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10CFR50.55a

TMI-09-101
August 14, 2009

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

Three Mile Island, Unit 1
Facility Operating License No. DPR-50
NRC Docket No. 50-289

Subject: Submittal of the Fourth Ten-Year Interval Inservice Testing Program, Revision 1

In accordance with Exelon Generation Company, LLC procedures, attached for your information is a copy of the Fourth Ten-Year Interval Inservice Testing (IST) Program, Revision 1, for Three Mile Island (TMI), Unit 1. Based on a start date of September 23, 2004, the TMI, Unit 1 IST Program complies with the requirements of the ASME Code for Operation and Maintenance of Nuclear Power Plants, 1998 Edition through 2000 Addenda. The fourth interval will conclude on September 22, 2014.

This copy of the program is being supplied for your information only.

There are no regulatory commitments contained within this letter.

If you have any questions or require additional information, please contact Tom Loomis (610-765-5510).

Sincerely,

D. A. Helker

David P. Helker
Manager - Licensing & Regulatory Affairs
Exelon Generation Company, LLC

Attachment: Three Mile Island, Unit 1 Fourth Ten-Year Interval Inservice Testing Program, Revision 1

cc: S. J. Collins, Regional Administrator, Region I, USNRC
D. M. Kern, USNRC Senior Resident Inspector, TMI
P. J. Bamford, Project Manager, USNRC

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ATTACHMENT

THREE MILE ISLAND, UNIT 1
FOURTH TEN-YEAR INTERVAL INSERVICE TESTING PROGRAM,
REVISION 1

TMI-IST-PLAN-INT4

Revision 1

Three Mile Island Unit #1

Inservice Testing Program
Fourth Ten-Year Interval

September 23, 2004 — September 22, 2014

Commercial Service Date:

September 2, 1974

Amergen Energy LLC
Three Mile Island Unit #1
Route 441 South
Middletown, Pennsylvania, 17057-0480

Prepared By: _____ **Date:** 7/27/2009
TMI IST Coordinator

Approved By: _____ **Date:** 7/28/09
TMI Engineering Programs Manager

REVISION LOG

Effective Date	Revision Description	Prepared: IST Coordinator	Date	Approved: Engineering Programs Manager	Date
10/21/04	4th Ten Year Interval, Revision 0. In compliance with the 1998 Edition through 2000 Addenda except where relief is requested. For check valve condition monitoring, this submittal is in compliance with the 2001 Edition through 2003 Addenda. (NOTE: This program plan includes references to all submitted relief requests. Approval of these relief requests is pending. This program plan will be submitted to the NRC following receipt of the relief request safety evaluation.)	/ s / Mark G. Fauber	10/21/04	/ s / Joe Marsden	10/22/04
03/03/05	Revision 0a. For check valve condition monitoring, this submittal is in compliance with the 1998 Edition through 2000 Addenda. Revision to correct error in reference to ASME code version for check valve condition monitoring.	/ s / Mark G. Fauber	03/03/05	/ s / Len Rajkowski	10/25/06
05/23/07	Revision 0b. Revised Section 1.2 and Tech Position TP-01 to reflect this submittal is in compliance with the 1998 Edition through 2000 Addenda. Revision to correct error in reference to ASME code version for check valve condition monitoring.	/ s / Mark G. Fauber	05/23/07	/ s / Tom Geyer	05/23/07

10/10/07	Revision 0c. Added NS-V-85 to the program (see IR-631757-40 for details).	/ s / Mark G. Fauber	10/10/07	/ s / Tom Geyer	10/10/07
01/17/08	Revision 0d. Revised for grammatical and editorial changes identified under IR-652440, assignment 08	/ s / Mark G. Fauber	01/17/08	/ s / Tom Geyer	01/17/08
02/27/08	Revision 0e. Revised for editorial changes identified under IR-546148, assignments 30 and 41	/ s / Mark G. Fauber	02/27/08	/ s / Tom Geyer	02/27/08
07/27/2009	Revision 1. Formal revision to incorporate the previous interim changes and the following additional updates: • Relief Request PR-02 revision, which includes addition of the Qa test (Group A) to NR-P-1A/B/C, and NRC Disposition of all Relief requests • Clarification that the NR/DR/RR vacuum breakers are check valves and addition of Tech Position 13 • Crediting quarterly OPEN check of NR-V-20A/B/C for design flow, and elimination of RJ-16. • Correcting DH-V-37 category to 'C' since no leakage criteria applies • Elimination of DH-V-1 'Closed' function • Addition of CH-V-22A/B to IST scope • Enhancement of the following Cold Shutdown Justifications: CSJ-06,-07,-08,-09,-11,-12,-13. • Removal of NS-V-108A/B from IST scope. (System modified to remove valves.) • Removal of BS-V-1A/B from IST scope. (NaOH tank abandoned and isolated)	Robert Masoero	07/27/09	Tom Geyer	07/27/09

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1.0 INTRODUCTION

1.1 Purpose

To provide requirements for the performance and administration of assessing the operational readiness of those pumps and valves whose specific functions are required to:

- Shutdown the reactor to the safe shutdown condition,
- Maintain the safe shutdown condition, or
- To mitigate the consequences of an accident.

Three Mile Island Unit 1 was designed and licensed to operate with the Hot Shutdown condition defined as the "safe" shutdown condition [UFSAR Appendix 6B, 2.3.2.1]. Components and systems necessary to achieve Cold Shutdown may not be safety-related or subject to quality assurance requirements. Such components are not credited to achieve "safe" shutdown in the plant safety analyses.

1.2 Scope

The program plan was prepared to document compliance with the requirements of the following subsections of the American Society of Mechanical Engineers (ASME) OM Code (1998 Edition through 2000 Addenda)".

- Subsection ISTA, "*General Requirements*"

  ISTA contains the requirements directly applicable to inservice testing including the Owner's Responsibility and Records Requirements.

- Subsection ISTB, "*Inservice Testing of Pumps in Light-Water Reactor Nuclear Power Plants*"

  Establishes the requirements for inservice testing of pumps in light-water reactor nuclear power plants. The pumps covered are those provided with an emergency power source, that are required in shutting down a reactor to the safe shutdown condition, in maintaining the safe shutdown condition, or in mitigating the consequences of an accident. These pumps are either centrifugal or positive displacement type pumps.

- Subsection ISTC, "*Inservice Testing of Valves in Light-Water Reactor Nuclear Power Plants*"

  Establishes the requirements for inservice testing of valves in light-water reactor nuclear power plants. The valves covered include, but are not limited to, those which provide overpressure protection and are required to perform a specific function. Included are active valves (a change of valve obturator position is required to perform their safety function). Also included are passive valves (no change in valve obturator position is required in shutting down a reactor to the safe shutdown condition, in maintaining the safe shutdown condition, or in mitigating the consequences of an accident.

- Mandatory Appendix I, *"Inservice Testing of Pressure Relief Devices in Light-Water Reactor Nuclear Power Plants"*

  Provides the requirements for performance testing and monitoring of nuclear plant pressure relief devices. Methods, intervals, and record requirements for monitoring and testing are established, as well as guidelines for the evaluation of results. The valves covered include, but are not limited to, those which provide overpressure protection and are required to perform a specific function. Included are active valves (a change of valve obturator position is required to perform their safety function).

