
											COF	CM			
											LT	Y10			
Valve Name JET PUMP-15,FT-263-64R LOW SIDE EXCESS FLOW CHECK															
1-0263-2-031T	2	A/C	0.5	XFC	SA	A	O	C	M-35-1	E-07	CCF	CM			
											COF	CM			
											LT	Y10			
Valve Name JET PUMP-17,FT-263-64T LOW SIDE EXCESS FLOW CHECK															
1-0263-2-031U	2	A/C	0.5	XFC	SA	A	O	C	M-35-1	E-07	CCF	CM			
											COF	CM			
											LT	Y10			
Valve Name JET PUMP-18,FT-263-64U LOW SIDE EXCESS FLOW CHECK															

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Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
1-0263-2-031V	2	A/C	0.5	XFC	SA	A	O	C	M-35-1	E-07	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name	JET PUMP-19,FT-263-64V LOW SIDE EXCESS FLOW CHECK												
1-0263-2-031W	2	A/C	0.5	XFC	SA	A	O	C	M-35-1	E-07	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name	JET PUMP-20,FT-263-64W LOW SIDE EXCESS FLOW CHECK												
1-0263-2-033	2	A/C	0.5	XFC	SA	A	O	C	M-35-1	F-07	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name	RECIRC LOOP JET PUMP FT LO SIDE EXCESS FLOW CHECK												
1-0263-2-042A	2	A/C	1	XFC	SA	A	O	C	M-35-1	E-03	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name	RX LT-1-263-73A HIGH SIDE EXCESS FLOW CHECK												
1-0263-2-042B	2	A/C	1	XFC	SA	A	O	C	M-35-1	E-07	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name	RX LT-1-263-73B HIGH SIDE EXCESS FLOW CHECK												
1-0263-944A	2	A/C	0.375	CK	SA	A	O	O/C	M-35-5	C-01	CC	RR		ROJ-00A	
											CO	RR		ROJ-00A	
											LT.	Y2		ROJ-00A	
											LTJ	AJ		ROJ-00A	
		Valve Name	RX VESSEL LEVEL INDICATION FORCE FILL CHECK												
1-0263-944B	2	A/C	0.375	CK	SA	A	O	O/C	M-35-5	C-08	CC	RR		ROJ-00A	
											CO	RR		ROJ-00A	
											LT.	Y2		ROJ-00A	
											LTJ	AJ		ROJ-00A	
		Valve Name	RX VESSEL LEVEL INDICATION FORCE FILL CHECK												
1-0263-945A	SR	A/C	0.375	CK	SA	A	O	O/C	M-35-5	C-01	CC	RR		ROJ-00A	
											CO	RR		ROJ-00A	
											LT.	Y2		ROJ-00A	
											LTJ	AJ		ROJ-00A	
		Valve Name	RX VESSEL LEVEL INDICATION FORCE FILL CHECK												

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Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
1-0263-945B	SR	A/C	0.375	CK	SA	A	O	O/C	M-35-5	C-08	CC	RR		ROJ-00A	
											CO	RR		ROJ-00A	
											LT.	Y2		ROJ-00A	
											LTJ	AJ		ROJ-00A	
		Valve Name	RX VESSEL LEVEL INDICATION FORCE FILL CHECK												
1-0263-947A	2	A/C	0.375	CK	SA	A	O	O/C	M-35-5	C-02	CC	RR		ROJ-00A	
											CO	RR		ROJ-00A	
											LT.	Y2		ROJ-00A	
											LTJ	AJ		ROJ-00A	
		Valve Name	RX VESSEL LEVEL INDICATION FORCE FILL CHECK												
1-0263-947B	2	A/C	0.375	CK	SA	A	O	O/C	M-35-5	C-09	CC	RR		ROJ-00A	
											CO	RR		ROJ-00A	
											LT.	Y2		ROJ-00A	
											LTJ	AJ		ROJ-00A	
		Valve Name	RX VESSEL LEVEL INDICATION FORCE FILL CHECK												
1-0263-948A	SR	A/C	0.375	CK	SA	A	O	O/C	M-35-5	C-02	CC	RR		ROJ-00A	
											CO	RR		ROJ-00A	
											LT.	Y2		ROJ-00A	
											LTJ	AJ		ROJ-00A	
		Valve Name	RX VESSEL LEVEL INDICATION FORCE FILL CHECK												
1-0263-948B	SR	A/C	0.375	CK	SA	A	O	O/C	M-35-5	C-09	CC	RR		ROJ-00A	
											CO	RR		ROJ-00A	
											LT.	Y2		ROJ-00A	
											LTJ	AJ		ROJ-00A	
		Valve Name	RX VESSEL LEVEL INDICATION FORCE FILL CHECK												
2-0202-005A-MO	1	B	28	GA	MO	A	O	C	M-77-2	C-04	DIA	MOV	RV-02		
											SC	CS		CSJ-02A	
											SO	CS		CSJ-02A	
		Valve Name	RX RECIRC-2A RECIRC PUMP DISCHARGE VALVE												
2-0202-005B-MO	1	B	28	GA	MO	A	O	C	M-77-2	C-07	DIA	MOV	RV-02		
											SC	CS		CSJ-02A	
											SO	CS		CSJ-02A	
		Valve Name	RX RECIRC-2B RECIRC PUMP DISCHARGE VALVE												
2-0220-019A	2	A/C	0.5	XFC	SA	A	O	C	M-77-2	G-04	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name	RECIRC PUMP,DPT-261-5A LOW SIDE EXCESS FLOW CHECK												