- Mandatory Appendix II, *"Check Valve Condition Monitoring Program"*

  Provides an alternative to the testing or examination requirements of ISTC-3500 through ISTC-5221. The purpose of this program is both to improve valve performance and to optimize testing, examination, and preventive maintenance activities in order to maintain the continued acceptable performance of a select group of check valves.

The Three Mile Island Unit #1 fourth 120-month interval Pump and Valve Inservice Testing Plan will be in effect as follows:

	Begin	End
Unit	9/23/04	9/22/14

This plan will be updated as required in accordance with 10CFR50.55a(f).

This program plan provides a complete listing of those pumps and valves included in the program per the requirements of:

- ISTA *"General Requirements,"*
- ISTB *"Inservice Testing of Pumps in Light-Water Reactor Nuclear Power Plants"*
- ISTC *"Inservice Testing of Valves in Light-Water Reactor Nuclear Power Plants"*
- Mandatory Appendix I, *"Inservice Testing of Pressure Relief Devices in Light-Water Reactor Nuclear Power Plants"*
- Mandatory Appendix II, *"Check Valve Condition Monitoring Program"*

The key features of this Plan are: the Pump and Valve table listings, Relief Requests, Refueling Outage Justifications, Cold Shutdown Justifications, and Technical Positions. The Three Mile Island Nuclear Station Inservice Testing Basis Document includes the justification for inclusion of components in the scope of IST and also the justifications for exclusion from the program. Administrative procedures, surveillance testing procedures, and other records required to define and execute the Inservice Testing Program are all retained and available at Three Mile Island Unit #1.

2.0 INSERVICE TESTING PLAN FOR PUMPS

2.1 Pump Inservice Testing Plan Description

The Inservice Testing Plan for Pumps documents compliance with the requirements of Subsection ISTB of the ASME OM Code except where relief has been granted by the NRC. Relief requests for pumps in the TMI IST Program are provided in Attachment 3.

2.2 Pump Plan Table Description

The pumps included in the Three Mile Island Unit #1 IST Plan are listed in Attachment 12. The information contained in these tables identifies those pumps to be tested to the requirements of the ASME OM Code, the testing parameters and frequencies, and associated relief requests. The headings for the pump tables are delineated below.

Pump Tag — Unique pump identification number.

Safety Class — ASME Code classification of the pump.

1	Class 1
2	Class 2
3	Class 3
SR	Non-Code, Safety Related
NS	Non-Safety Related

Pump Type — Type of pump.

C	Centrifugal
V	Vertical
PD	Positive Displacement

Pump Driver — Pump driver type.

M	Motor driven
ST	Steam turbine driven
E	Engine Driven

Nominal Speed — Pump speed for variable speed pumps only.

P&ID — Piping and Instrumentation Drawing Flow Diagram on which the pump is represented.

P&ID Coor. — The P&ID Coordinate location of the pump.

Category — Pump group as defined in ISTB-2000.

Group A	Continuous or routinely operated pumps
Group B	Standby pumps not operated routinely except for testing

2.2 Pump Plan Table Description (Cont'd)

Test Type

Measured pump test parameters.

N	Speed
DP	Differential Pressure
Q	Flow Rate
V	Vibration

a - Denotes a Category A Pump Test
b - Denotes a Category B Pump Test
c - Denotes a Comprehensive Pump Test

Test Freq.

Frequency for performing the specified inservice test.

M3	Quarterly (92 Days)
CS	Cold Shutdown
Y2	Biennially (2 Years)

Relief Request

A relief request number is listed when a specific code requirement is determined to be impracticable. Attachment 2 contains an index of all the relief requests included in Attachment 3.

Tech. Pos.

A technical position number is listed when the requirements of the code are not easily interpreted and clarifying information is needed. The technical position is used to document how Code requirements are being implemented at the station. Technical Positions are prefixed with "TP". Attachment 10 contains an index of all the Station Technical Positions included in Attachment 11.

Pump Name

Descriptive name of the pump.

3.0 INSERVICE TESTING PLAN FOR VALVES

3.1 Valve Inservice Testing Plan Description

The Inservice Testing Plan for Valves documents compliance with the requirements of Subsection ISTC of the ASME OM Code except where relief has been granted by the NRC. Relief requests for valves in the TMI IST Program are provided in Attachment 5.

Where the quarterly exercise testing requirements for various valves have been determined to be impracticable, Cold Shutdown or Refuel Outage Justifications have been identified and written. These justifications are provided in Attachments 7 and 9 respectively.

3.2 Valve Plan Table Description

The valves included in the Three Mile Island Unit #1 IST Plan are listed in Attachment 13. The headings for the valve tables are delineated below.

Valve No. — A unique identifier for the valve.

P&ID — Piping and Instrumentation Drawing Flow Diagram on which the valve is represented.

P&ID Coor. — The P&ID Coordinate location of the valve.

Safety Class — The ASME Class abbreviation.

1	Class 1
2	Class 2
3	Class 3
SR	Non-Code, Safety Related
NS	Non-Safety Related

Cat. — The ASME OM Code category (or categories) as defined in ISTC-1300.

A	Seat Leakage Limited.
B	Seat Leakage Not Required.
C	Self-Actuating Valves.
D	Single Use Valves.
A/C	Both Categories A and C.
B/C	Both Categories B and C.

Size — The nominal pipe size of the valve, in inches.

3.2 Valve Plan Table Description (Cont'd)

Valve Type — The valve body style abbreviation.

ANG	Angle Valve
BAL	Ball Valve
BTF	Butterfly Valve
CK	Check Valve
DIA	Diaphragm Valve
GA	Gate Valve
GL	Globe Valve
NDL	Needle Valve
PLG	Plug Valve
RV	Relief Valve
SCK	Stop Check Valve
3W	3-Way Valve
XFC	Excess Flow Check

Act. Type — The valve actuator type abbreviation.

AO	Air Operator
HO	Hydraulic Operator
M	Manual
MO	Motor Operator
SA	Self-Actuating
SO	Solenoid Operator

Active/Passive — Active or Passive classification for the valve in accordance with ISTC-2000.

A	Active
P	Passive

Normal Position — The normal position abbreviation. The valve position during normal power operation. If the system does not operate during power operation, then the normal position is the position of the valve when the system is not operating.

C	Closed
LC	Locked Closed
O	Open
LO	Locked Open
SYS	System Condition Dependent
T	Throttled

3.2 Valve Plan Table Description (Cont'd)

Safety Position

The safety function position(s). For valves that perform safety functions in the open and closed positions more than one safety function position may be specified.

C	Closed
O	Open
O/C	Open and Closed
T	Throttled

Failsafe Position

The fail position for valves with fail-safe actuators

AI	As-Is for valves without fail-safe actuators
C	Closed
O	Open

Test Type

The test type abbreviation.

LTJ	Seat Leakage Rate Test (low pressure air– Appendix J)
LTH	Seat Leakage Rate Test (high pressure water)
LTO	Leakage Test (Other)
SC	Exercise Test Closed
SO	Exercise Test Open
CC	Exercise Test Closed – Check Valve[1]
CO	Exercise Test Open – Check Valve[1]
CP	Partial Exercise Test – Check Valve[1]
FC	Fail Safe Test Closed
FO	Fail Safe Test Open
PI	Position Indication Test
SP	Partial Exercise – Category A and B valves
RT	Relief Valve Test

[1] Three letter designations may be used for check valve condition monitoring tests to differentiate between the various methods of exercising check valves. The letter following "CC", "CO", or "CP" should be "A" for acoustics, "D" for disassembly and examination, "F" for flow indication, "M" for magnetics, "R" for radiography, "U" for ultrasonics, "X" for manual exercise, or "L" for Leakage.