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Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
2-0220-019B	2	A/C	0.5	XFC	SA	A	O	C	M-77-2	F-07	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name	RECIRC PUMP,DPT-261-5B LOW SIDE EXCESS FLOW CHECK												
2-0220-020A	2	A/C	0.5	XFC	SA	A	O	C	M-77-2	F-04	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name	RECIRC PUMP,DPT-261-5A HI SIDE EXCESS FLOW CHECK												
2-0220-020B	2	A/C	0.5	XFC	SA	A	O	C	M-77-2	F-07	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name	RECIRC PUMP,DPT-261-5B HI SIDE EXCESS FLOW CHECK												
2-0220-021A	2	A/C	0.5	XFC	SA	A	O	C	M-77-2	C-02	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name	RECIRC PUMP,FT-261-6A LOW SIDE EXCESS FLOW CHECK												
2-0220-021B	2	A/C	0.5	XFC	SA	A	O	C	M-77-2	C-10	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name	RECIRC PUMP,FT-261-6C LOW SIDE EXCESS FLOW CHECK												
2-0220-022A	2	A/C	0.5	XFC	SA	A	O	C	M-77-2	C-01	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name	RECIRC PUMP,FT-261-6A HI SIDE EXCESS FLOW CHECK												
2-0220-022B	2	A/C	0.5	XFC	SA	A	O	C	M-77-2	C-10	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name	RECIRC PUMP,FT-261-6C HI SIDE EXCESS FLOW CHECK												
2-0220-044-AO	2	A	0.75	GL	AO	A	O	C	M-77-2	B-03	FC	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name	RX RECIRC-RX WATER SAMPLE LINE ISOLATION												

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Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
2-0220-045-AO	MC	A	0.75	GL	AO	A	O	C	M-77-2	A-01	FC	M3			013
											LT	AJ			
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name	RX RECIRC-RX WATER SAMPLE LINE ISOLATION												
2-0220-046-AO	SR	B	0.75	DIA	AO	P	C	C	M-77-1	B-06	PIC	Y2			
											PIO	Y2			
		Valve Name	RX RECIRC-RPV HEAD HIGH POINT VENT												
2-0220-047-AO	2	B	0.75	DIA	AO	P	C	C	M-77-1	B-05	PIC	Y2			
											PIO	Y2			
		Valve Name	RX RECIRC-RPV HEAD HIGH POINT VENT												
2-0220-054	2	A/C	0.5	XFC	SA	A	O	C	M-77-1	B-03	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name	RX PS-261-20 & PI-261-21 EXCESS FLOW CHECK												
2-0220-067A	2	A/C	0.5	XFC	SA	A	O	C	M-77-2	A-04	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name	RECIRC LOOP,DPIS-261-34A A EXCESS FLOW CHECK												
2-0220-067B	2	A/C	0.5	XFC	SA	A	O	C	M-77-2	A-04	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name	RECIRC LOOP,DPIS-261-34A B EXCESS FLOW CHECK												
2-0220-067C	2	A/C	0.5	XFC	SA	A	O	C	M-77-2	A-04	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name	RECIRC LOOP,DPIS-261-34C A EXCESS FLOW CHECK												
2-0220-067D	2	A/C	0.5	XFC	SA	A	O	C	M-77-2	A-04	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name	RECIRC LOOP,DPIS-261-34C B EXCESS FLOW CHECK												
2-0220-067E	2	A/C	0.5	XFC	SA	A	O	C	M-77-2	A-07	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name	RECIRC LOOP,DPIS-261-34B A EXCESS FLOW CHECK												

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Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
2-0220-067F	2	A/C	0.5	XFC	SA	A	O	C	M-77-2	A-07	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name	RECIRC LOOP,DPIS-261-34B B EXCESS FLOW CHECK												
2-0220-067G	2	A/C	0.5	XFC	SA	A	O	C	M-77-2	A-07	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name	RECIRC LOOP,DPIS-261-34D A EXCESS FLOW CHECK												
2-0220-067H	2	A/C	0.5	XFC	SA	A	O	C	M-77-2	A-07	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name	RECIRC LOOP,DPIS-261-34D B EXCESS FLOW CHECK												
2-0220-089A	2	A/C	0.5	XFC	SA	A	O	C	M-77-2	A-09	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name	RECIRC PUMP SUCTION, PS-261-23A EXCESS FLOW CHECK												
2-0220-089B	2	A/C	0.5	XFC	SA	A	O	C	M-77-2	A-09	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name	RECIRC PUMP SUCTION, PS-261-23B EXCESS FLOW CHECK												
2-0262-2-005A	2	A/C	0.5	XFC	SA	A	O	C	M-77-2	F-02	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name	RECIRC PUMP SEAL CAVITY 2 PI/PT EXCESS FLOW CHECK												
2-0262-2-005B	2	A/C	0.5	XFC	SA	A	O	C	M-77-2	F-09	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name	RECIRC PUMP SEAL CAVITY 2 PI/PT EXCESS FLOW CHECK												
2-0262-2-006A	2	A/C	0.5	XFC	SA	A	O	C	M-77-2	F-03	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name	RECIRC PUMP SEAL CAVITY 1 PI/PT EXCESS FLOW CHECK												
2-0262-2-006B	2	A/C	0.5	XFC	SA	A	O	C	M-77-2	F-09	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name	RECIRC PUMP SEAL CAVITY 1 PI/PT EXCESS FLOW CHECK												

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Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
2-0263-2-011	2	A/C	0.5	XFC	SA	A	O	C	M-77-1	B-03	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name	RX LT-1-263-61 HIGH SIDE EXCESS FLOW CHECK												
2-0263-2-013A	2	A/C	1	XFC	SA	A	O	C	M-77-1	D-03	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name	RX LT-1-263-57 HIGH SIDE EXCESS FLOW CHECK												
2-0263-2-013B	2	A/C	1	XFC	SA	A	O	C	M-77-1	D-07	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name	RX LT-1-263-58 HIGH SIDE EXCESS FLOW CHECK												
2-0263-2-015A	2	A/C	0.5	XFC	SA	A	O	C	M-77-1	D-03	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name	RX LT-1-263-57 LOW SIDE EXCESS FLOW CHECK												
2-0263-2-015B	2	A/C	0.5	XFC	SA	A	O	C	M-77-1	D-07	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name	RX LT-1-263-58 LOW SIDE EXCESS FLOW CHECK												
2-0263-2-017A	2	A/C	0.5	XFC	SA	A	O	C	M-77-1	D-03	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name	RX LT-646A/LT-263-23A LOW SIDE EXCESS FLOW CHECK												
2-0263-2-017B	2	A/C	0.5	XFC	SA	A	O	C	M-77-1	D-07	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name	RX LT-646B/LT-263-23B LOW SIDE EXCESS FLOW CHECK												
2-0263-2-019A	2	A/C	1	XFC	SA	A	O	C	M-77-1	D-03	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name	RX LT-646A/PT-647A HIGH SIDE EXCESS FLOW CHECK												
2-0263-2-019B	2	A/C	1	XFC	SA	A	O	C	M-77-1	D-07	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name	RX LT-646B/PT-647B HIGH SIDE EXCESS FLOW CHECK												

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Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
2-0263-2-020A	2	A/C	0.5	XFC	SA	A	O	C	M-77-1	F-03	CCF	CM			
											COF	CM			
											LT	Y10			
Valve Name JET PUMP-1,FT-263-63A HIGH SIDE EXCESS FLOW CHECK															
2-0263-2-020B	2	A/C	0.5	XFC	SA	A	O	C	M-77-1	F-03	CCF	CM			
											COF	CM			
											LT	Y10			
Valve Name JET PUMP-6,FT-263-63B HIGH SIDE EXCESS FLOW CHECK															
2-0263-2-020C	2	A/C	0.5	XFC	SA	A	O	C	M-77-1	F-07	CCF	CM			
											COF	CM			
											LT	Y10			
Valve Name JET PUMP-11,FT-263-63C HI SIDE EXCESS FLOW CHECK															
2-0263-2-020D	2	A/C	0.5	XFC	SA	A	O	C	M-77-1	F-07	CCF	CM			
											COF	CM			
											LT	Y10			
Valve Name JET PUMP-16,FT-263-63D HI SIDE EXCESS FLOW CHECK															
2-0263-2-023A	2	A/C	0.5	XFC	SA	A	O	C	M-77-1	F-03	CCF	CM			
											COF	CM			
											LT	Y10			
Valve Name JET PUMP-1,FT-263-63A LOW SIDE EXCESS FLOW CHECK															
2-0263-2-023B	2	A/C	0.5	XFC	SA	A	O	C	M-77-1	E-03	CCF	CM			
											COF	CM			
											LT	Y10			
Valve Name JET PUMP-6,FT-263-63B LOW SIDE EXCESS FLOW CHECK															
2-0263-2-023C	2	A/C	0.5	XFC	SA	A	O	C	M-77-1	F-07	CCF	CM			
											COF	CM			
											LT	Y10			
Valve Name JET PUMP-11,FT-263-63C LOW SIDE EXCESS FLOW CHECK															
2-0263-2-023D	2	A/C	0.5	XFC	SA	A	O	C	M-77-1	E-07	CCF	CM			
											COF	CM			
											LT	Y10			
Valve Name JET PUMP-16,FT-263-63D LOW SIDE EXCESS FLOW CHECK															
2-0263-2-025	2	A/C	0.5	XFC	SA	A	O	C	M-77-1	G-03	CCF	CM			
											COF	CM			
											LT	Y10			
Valve Name RX CORE PLATE DPT-263-62 LO SIDE EXCESS FLOW CHECK															

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Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
2-0263-2-027	2	A/C	0.5	XFC	SA	A	O	C	M-77-1	G-03	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name	RX CORE PLATE DPT-263-62 HI SIDE EXCESS FLOW CHECK												
2-0263-2-031B	2	A/C	0.5	XFC	SA	A	O	C	M-77-1	E-03	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name	JET PUMP-2,FT-263-64B LOW SIDE EXCESS FLOW CHECK												
2-0263-2-031C	2	A/C	0.5	XFC	SA	A	O	C	M-77-1	E-03	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name	JET PUMP-3,FT-263-64C LOW SIDE EXCESS FLOW CHECK												
2-0263-2-031D	2	A/C	0.5	XFC	SA	A	O	C	M-77-1	E-03	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name	JET PUMP-4,FT-263-64D LOW SIDE EXCESS FLOW CHECK												
2-0263-2-031E	2	A/C	0.5	XFC	SA	A	O	C	M-77-1	E-03	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name	JET PUMP-5,FT-263-64E LOW SIDE EXCESS FLOW CHECK												
2-0263-2-031G	2	A/C	0.5	XFC	SA	A	O	C	M-77-1	E-03	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name	JET PUMP-7,FT-263-64G LOW SIDE EXCESS FLOW CHECK												
2-0263-2-031H	2	A/C	0.5	XFC	SA	A	O	C	M-77-1	E-03	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name	JET PUMP-8,FT-263-64H LOW SIDE EXCESS FLOW CHECK												
2-0263-2-031J	2	A/C	0.5	XFC	SA	A	O	C	M-77-1	E-03	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name	JET PUMP-9,FT-263-64J LOW SIDE EXCESS FLOW CHECK												
2-0263-2-031K	2	A/C	0.5	XFC	SA	A	O	C	M-77-1	E-03	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name	JET PUMP-10,FT-263-64K LOW SIDE EXCESS FLOW CHECK												