Test Freq.

The test frequency abbreviation.

AJ	Appendix J frequency
CM	Condition Monitoring[1]
CS	Cold Shutdown
M3	Quarterly
OP	Operating Activities[2]
RR	Refueling Outage
YX	X Years (X = 1,2,..., 10)

[1]Frequency is as indicated in respective Condition Monitoring Plan for that valve group.
[2]Satisfied in accordance with IST Program Technical Position, TP-01, "Bi-directional Testing of Check Valves".

3.2 Valve Plan Table Description (Cont'd)

Relief Request

A relief request number is listed when a specific code requirement is determined to be impracticable. Attachment 4 contains an index of all the relief requests included in Attachment 5.

Deferred Just.

Deferred Test Justification. This section refers to Cold Shutdown Justifications and Refueling Outage Justifications.

A Cold Shutdown Justification number is listed when the testing frequency coincides with Cold Shutdowns instead of being performed quarterly. Cold Shutdown Justification numbers for valves are prefixed with "CSJ". Attachment 6 contains an index of all the Cold Shutdown Justifications included in Attachment 7.

A Refueling Justification number is listed when the testing frequency coincides with Refueling Justification instead of being performed quarterly or during Cold Shutdowns. Refueling Justification numbers for valves are prefixed with "RJ". Attachment 8 contains an index of all the Refueling Justifications included in Attachment 9.

Tech. Pos.

A technical position number is listed when the requirements of the code are not easily interpreted and clarifying information is needed. The technical position is used to document how Code requirements are being implemented at the station. Technical Positions are prefixed with "TP". Attachment 10 contains an index of all the Station Technical Positions included in Attachment 11.

4.0 ATTACHMENTS:

Attachment 1
System and P&ID Listing

Attachment 2
Pump Relief Request Index

Attachment 3
Pump Relief Requests

Attachment 4
Valve Relief Request Index

Attachment 5
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Station Technical Positions

Attachment 12
Inservice Testing Pump Table

Attachment 13
Inservice Testing Valve Table

ATTACHMENT 1

SYSTEM AND P&ID LISTING

System	System Name	P&ID
AH	Reactor Building Purge	302-831, 847
BS	Reactor Building Spray	302-712
CA	Reactor Plant Chemical Addition	302-671
CF	Core Flood	302-711
CH	Control Building Chilled Water	302-847
CM	Containment Monitoring	302-721
CO	Condensate	302-101
DC	Decay Heat Closed Cycle Cooling Water	302-645
DF	Emergency Diesel Generators Fuel Systems	302-283, 351
DH	Decay Heat Removal	302-640
DR	Decay Heat River Water	302-202, 645
EF/AS	Emergency Feedwater/Auxiliary Steam	302-011, 082, 611
EG	Emergency Diesel Generator Support Systems	302-351, 353, 354
FS	Fire Service Water	302-231
FW	Main Feedwater	302-081
HM	Containment Hydrogen Monitoring	302-674
HP	Hydrogen Purge Discharge	302-721
HR	Post LOCA Hydrogen Recombiner	302-722
IA	Instrument Air	302-271, 273
IC	Intermediate Closed Cooling Water	302-620
MS	Main Steam	302-011
MU	Makeup & Purification	302-660, 661
NI	Nuclear Plant Nitrogen Supply	302-720
NR	Nuclear Services River Water	302-202
NS	Nuclear Services Closed Cooling Water	302-610, 645
PP	Penetration Pressurization	302-706
RB/RR	Reactor Building Emergency Cooling Water/Reactor River	302-611
RC	Reactor Coolant	302-650
SA	Station Service Air	302-271
SF	Spent Fuel Pool Cooling	302-630
WDG	Gaseous Waste Disposal	302-694
WDL	Liquid Waste Disposal	302-196, 690

ATTACHMENT 2

PUMP RELIEF REQUEST INDEX

(Page 1 of 1)

Relief Request No.	Description	NRC Approval Date
PR-01	Nuclear Service River Water Flow Rate Measurement During Group A Tests	Not Approved
PR-02	Nuclear Service Closed Cooling Water Flow Rate Measurement During Group A Tests	07/07/2005
PR-03	Turbine-Driven Emergency Feedwater Pump Comprehensive Pump Testing Requirements	Not Approved (not required)
PR-04	Categorization of Decay Heat Removal Pumps as Group B (Power Operation) and Group A (Shutdown)	07/07/2005

ATTACHMENT 3

PUMP RELIEF REQUESTS

10 CFR 50.55a Request Number PR-01

Relief

In accordance with 10 CFR 50.55a(f)(5)(iii) and 10CFR50.55a(a)(3)(i)

1. ASME Code Component(s) Affected

NR-P1A	Nuclear Service River Water Pump A
NR-P1B	Nuclear Service River Water Pump B
NR-P1C	Nuclear Service River Water Pump C

2. Applicable Code Edition and Addenda

ASME OM Code 1998 Edition through 2000 Addenda

3. Applicable Code Requirement(s)

ISTB-5221(b) Group A Test Procedure – The resistance of the system shall be varied until the flow rate equals the reference point.....Alternatively, the flow rate shall be varied until the differential pressure equals the reference point.

ISTB-3400 Frequency of Inservice Tests – An inservice test shall be run on each pump as specified in Table ISTB-3400-1. Table ISTB-3400-1 requires a comprehensive pump test to be performed biennially for Group A pumps.

4. Reason for Request

Pursuant to 10 CFR 50.55a(f)(5)(iii), relief is requested from the requirements of ASME OM Code ISTB-5221(b) and ISTB Table ISTB-3400-1. Due to system design and plant operating requirements, individual pump flow rate cannot be measured during the Group A test as required by ISTB-5221(b).

The flow instrumentation for this system is located in the common discharge header for all three of the subject pumps. The piping configuration does not contain, nor would the system design permit the installation of accurate individual pump flow measuring devices due to the turbulence caused by the valving, strainer and elbow configuration on the discharge of the pumps. TMI has investigated individual annubar instrumentation for this configuration; however, the accuracy and repeatability of using individual annubar instrumentation has not produced results to meet IST instrument requirements.

Since the refueling cycle for Three Mile Island is nominally two years, a situation may exist where the plant may be required to shut down in order to perform the biennial Comprehensive Pump Test on the subject pumps. In the event of an extended intermediate outage, the biennial frequency (once every two years) may be exceeded. Therefore, an alternative is also requested in accordance with 10CFR50.55a(a)(3)(i) to perform the comprehensive pump test on a refueling outage frequency, which will avoid the potential for an unnecessary plant shutdown while testing to a biennial frequency.

The TMI Technical Specifications define Refueling Outage Interval as 24 months. Additionally, Technical Specification 1.25 provides an interval extension of 25% for cycle lengths, which exceed the 24 months. Therefore, the proposed alternative will be similar to the TMI Technical Specifications.

5. Proposed Alternative and Basis for Use

The Nuclear Services River Water Pumps are tested each quarter (see Attachment 1 diagram). The quarterly surveillance is currently performed with two pumps in operation. During the quarterly test, the differential pressure is throttled to the reference value for each pump combination. Vibration data on the motor is recorded and compared to the reference values. Vibration is recorded on the motor bearing in the Horizontal, Vertical and Axial directions. Any deviation from the reference value is compared to the Code acceptance criteria. As expected with vertical line shaft pumps, the vibration measurements recorded have been relatively low and consistent. Therefore, this testing method provides an acceptable level in quality and safety for determining pump performance.