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Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
2-0263-2-031M	2	A/C	0.5	XFC	SA	A	O	C	M-77-1	E-07	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name	JET PUMP-13,FT-263-64M LOW SIDE EXCESS FLOW CHECK												
2-0263-2-031N	2	A/C	0.5	XFC	SA	A	O	C	M-77-1	E-07	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name	JET PUMP-13,FT-263-64N LOW SIDE EXCESS FLOW CHECK												
2-0263-2-031P	2	A/C	0.5	XFC	SA	A	O	C	M-77-1	E-07	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name	JET PUMP-14,FT-263-64P LOW SIDE EXCESS FLOW CHECK												
2-0263-2-031R	2	A/C	0.5	XFC	SA	A	O	C	M-77-1	E-07	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name	JET PUMP-15,FT-263-64R LOW SIDE EXCESS FLOW CHECK												
2-0263-2-031T	2	A/C	0.5	XFC	SA	A	O	C	M-77-1	E-07	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name	JET PUMP-17,FT-263-64T LOW SIDE EXCESS FLOW CHECK												
2-0263-2-031U	2	A/C	0.5	XFC	SA	A	O	C	M-77-1	E-07	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name	JET PUMP-18,FT-263-64U LOW SIDE EXCESS FLOW CHECK												
2-0263-2-031V	2	A/C	0.5	XFC	SA	A	O	C	M-77-1	E-07	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name	JET PUMP-19,FT-263-64V LOW SIDE EXCESS FLOW CHECK												
2-0263-2-031W	2	A/C	0.5	XFC	SA	A	O	C	M-77-1	E-07	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name	JET PUMP-20,FT-263-64W LOW SIDE EXCESS FLOW CHECK												
2-0263-2-033	2	A/C	0.5	XFC	SA	A	O	C	M-77-1	G-07	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name	RECIRC LOOP JET PUMP FT LO SIDE EXCESS FLOW CHECK												

Nuclear Boiler And Reactor Recirculating (Page 17)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
2-0263-2-042A	2	A/C	1	XFC	SA	A	O	C	M-77-1	E-03	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name RX LT-1-263-73A HIGH SIDE EXCESS FLOW CHECK													
2-0263-2-042B	2	A/C	1	XFC	SA	A	O	C	M-77-1	E-07	CCF	CM			
											COF	CM			
											LT	Y10			
		Valve Name RX LT-1-263-73B HIGH SIDE EXCESS FLOW CHECK													
2-0263-944A	2	A/C	0.375	CK	SA	A	O	O/C	M-77-5	C-01	CC	RR		ROJ-00A	
											CO	RR		ROJ-00A	
											LT.	Y2		ROJ-00A	
											LTJ	AJ		ROJ-00A	
		Valve Name RX VESSEL LEVEL INDICATION FORCE FILL CHECK													
2-0263-944B	2	A/C	0.375	CK	SA	A	O	O/C	M-77-5	C-08	CC	RR		ROJ-00A	
											CO	RR		ROJ-00A	
											LT.	Y2		ROJ-00A	
											LTJ	AJ		ROJ-00A	
		Valve Name RX VESSEL LEVEL INDICATION FORCE FILL CHECK													
2-0263-945A	SR	A/C	0.375	CK	SA	A	O	O/C	M-77-5	C-01	CC	RR		ROJ-00A	
											CO	RR		ROJ-00A	
											LT.	Y2		ROJ-00A	
											LTJ	AJ		ROJ-00A	
		Valve Name RX VESSEL LEVEL INDICATION FORCE FILL CHECK													
2-0263-945B	SR	A/C	0.375	CK	SA	A	O	O/C	M-77-5	C-08	CC	RR		ROJ-00A	
											CO	RR		ROJ-00A	
											LT.	Y2		ROJ-00A	
											LTJ	AJ		ROJ-00A	
		Valve Name RX VESSEL LEVEL INDICATION FORCE FILL CHECK													
2-0263-947A	2	A/C	0.375	CK	SA	A	O	O/C	M-77-5	C-03	CC	RR		ROJ-00A	
											CO	RR		ROJ-00A	
											LT.	Y2		ROJ-00A	
											LTJ	AJ		ROJ-00A	
		Valve Name RX VESSEL LEVEL INDICATION FORCE FILL CHECK													

Nuclear Boiler And Reactor Recirculating (Page 18)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
2-0263-947B	2	A/C	0.375	CK	SA	A	O	O/C	M-77-5	C-09	CC	RR		ROJ-00A	
											CO	RR		ROJ-00A	
											LT.	Y2		ROJ-00A	
											LTJ	AJ		ROJ-00A	
		Valve Name	RX VESSEL LEVEL INDICATION FORCE FILL CHECK												
2-0263-948A	SR	A/C	0.375	CK	SA	A	O	O/C	M-77-5	C-03	CC	RR		ROJ-00A	
											CO	RR		ROJ-00A	
											LT.	Y2		ROJ-00A	
											LTJ	AJ		ROJ-00A	
		Valve Name	RX VESSEL LEVEL INDICATION FORCE FILL CHECK												
2-0263-948B	SR	A/C	0.375	CK	SA	A	O	O/C	M-77-5	C-09	CC	RR		ROJ-00A	
											CO	RR		ROJ-00A	
											LT.	Y2		ROJ-00A	
											LTJ	AJ		ROJ-00A	
		Valve Name	RX VESSEL LEVEL INDICATION FORCE FILL CHECK												

Service Air (Page 1)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
1-4699-046	MC	A	1	GL	M	P	LC	C	M-25-1	F-03	LTJ	AJ			
		Valve Name	SA - PRIMARY CONTAINMENT ISOLATION VALVE												
1-4699-047	MC	A/C	1	CK	SA	A	C	C	M-25-1	F-03	CCF	CM			
											COF	CM			
											LTJ	AJ			
		Valve Name	SA - PRIMARY CONTAINMENT ISOLATION VALVE												
2-4699-046	MC	A	1	GL	M	P	LC	C	M-72-1	E-06	LTJ	AJ			
		Valve Name	SA - PRIMARY CONTAINMENT ISOLATION VALVE												
2-4699-047	MC	A/C	1	CK	SA	A	C	C	M-72-1	E-05	CCF	CM			
											COF	CM			
											LTJ	AJ			
		Valve Name	SA - PRIMARY CONTAINMENT ISOLATION VALVE												

Emergency Diesel Generator Starting Air (Page 1)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
0-4699-048	SR	C	1.5	CK	SA	A	C	O/C	M-25-2	C-06	CC	M3			
											CO	M3			
		Valve Name SA - EDG AIR RECIEVER TANK CHECK													
0-4699-196	SR	C	1.5	CK	SA	A	C	O/C	M-25-2	C-06	CC	M3			
											CO	M3			
		Valve Name SA - EDG AIR RECIEVER TANK CHECK													
0-4699-226-AO	SR	S	1.5	GA	AO	A	C	O/C	M-25-2	B-04	SC	M3			007
											SO	M3			007
		Valve Name SA - EDG AIR START RELAY VLV													
0-4699-306A-RV	SR	C	0.75	RV	SA	A	C	O/C	M-25-2	B-08	RT	Y10			
		Valve Name SA - EDG AIR RECEIVER TANK RELIEF VALVE													
0-4699-306B-RV	SR	C	0.75	RV	SA	A	C	O/C	M-25-2	B-07	RT	Y10			
		Valve Name SA - EDG AIR RECEIVER TANK RELIEF VALVE													
0-4699-306C-RV	SR	C	0.75	RV	SA	A	C	O/C	M-25-2	B-06	RT	Y10			
		Valve Name SA - EDG AIR RECEIVER TANK RELIEF VALVE													
0-4699-306D-RV	SR	C	0.75	RV	SA	A	C	O/C	M-25-2	B-06	RT	Y10			
		Valve Name SA - EDG AIR RECEIVER TANK RELIEF VALVE													
0-4699-307A	SR	C	0.5	CK	SA	A	C	C	M-25-2	A-07	BDO	M3			014
											CC	M3			
		Valve Name SA - EDG AIR COMPRESSOR CHECK													
0-4699-307B	SR	C	0.5	CK	SA	A	C	C	M-25-2	A-06	BDO	M3			014
											CC	M3			
		Valve Name SA - EDG AIR COMPRESSOR CHECK													
0-4699-309	SR	S	0.25	CK	SA	A	C	O/C	M-25-2	B-04	CC	M3			007
											CO	M3			007
		Valve Name SA - EDG AIR START RELAY VLV DIAPH CHECK													
0-4699-310-SO	SR	S	0.375	3W	SO	A	C	O/C	M-25-2	C-04	SD	M3			007
											SE	M3			007
		Valve Name SA - EDG AIR START SOLENOID													
1-4699-123	SR	C	1.5	CK	SA	A	C	O/C	M-25-2	E-06	CC	M3			
											CO	M3			
		Valve Name SA - EDG AIR RECEIVER TANK CHECK													
1-4699-196	SR	C	1.5	CK	SA	A	C	O/C	M-25-2	E-06	CC	M3			
											CO	M3			
		Valve Name SA - EDG AIR RECIEVER TANK CHECK													

Emergency Diesel Generator Starting Air (Page 2)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
1-4699-226-AO	SR	S	1.5	GA	AO	A	C	O/C	M-25-2	D-04	SC	M3			007
											SO	M3			007
		Valve Name	SA - EDG AIR START RELAY VLV												
1-4699-306A-RV	SR	C	0.75	RV	SA	A	C	O/C	M-25-2	E-08	RT	Y10			
		Valve Name	SA - EDG AIR RECEIVER TANK RELIEF VALVE												
1-4699-306B-RV	SR	C	0.75	RV	SA	A	C	O/C	M-25-2	E-07	RT	Y10			
		Valve Name	SA - EDG AIR RECEIVER TANK RELIEF VALVE												
1-4699-306C-RV	SR	C	0.75	RV	SA	A	C	O/C	M-25-2	E-06	RT	Y10			
		Valve Name	SA - EDG AIR RECEIVER TANK RELIEF VALVE												
1-4699-306D-RV	SR	C	0.75	RV	SA	A	C	O/C	M-25-2	E-05	RT	Y10			
		Valve Name	SA - EDG AIR RECEIVER TANK RELIEF VALVE												
1-4699-307A	SR	C	0.5	CK	SA	A	C	C	M-25-2	D-07	BDO	M3			014
											CC	M3			
		Valve Name	SA - EDG AIR COMPRESSOR CHECK												
1-4699-307B	SR	C	0.5	CK	SA	A	C	C	M-25-2	D-05	BDO	M3			014
											CC	M3			
		Valve Name	SA - EDG AIR COMPRESSOR CHECK												
1-4699-309	SR	S	0.25	CK	SA	A	C	O/C	M-25-2	E-04	CC	M3			007
											CO	M3			007
		Valve Name	SA - EDG AIR START RELAY VLV DIAPH CHECK												
1-4699-310-SO	SR	S	0.375	3W	SO	A	C	O/C	M-25-2	E-04	SD	M3			007
											SE	M3			007
		Valve Name	SA - EDG AIR START SOLENOID												
2-4699-123	SR	C	1.5	CK	SA	A	C	O/C	M-72-2	C-04	CC	M3			
											CO	M3			
		Valve Name	SA - EDG AIR RECIEVER TANK CHECK												
2-4699-196	SR	C	1.5	CK	SA	A	C	O/C	M-72-2	C-04	CC	M3			
											CO	M3			
		Valve Name	SA - EDG AIR RECIEVER TANK CHECK												
2-4699-226-AO	SR	S	1.5	GA	AO	A	C	O/C	M-72-2	D-08	SC	M3			007
											SO	M3			007
		Valve Name	SA - EDG AIR START RELAY VLV												
2-4699-306A-RV	SR	C	0.75	RV	SA	A	C	O/C	M-72-2	C-02	RT	Y10			
		Valve Name	SA - EDG AIR RECEIVER TANK RELIEF VALVE												
2-4699-306B-RV	SR	C	0.75	RV	SA	A	C	O/C	M-72-2	C-03	RT	Y10			
		Valve Name	SA - EDG AIR RECEIVER TANK RELIEF VALVE												