The Nuclear Services River Water Pumps are also tested each refueling outage. During this test, the system is throttled to obtain the reference flow rate (6000 gpm) with a single pump in operation. The pump differential pressure and vibration levels are measured and compared to their reference values. Any deviations from the reference values are compared to the Code acceptance criteria. Therefore, the testing method described above provides an acceptable level in quality and safety for determining pump performance.

As a proposed alternative:

a. TMI will continue to perform quarterly pump testing using a modified Group A test procedure. With two pumps in service, the required group A test parameters will be measured except for flow rate. During this test the differential pressure will be throttled to the reference value. Vibration measurements will then be recorded and compared to their reference values. Deviations from the reference value will be compared with the ranges specified in Table ISTB-5200-1 for Group A tests. Corrective actions will be taken in accordance with ISTB-6200.

b. Each of the subject pumps will be tested individually in accordance with ISTB-5223, Comprehensive Test Procedure during refueling outages.

c. During testing of the subject pumps (quarterly and refueling), TMI will perform full spectrum vibration analysis, which is done above the Code required vibration testing.

d. The comprehensive pump test will be performed on a refueling outage frequency, which will avoid the potential for an unnecessary plant shutdown while testing to a biennial frequency.

Using the provisions of this relief request as an alternative to the specific requirements of ISTB 5221 and Table 3400-1 identified above will provide an acceptable level of quality and safety.

6. Duration of Proposed Alternative

This proposed alternative will be utilized for the 4th 120 month interval.

7. Precedents

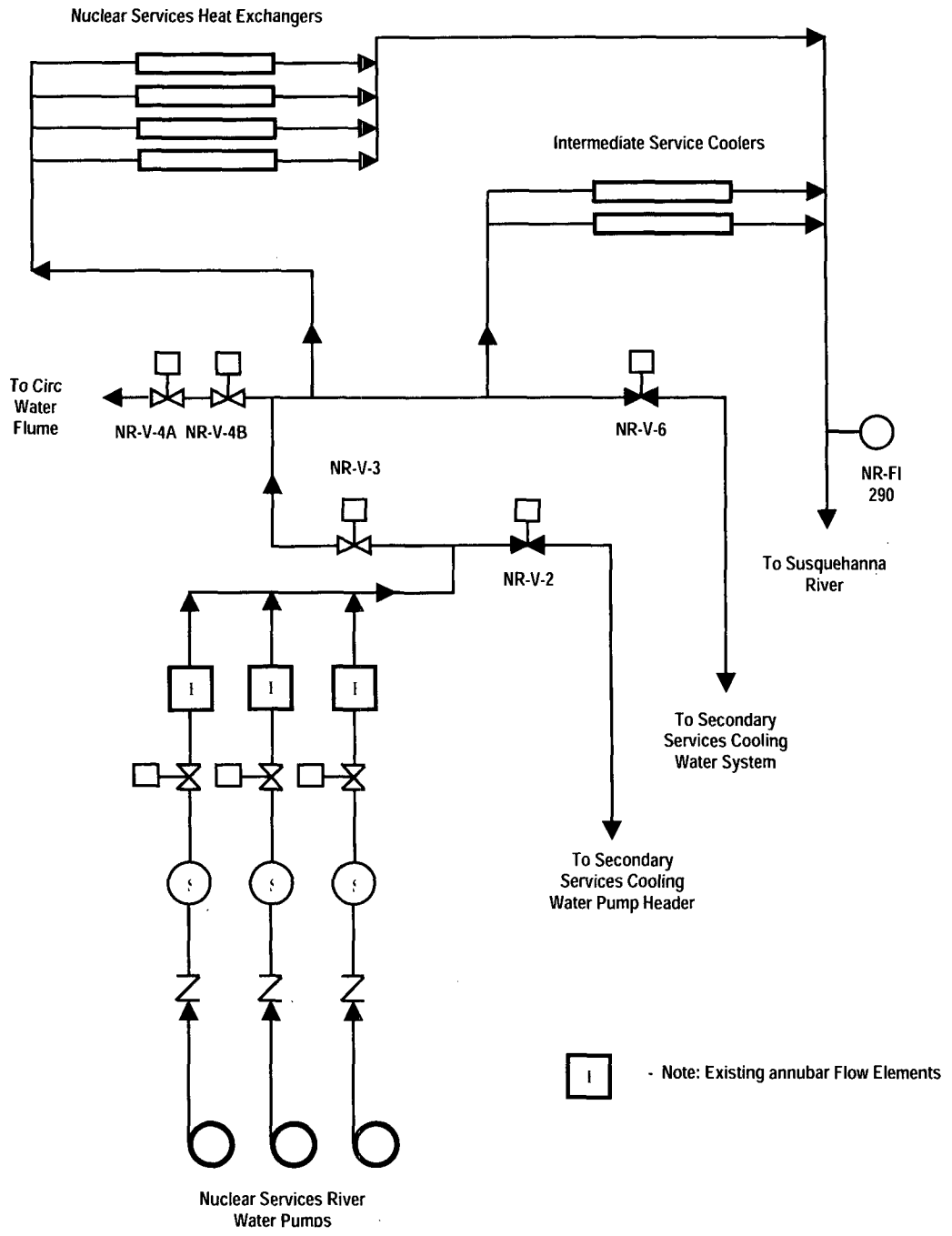
This relief request was previously approved for a similar request in third ten-year interval at Three Mile Island as P 3.

8. NRC Disposition

The NRC staff did not find the proposed alternative acceptable, because the measured ΔP even for a severe degraded pump could be adjusted to meet the predetermined ΔP value by varying the system resistance. Therefore, to assess pump hydraulic performance degradation, an additional variable, such as flow rate must be determined and compared to its reference value. During a conference call on April 8, 2004, the NRC staff discussed the concern with cognizant Engineering and Regulatory Affairs personnel for TMI, who indicated that additional information for relief request PR-01 may be submitted at a later date. The NRC staff has not approved PR-01, and TMI is performing Group A testing of NR-P-1A/B/C, with ΔP and flow being determined for each pump.

10 CFR 50.55a Request Number PR-01

Attachment 1 - Nuclear Services River Water System Diagram



10 CFR 50.55a Request Number PR-02

Relief

In accordance with 10 CFR 50.55a(f)(5)(iii) and 10CFR50.55a(a)(3)(i)

1. ASME Code Component(s) Affected

NS-P-1A	Nuclear Services Closed Cooling Water Pump 1A
NS-P-1B	Nuclear Services Closed Cooling Water Pump 1B
NS-P-1C	Nuclear Services Closed Cooling Water Pump 1C

2. Applicable Code Edition and Addenda

ASME OM Code 1998 Edition through 2000 Addenda

3. Applicable Code Requirement

ISTB-5121(b) - "Group A Test Procedure" – The resistance of the system shall be varied until the flow rate equals the reference point.....Alternatively, the flow rate shall be varied until the differential pressure equals the reference point.

ISTB-3400 - "Frequency of Inservice Tests" – An inservice test shall be run on each pump as specified in Table ISTB-3400-1. Table ISTB-3400-1 requires a comprehensive pump test to be performed biennially for Group A pumps.