Emergency Diesel Generator Starting Air (Page 3)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
2-4699-306C-RV	SR	C	0.75	RV	SA	A	C	O/C	M-72-2	C-04	RT	Y10			
		Valve Name	SA - EDG AIR RECEIVER TANK RELIEF VALVE												
2-4699-306D-RV	SR	C	0.75	RV	SA	A	C	O/C	M-72-2	C-05	RT	Y10			
		Valve Name	SA - EDG AIR RECEIVER TANK RELIEF VALVE												
2-4699-307A	SR	C	0.5	CK	SA	A	C	C	M-72-2	E-03	BDO	M3			014
											CC	M3			
		Valve Name	SA - EDG AIR COMPRESSOR CHECK												
2-4699-307B	SR	C	0.5	CK	SA	A	C	C	M-72-2	E-05	BDO	M3			014
											CC	M3			
		Valve Name	SA - EDG AIR COMPRESSOR CHECK												
2-4699-309	SR	S	0.25	CK	SA	A	C	O/C	M-72-2	D-08	CC	M3			007
											CO	M3			007
		Valve Name	SA - EDG AIR START RELAY VLV DIAPH CHECK												
2-4699-310-SO	SR	S	0.375	3W	SO	A	C	O/C	M-72-2	C-07	SD	M3			007
											SE	M3			007
		Valve Name	SA - EDG AIR START SOLENOID												

Standby Liquid Control (Page 1)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
1-1101-001	2	B	1.5	GL	M	P	LO	O	M-40	D-01	PIC	Y2			
											PIO	Y2			
		Valve Name	SBLC-INJECTION LINE MANUAL ISOLATION VALVE												
1-1101-015	2	A/C	1.5	CK	SA	A	C	O/C	M-40	D-01	CCF	CM			
											COF	CM			
											LTJ	AJ			
		Valve Name	SBLC-INBOARD INJECTION LINE CHECK												
1-1101-016	2	A/C	1.5	CK	SA	A	C	O/C	M-40	D-02	CCF	CM			
											COF	CM			
											LTJ	AJ			
		Valve Name	SBLC-OUTBOARD INJECTION LINE CHECK												
1-1101-043A	2	B	1.5	CK	SA	A	C	O/C	M-40	D-04	CC	M3			
											CO	M3			
		Valve Name	SBLC-A PUMP DISCHARGE CHECK												
1-1101-043B	2	B	1.5	CK	SA	A	C	O/C	M-40	E-04	CC	M3			
											CO	M3			
		Valve Name	SBLC-B PUMP DISCHARGE CHECK												
1-1105A-RV	2	C	1	RV	SA	A	C	O/C	M-40	C-05	RT	Y10			
		Valve Name	SBLC-A PUMP DISCHARGE RELIEF VALVE												
1-1105B-RV	2	C	1	RV	SA	A	C	O/C	M-40	E-05	RT	Y10			
		Valve Name	SBLC-B PUMP DISCHARGE RELIEF VALVE												
1-1106A	2	D	1.5	SHR	EXP	A	CKL	O	M-40	E-03	DT	S2			
		Valve Name	SBLC-A EXPLOSIVE ACTUATED (SQUIB) VALVE												
1-1106B	2	D	1.5	SHR	EXP	A	CKL	O	M-40	F-03	DT	S2			
		Valve Name	SBLC-B EXPLOSIVE ACTUATED (SQUIB) VALVE												
2-1101-001	2	B	1.5	GL	M	P	LO	O	M-82	D-10	PIC	Y2			
											PIO	Y2			
		Valve Name	SBLC-INJECTION LINE MANUAL ISOLATION VALVE												
2-1101-015	2	A/C	1.5	CK	SA	A	C	O/C	M-82	D-10	CCF	CM			
											COF	CM			
											LTJ	AJ			
		Valve Name	SBLC-INBOARD INJECTION LINE CHECK												
2-1101-016	2	A/C	1.5	CK	SA	A	C	O/C	M-82	D-09	CCF	CM			
											COF	CM			
											LTJ	AJ			
		Valve Name	SBLC-OUTBOARD INJECTION LINE CHECK												