4. Reason for Request

Pursuant to 10 CFR 50.55a(f)(5)(iii), relief is requested from the requirement of ASME OM Code ISTB-5121(b) and ISTB Table ISTB-3400-1.

Due to system design and plant operating requirements, it is not practical to reduce the number of pumps in service to one to allow for single-pump testing during power operation as required by ISTB-5121(b). Also, individual pump flow rates cannot be measured during the Group A test. The flow instrumentation for this system is located in the common discharge header for all three of the subject pumps. The piping configuration does not contain, nor would the system design permit the installation of accurate individual pump flow measuring devices due to the turbulence caused by the valving and elbow configuration on the discharge of the pumps.

There were no provisions originally designed in the system to measure individual pump flowrate. Individual suction and discharge pressure gauges are installed at each pump, allowing for measurement of differential pressure for inservice testing. A flow instrument is installed in the common discharge header.

Since the refueling cycle for Three Mile Island is nominally two years, a situation may exist where the plant may be required to shut down in order to perform the biennial Comprehensive Pump Test on the subject pumps. In the event of an extended intermediate outage, the biennial frequency (once every two years)

may be exceeded. Therefore, an alternative is requested in accordance with 10CFR50.55a(a)(3)(i) to perform the comprehensive pump test on a refueling outage frequency, which will avoid the potential for an unnecessary plant shutdown while testing to a biennial frequency.

The TMI Technical Specifications define Refueling Outage Interval as 24 months. Additionally, Technical Specification 1.25 provides an interval extension of 25% for cycle lengths, which exceed the 24 months. Therefore, the proposed alternative will be similar to the TMI Technical Specifications.

5. Proposed Alternative and Basis for Use

Individual pump flow cannot be measured during normal quarterly operations since individual flow instrumentation does not exist. Also, two pumps are normally required to be inservice to provide adequate cooling for system components. The current testing methodology of testing paired-combinations of pumps near two-pump design flowrate provides an adequate basis for identifying and evaluating degraded pump performance.

To comply with the ISTB requirement for measuring individual pump flow rates on a quarterly basis, a modification of the system would be required.

The proposed test would test NSCCW pumps in pump pairs. As stated previously, individual pump flow cannot be measured during quarterly operations since individual flow instrumentation does not exist. Also, two (2) pumps are normally required to be inservice to provide adequate cooling for system components. The NSCCW pumps are centrifugal pumps (not vertical line shaft). The current quarterly inservice test tests all combination of paired-pumps (A-B, B-C, A-C). During these tests, pump dP [differential pressure] is set and combined pump flow rate is measured.

Individual pump flow rates will be calculated and compared against individual pump flow rate reference values. Corrective actions will be taken in accordance with ISTB-6200 in the event that these criteria are not met. The pumps will continue to be tested individually in accordance with ISTB-5123, Comprehensive Test Procedure, during refueling outages.

Additionally, vibration data on the pump will be recorded and compared to the reference values. Any deviation from the reference value will compared to the Code acceptance criteria. Therefore, this testing method provides an acceptable level in quality and safety for determining pump performance.

Proposed alternatives:

a. TMI will continue to perform quarterly testing using a modified Group A test procedure as described above. With two paired-pumps in service, the required group A test parameters will be measured except for individual pump flow rate. Individual pump flow rates will be calculated and compared against calculated individual pump flow rate reference values. During this test the differential pressure for each pump will be throttled to the reference value.

Vibration measurements will then be recorded and compared to their reference values. Deviations from the reference value will be compared with the ranges specified in Table ISTB-5200-1 for Group A tests. Corrective actions will be taken in accordance with ISTB-6200.

b. Each of the subject pumps will be tested individually in accordance with ISTB-5123, Comprehensive Test Procedure during refueling outages.

c. During testing of the subject pumps (quarterly and refueling), TMI will perform full spectrum vibration analysis, which is above Code required vibration testing.

d. The comprehensive pump test will be performed on a refueling outage frequency, which will avoid the potential for an unnecessary plant shutdown while testing to a biennial frequency.

Using the provisions of this relief request as an alternative to the specific requirements of ISTB-5121 and Table ISTB-3400-1 will provide an acceptable level of quality and safety.

6. Duration of Proposed Alternative

This proposed alternative will be utilized for the 4th 120 month interval.

7. Precedents

A similar relief request was approved for TMI in the second ten-year interval at Three Mile Island as 2.6, as documented in the U. S. Nuclear Regulatory Commissions Safety Evaluation Report dated October 3, 1986.

A similar relief was also submitted for the third interval in correspondence to the U. S. Nuclear Regulatory Commission dated September 24, 2003 and March 10, 2004 for the third interval.

8. NRC Disposition

The NRC staff finds that the method of calculating the individual flow rate from three paired-pump tests (A-B, B-C, A-C) provides equally acceptable results of flow rates for each affected pump as opposed to individually measured flow rates. On the basis that direct measurements of the individual pump flow rate is not practical, and that the quarterly Group A test is primarily a qualitative test to detect gross mechanical or hydraulic failures, the staff concludes that the proposed alternative of detecting gross hydraulic failure using the calculated flow rates for quarterly tests provides reasonable assurance of pump operability.

Furthermore, because the individual pump flow rates could not be measured accurately during operation, the CPT for the affected pumps can only be performed during a plant shutdown or refueling outage. As defined in the Technical Specifications (TSs), the refueling cycle for TMI-1 is nominally two years (24 months). However, TMI-1 TS 1.25 allows a 25% maximum frequency

extension for operational considerations that also applies to the refueling intervals. To comply with the biennial test requirement, a situation such as an extended intermediate outage may exist where the plant is required to shut down in order to perform the CPT on the affected pumps. As such, the licensee proposes to perform the CPT each refueling outage. The proposed refueling test frequency may cause the CPT test interval to exceed 2 years during certain extended outages, but the increase would not be detrimental to the pump's operational readiness (25%) and is consistent with the TMI-1 TSs. Therefore, the NRC staff finds that the proposed alternative provides an acceptable level of quality and safety for the subject pumps.

10 CFR 50.55a Request Number PR-03

Proposed Alternative
In Accordance with 10 CFR 50.55a(a)(3)(i)

Alternative Provides Acceptable Level of Quality and Safety

1. ASME Code Component(s) Affected

   EF-P-1 Turbine Driven Emergency Feedwater Pump

2. Applicable Code Edition and Addenda

   ASME OM Code 1998 Edition through 2000 Addenda

3. Applicable Code Requirement

   ISTB-3300(e)(1) – Reference values shall be established within +/- 20% of pump design flow rate for the comprehensive test.

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 ISTB-3300(e)(1). The basis of the relief request is that the proposed alternative would provide an acceptable level of quality and safety. Specifically, relief is requested from ISTB-3300(e)(1) in meeting the specified +/- 20% of design flow (736 gpm [920 gpm x 80%]) during the comprehensive pump testing. The specified +/- 20% of pump design flow rate can not be achieved for the subject pump during normal quarterly Group B testing or during Comprehensive testing without introducing large volumes of highly oxygenated water into the once-through-steam generators which increases the potential for corrosion of the steam generators. The design flow rate of the turbine driven Emergency Feedwater Pump is 920 gpm at 2750 feet of developed head (see Attachment 1).

   This relief is intended to provide an alternative to supplying a large volume of highly oxygenated water into the Once-Through-Steam Generators (OTSGs), which increases the potential for corrosion of the steam generators.