Standby Liquid Control (Page 2)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
2-1101-043A	2	B	1.5	CK	SA	A	C	O/C	M-82	D-07	CC	M3			
											CO	M3			
		Valve Name	SBLC-A PUMP DISCHARGE CHECK												
2-1101-043B	2	B	1.5	CK	SA	A	C	O/C	M-82	E-07	CC	M3			
											CO	M3			
		Valve Name	SBLC-B PUMP DISCHARGE CHECK												
2-1105A-RV	2	C	1	RV	SA	A	C	O/C	M-82	D-06	RT	Y10			
		Valve Name	SBLC-A PUMP DISCHARGE RELIEF VALVE												
2-1105B-RV	2	C	1	RV	SA	A	C	O/C	M-82	E-06	RT	Y10			
		Valve Name	SBLC-B PUMP DISCHARGE RELIEF VALVE												
2-1106A	2	D	1.5	SHR	EXP	A	CKL	O	M-82	F-08	DT	S2			
		Valve Name	SBLC-A EXPLOSIVE ACTUATED (SQUIB) VALVE												
2-1106B	2	D	1.5	SHR	EXP	A	CKL	O	M-82	F-08	DT	S2			
		Valve Name	SBLC-B EXPLOSIVE ACTUATED (SQUIB) VALVE												

Safe Shutdown Makeup (Page 1)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
0-2901-004	NS	C	4	CK	SA	A	C	O	M-70	D-06	CCD	CM			
											COF	CM			
		Valve Name SAFE SHUTDOWN MAKEUP PUMP DISCH CHECK													
0-2901-005	NS	C	4	CK	SA	A	C	O	M-70	E-03	CCD	CM			
											COF	CM			
		Valve Name SSMP-FULL FLOW TEST LINE CHECK													
0-2901-007-MO	NS	B	4	GL	MO	A	C	O/C	M-70	E-03	PIC	Y2			
											PIO	Y2			
											STC	M3			
											STO	M3			
		Valve Name SSMP-FULL FLOW TEST LINE TO CCST ISOL VALVE													
1-2901-008-MO	NS	B	4	GL	MO	A	C	O	M-70	E-02	PIC	Y2			
											PIO	Y2			
											STO	M3			
		Valve Name SSMP-INJECTION LINE ISOLATION VALVE													
1-2901-010	2	C	4	CK	SA	A	C	O/C	M-70	E-02	CCD	CM			
											COD	CM			
											COF	CM			
		Valve Name SSMP-INJECTION LINE CHECK													
2-2901-008-MO	NS	B	4	GL	MO	A	C	O	M-70	D-02	PIC	Y2			
											PIO	Y2			
											STO	M3			
		Valve Name SSMP-INJECTION LINE ISOLATION VALVE													
2-2901-010	2	C	4	CK	SA	A	C	O/C	M-70	D-02	CCD	CM			
											COD	CM			
											COF	CM			
		Valve Name SSMP-INJECTION LINE CHECK													

Control Room Ventilation (Page 1)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
0-5741-319A-AO	3	B	2.5	DIA	AO	A	C	O	M-725-3	F-08	FO	M3			013
											PIC	Y2			
											PIO	Y2			
											STO	M3			
		Valve Name CR HVAC-RHRSW SUPPLY VALVE													
0-5741-319B-AO	SR	B	3	DIA	AO	A	C	C	M-725-3	F-09	FC	M3			013
											PIC	Y2			
											PIO	Y2			
											STC	M3			
		Valve Name CR HVAC-NSR SERVICE WATER SUPPLY VALVE													
0-5741-333-FCV	3	B	3	DIA	AO	A	C	O	M-725-3	E-08	FO	M3			013
											STO	M3			
		Valve Name CR HVAC-COOLING WATER FLOW CONTROL VALVE													
0-5741-339-SO	SR	S	1.5	GA	SO	A	C	O	M-725-3	E-04	FO	M3			007, 013
											SO	M3			007
		Valve Name CR HVAC-TRAIN B RCU REFRIGERANT RETURN VALVE													
0-5741-345-RV	NS	C	2	RV	SA	A	C	O/C	M-725-3	D-07	RT	Y10			
		Valve Name CR HVAC-NSR SERVICE WATER DISCHARGE RELIEF VALVE													
0-5799-381	3	B	3	GL	M	A	C	O	M-725-3	E-08	EO	Y2			
		Valve Name CR HVAC-TRAIN B RCU HX SERV WTR FCV MANUAL BYPASS													
1-5799-386	3	C	2.5	CK	SA	A	C	O/C	M-725-3	G-08	CC	M3			
											CO	M3			
		Valve Name CR HVAC-RHRSW SUPPLY CHECK													
2-5799-386	3	C	2.5	CK	SA	A	C	O/C	M-725-3	F-09	CC	M3			
											CO	M3			
		Valve Name CR HVAC-RHRSW SUPPLY CHECK													