5. Proposed Alternative and Basis for Use

   Historically, the pump testing methodology has adequately measured pump performance, as demonstrated below. The current refuel testing procedure tests flow through one (of two) fully-open control valves to the OTSG. Figures 1 and 2 provide a simplified diagram of the EFW system flowpath and steam supply to EF-P-1. During refueling interval testing of EF-P-1, the pump is tested individually by injecting water from the condensate storage tanks into a OTSG. The OTSG is depressurized during this test. Flow to the steam generator is throttled until total flow delivered to the OTSG is at least the minimum accident-required flow rate of 290 GPM at a minimum pump head of 1165 PSIG. These testing requirements

were submitted in response to a request for additional information related to TMI, Unit 1 technical specification change request number 279 (Core Protection Safety Limit, 20% tube plugging), in a letter dated May 21, 1999, and found to be acceptable.

During this test, flow is also set at approximately 500 gpm and the differential pressure is measured. Differential pressure data at 500 gpm from the last three refueling outage tests is presented in Attachment 2, EF-P-1 Test Data. This data has been speed corrected to 3800 rpm using pump laws for variable speed pumps with constant impeller diameter and plotted against the original manufacturers curve. Additionally, recent quarterly test data points are also presented on this attachment. It can be seen that the pump is operating at or near the original manufacturers curve for both the quarterly and refueling outage tests. Additionally, vibration data collected during the inservice tests has never exceeded 2.5 times the reference values or the 0.325 in/sec absolute value specified by ISTB.

Preoperational startup test data from 1974 is plotted against the original manufacturers curve in Attachment 3. Additionally, during TMI's 12R refueling outage, an EF-P-1 flow capacity test was performed. The data from 12R is also plotted against the original manufacturers curve in Attachment 3. This data closely matches the preoperational data and the manufacturers curve. As expected for a standby pump, the EF-P-1 pump has not degraded.

This relief will minimize the volume of fluid introduced from the condensate storage tanks into the Once-Through Steam Generators (OTSGs), thus minimizing the potential for corrosion of the OTSGs (specifically the tubes). Specifically, administrative controls are in place to minimize the amount of dissolved oxygen in the OTSGs. The inventory used during the testing of EF-P-1 originates in condensate storage tanks. These tanks are vented to the atmosphere and normally have a dissolved oxygen concentration between 6,000 ppb and 7,000 ppb.

During lay-up, dissolved oxygen concentrations in the OTSGs are normally maintained less than 100 ppb to minimize the potential for corrosion of the steam generator. Secondary chemistry controls require the steam generator volume to have a dissolved oxygen concentration below this level. To minimize the impact of this highly oxygenated water injected into the OTSGs (under non-emergency conditions), a number of steps are taken.

To reduce the dissolved oxygen concentration in the condensate storage tanks, a nitrogen tanker truck is specially staged in order to sparge dissolved oxygen from the tank water. Large volumes of nitrogen are injected just prior to the testing of all three emergency feedwater pumps. This normally reduces the dissolved oxygen concentration to between 600 ppb to 1,200 ppb. In addition, the chemistry of the OTSGs is adjusted to maximize the concentration of oxygen-scavenging chemicals. Also, the levels of the steam generators are maintained as high as possible during the emergency feedwater testing in order to minimize the dilution of these chemicals. Finally, in the event that dissolved oxygen limits are exceeded during the testing, administrative controls require that the steam generator be drained and refilled under a nitrogen blanket and the water

chemistry is adjusted as necessary to maintain the water chemistry within allowable limits within 48 hours. These actions are in agreement with TMI, Unit 1's commitments to the NRC for protecting steam generator tube integrity in accordance with NEI 97-06 and associated industry guidelines.

By minimizing the volume of fluid introduced from the condensate storage tanks into the OTSGs, the potential for corrosion of the OTSGs (specifically the tubes) is minimized.

As an alternative to testing at +/- 20 % of design flow, TMI will test EF-P-1 at a reference flow rate of approximately 500 gpm versus 736 gpm (80% of design flow of 920) each refueling outage. All other requirements of the comprehensive test will be followed. At this reference point of 500 gpm, the characteristic curve for the pump is essentially the same slope as at the Code required 736 gpm. Pump degradation as noted by measuring differential pressure can be detected for a given flow rate reference value.

The reference flow rate of 500 gpm corresponds to 54.4 % of pump design flow. At the reference conditions the flow values are currently at a point on the curve that is effective for monitoring and detecting degradation. Testing at this reference point has resulted in very repeatable measurements. Any degradation in pump performance at the set flow rate can be recognized or detected by a substantial change in measured pump differential pressure.

To establish the flow rate within +/- 20 % of design would require a flow rate of at least 736 gpm. Establishing the flow at 736 gpm does not increase the ability to detect degradation or assess pump conditions since the slope of the pump curve is essentially a straight line constant from 300 gpm to 800 gpm as shown below. Therefore, testing at higher flows does not increase the ability to detect hydraulic degradation.

$$\text{Slope (400 to 600 gpm)} = \frac{(2950 - 2850)\ \text{ft}}{(400 - 600)\ \text{gpm}} = \frac{-0.5\ \text{feet of head}}{\text{gpm}}$$

$$\text{Slope (600 to 800 gpm)} = \frac{(2850 - 2750)\ \text{ft}}{(600 - 800)\ \text{gpm}} = \frac{-0.5\ \text{feet of head}}{\text{gpm}}$$

To compensate for testing the EF turbine driven pump at a reduced flow rate during the comprehensive test, as required by ISTB-3300(e)(1), additional activities will be performed as follows to assess operational readiness and determine pump health.

Full spectrum bearing vibration analysis as well as oil sampling and analysis is performed as part of the preventative maintenance program. Finally, during each shift the operations staff inspects these pumps to ensure that no problems are present. Based on the full spectrum bearing vibration analysis, the oil sampling and analysis, operational inspections, continued quarterly Group B testing and comprehensive testing within 54% of design pump flow during refueling outages, an accurate assessment of pump health and operational readiness is assured.

As a proposed alternative:

a. TMI will test EF-P-1 at a reference flow rate of approximately 500 gpm each refueling outage. All other requirements of the comprehensive test will be followed.

b. During comprehensive testing of the subject pumps, TMI will perform spectrum vibration analysis, which is above Code required vibration testing.

The proposed alternative testing coupled with OTSG water chemistry concerns provides for: a) testing verification of pump performance and identification of degradation, b) verification of piping flowpath capability to deliver accident design flow rates and c) appropriate secondary chemistry precautions to protect OTSG tube integrity.

6. Duration of Proposed Alternative

This proposed alternative will be utilized for the 4th 120 month interval.

7. Precedents

- Similar relief request P-6 was previously approved for North Anna Power Station on January 28, 2002. Docket Nos. 50-338 and 50-339 (TAC Nos. MB2221and MB2222).
- Similar relief request PR-1 was previously approved for Seabrook Station on May 30, 2003. Docket No. 50-443 (TAC No. MB6676).

8. NRC Disposition

The NRC staff finds that the current approach detailed by the licensee in its response to the NRC staff's request for additional information (Ref. 2) meets the intent of the ASME OM Code. Therefore, the licensee's request for relief, PR-03, is unnecessary.

Although there has been much discussion about the meaning of the term "pump design flow rate" as used in paragraph ISTB-3300(e) of the ASME OM Code, the NRC staff considers the pump design flow rate to be the licensed design-basis flow rate at the required total developed head (TDH). That is, the range of flows assumed in the accident analysis or committed to in a licensing document. The intent of the Group A and Group B Tests is to monitor for degradation. The intent of the CPT is to verify design-basis capability.

In its current configuration, EF-P-1 is tested using each refueling outage by injecting water from the condensate storage tanks into a steam generator. The steam generator is depressurized during this test. The test is currently run at two test points, 290 gpm, representing a minimum accident required flow rate, and at 500 gpm, a point reasonably obtainable and repeatable on the sloped portion of the pump curve. As shown by the licensee, EF-P-1 can be tested within the range of flows defined by their design and licensing bases. As such, the current testing program meets the intent of ASME OM Code, paragraph ISTB 3300(e)(1).

FIGURE 1 - EMERGENCY FEEDWATER

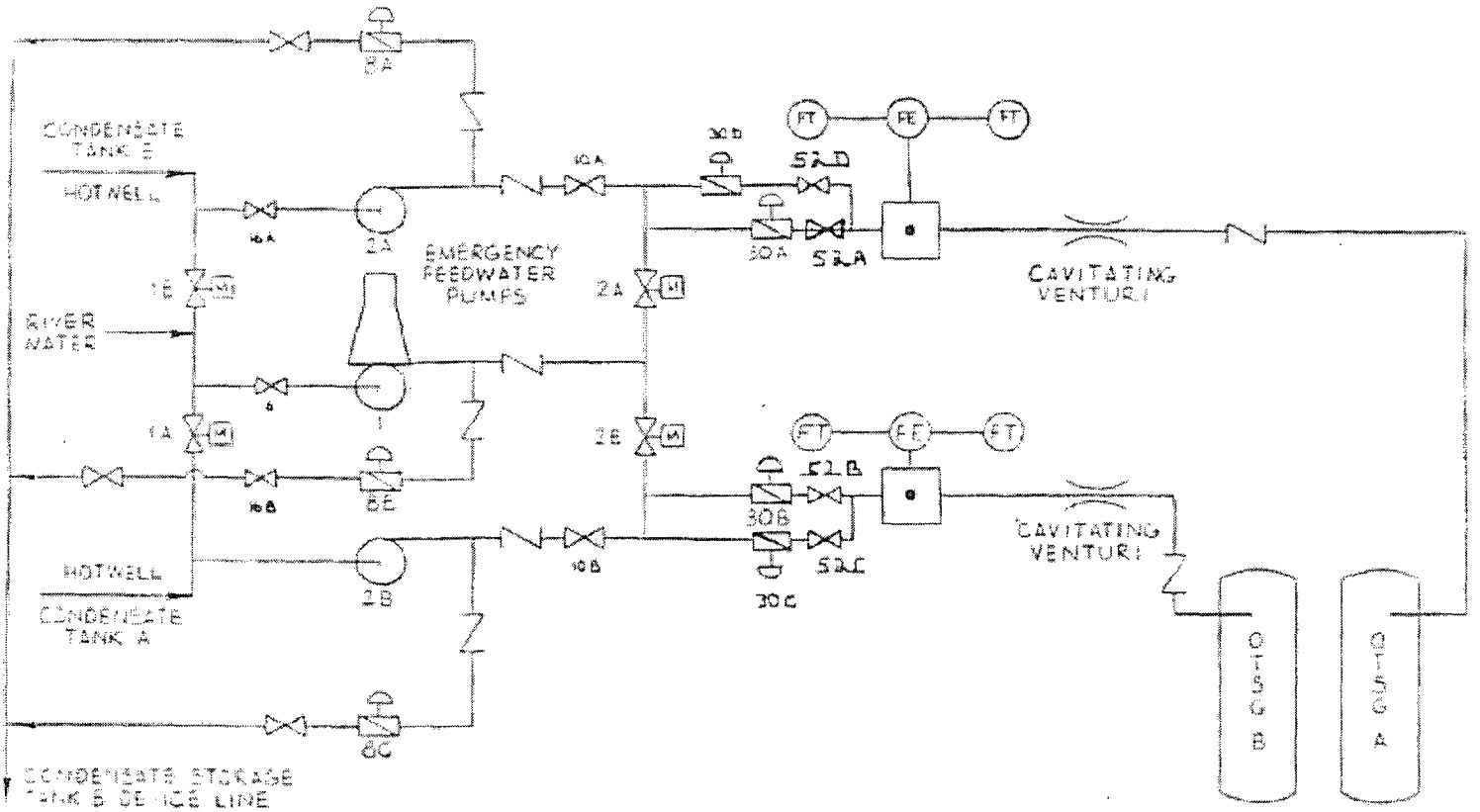
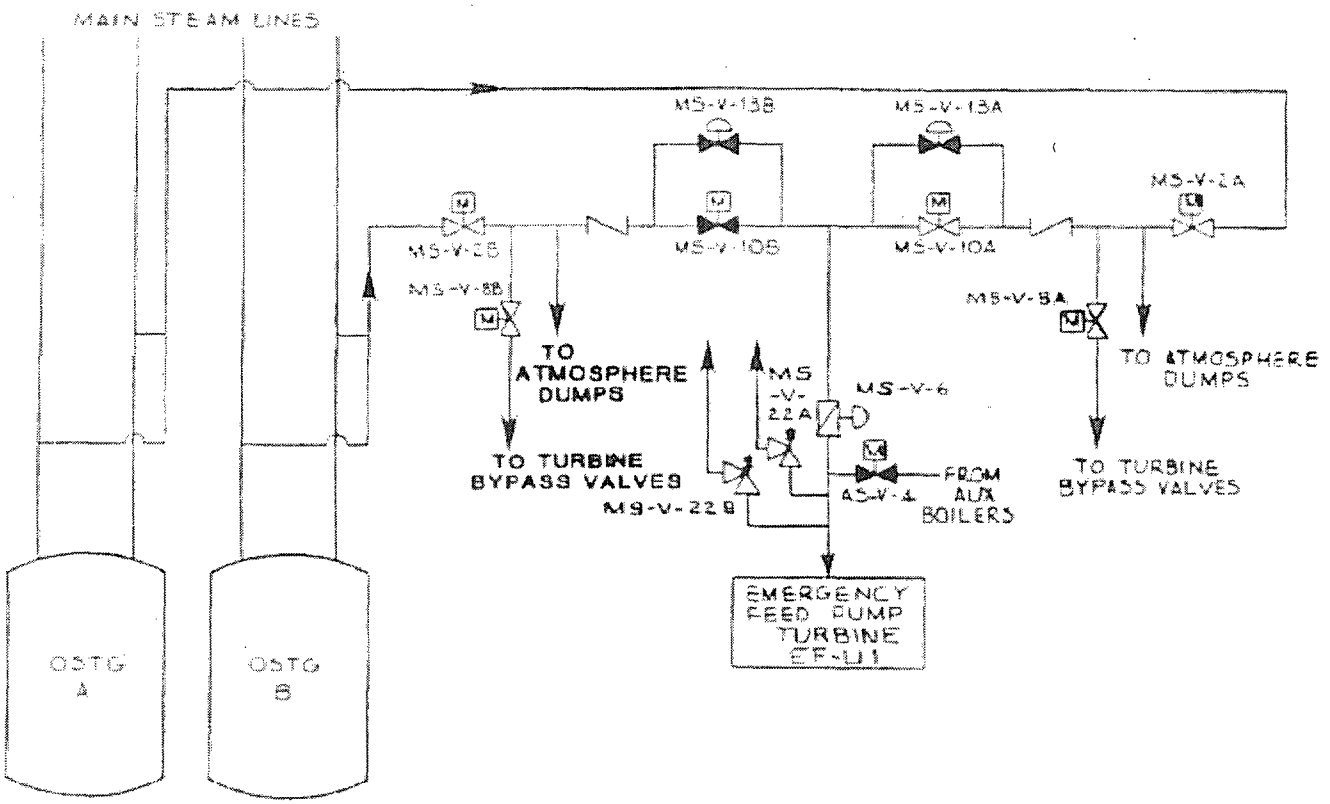
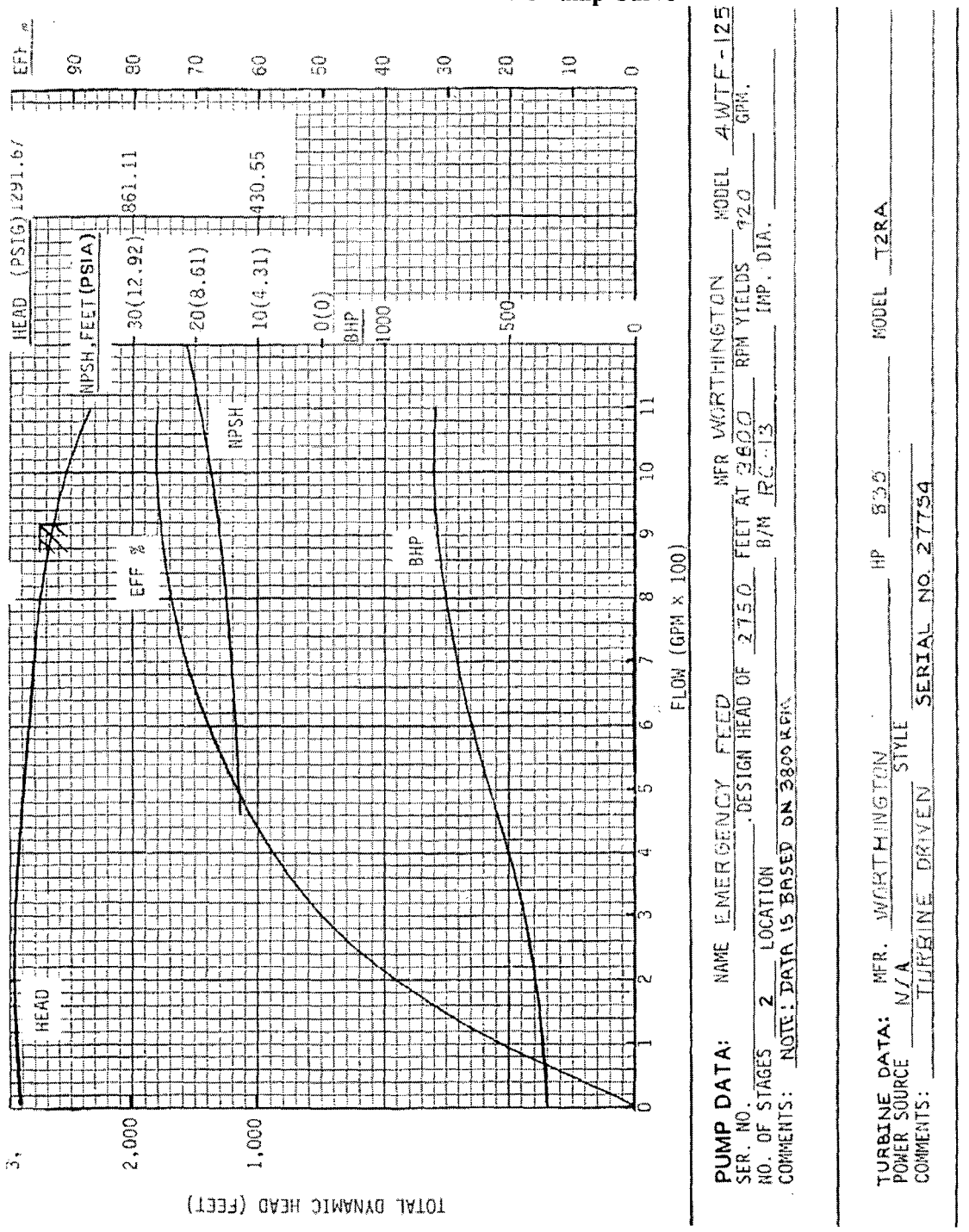