Standby Gas Treatment (Page 1)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
0-7504A-MO	SR	B	4	BTF	MO	A	O	O/C	M-44	E-04	PIC	Y2			
											PIO	Y2			
											STC	M3			
											STO	M3			
		Valve Name	SBGT-TURBINE BUILDING INLET												
0-7504B-MO	SR	B	4	BTF	MO	A	O	O/C	M-44	B-04	PIC	Y2			
											PIO	Y2			
											STC	M3			
											STO	M3			
		Valve Name	SBGT-TURBINE BUILDING INLET												
0-7505A-MO	SR	B	24	BTF	MO	A	C	O/C	M-44	F-03	PIC	Y2			
											PIO	Y2			
											STC	M3			
											STO	M3			
		Valve Name	SBGT-REACTOR BUILDING INLET AND ISOLATION VALVE												
0-7505B-MO	SR	B	24	BTF	MO	A	C	O/C	M-44	C-03	PIC	Y2			
											PIO	Y2			
											STC	M3			
											STO	M3			
		Valve Name	SBGT-REACTOR BUILDING INLET AND ISOLATION VALVE												
0-7507A-MO	SR	B	24	BTF	MO	A	C	O/C	M-44	E-09	PIC	Y2			
											PIO	Y2			
											STC	M3			
											STO	M3			
		Valve Name	SBGT-TRAIN SELECT AND OUTLET ISOLATION VALVE												
0-7507B-MO	SR	B	24	BTF	MO	A	C	O/C	M-44	B-09	PIC	Y2			
											PIO	Y2			
											STC	M3			
											STO	M3			
		Valve Name	SBGT-TRAIN SELECT AND OUTLET ISOLATION VALVE												
0-7509-MO	SR	B	24	BTF	MO	P	LO	O	M-44	C-08	PIC	Y2			
											PIO	Y2			
		Valve Name	SBGT-TRAIN CROSS-TIE VALVE												
0-7510A-AO	SR	B	16	BTF	AO	A	O	O	M-44	F-08	FO	M3			013
											STO	M3			
		Valve Name	SBGT-TRAIN FLOW CONTROL VALVE												

Standby Gas Treatment (Page 2)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
0-7510B-AO	SR	B	16	BTF	AO	A	O	O	M-44	C-08	FO	M3			013
											STO	M3			
		Valve Name	SBGT-TRAIN FLOW CONTROL VALVE												
1-7503-MO	SR	B	18	BTF	MO	A	O	O/C	M-44	C-01	PIC	Y2			
											PIO	Y2			
											STC	M3			
											STO	M3			
		Valve Name	SBGT-TRAIN INLET VALVE												
2-7503-MO	SR	B	18	BTF	MO	A	O	O/C	M-44	F-01	PIC	Y2			
											PIO	Y2			
											STC	M3			
											STO	M3			
		Valve Name	SBGT-TRAIN INLET VALVE												

Make-Up Demineralizer (Page 1)

Valve EPN	Safety Class	Category	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	P&ID	P&ID Coor.	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
1-4399-045	MC	A	3	GA	M	P	LC	C	M-58-4	E-05	LT	AJ			
		Valve Name	CLEAN DEMINERALIZED WATER CONTAINMENT ISOL VALVE												
1-4399-046	MC	A/C	3	CK	SA	A	C	C	M-58-4	E-05	CCF	CM			
											COF	CM			
											LTJ	AJ			
		Valve Name	CLEAN DEMINERALIZED WATER CONTAINMENT CHECK, PCIV												
2-4399-045	MC	A	3	GA	M	P	LC	C	M-58-4	C-04	LT	AJ			
		Valve Name	CLEAN DEMINERALIZED WATER CONTAINMENT ISOL VALVE												
2-4399-046	MC	A/C	4	CK	SA	A	C	C	M-58-4	C-04	CCF	CM			
											COF	CM			
											LTJ	AJ			
		Valve Name	CLEAN DEMINERALIZED WATER CONTAINMENT CHECK, PCIV												

4.18 Check Valve Condition Monitoring (CVCM) Plan Index

CVCM PLAN NUMBER	MONITORED VALVE GROUPING
CV-0-01	0301-122
CV-0-02	0302-026
CV-0-03	1001-143
CV-0-04	1301-027
CV-0-05	1301-047
CV-0-06	1399-102/103
CV-0-07	2301-039
CV-0-08	2301-040 & 2301-050
CV-0-09	2301-075
CV-0-10	2399-066/67 & 2399-064/65
CV-0-11	3999-085 & 3999-086
CV-0-12	1402-013
CV-0-13	2301-074
CV-0-14	2301-020
CV-0-15	1301-050
CV-0-16	0743
CV-0-17	1101-015/16
CV-0-18	1301-040
CV-0-19	1301-041
CV-0-20	1301-055
CV-0-21	1301-064
CV-0-22	2301-034
CV-0-23	2301-071
CV-0-24	2498-011-17
CV-0-25	2498-008-14
CV-0-26	2499-022
CV-0-27	2901-010
CV-0-28	3799-031
CV-1-29	4399-046-1
CV-2-30	4399-046-2
CV-0-31	4699-047
CV-0-32	4799-155/156
CV-0-33	4799-158/159
CV-2-34	4799-353/354
CV-0-35	2301-007
CV-0-36	2901-004
CV-0-37	2901-005
CV-0-38	1402-070/71-CL2
CV-0-39	2301-051
CV-0-40	1001-142
CV-0-41	2301-045
CV-0-42	1001-131
CV-0-43	0220-017/18
CV-0-44	0220-019-22
CV-0-45	0220-054
CV-0-46	0220-067
CV-0-47	0220-089
CV-0-48	0262-2-005/6
CV-0-49	0263-2-011-17
CV-0-50	0263-2-013-42
CV-0-51	0263-2-020-31

CVCM PLAN NUMBER	**MONITORED VALVE GROUPING**
CV-0-52	0263-2-025-33
CV-0-53	1301-015
CV-0-54	2301-026/27
CV-0-55	1402-031
CV-0-56	1301-063
CV-0-57	0220-105
CV-0-58	0220-059A
CV-0-59	0220-059B
CV-0-60	0220-058A/B & 0220-062A/B
CV-0-64	1001-185