FIGURE 2 - STEAM FLOW TO EF-P-1



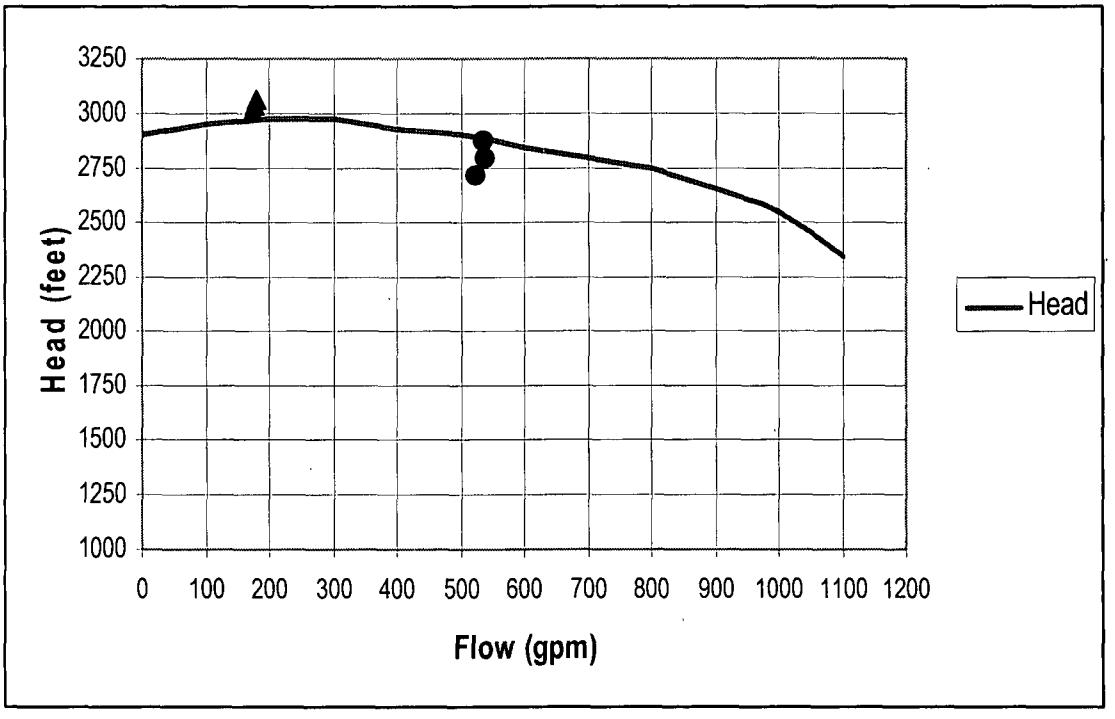
Attachment 1

EF-P-1 Manufacturers Pump Curve



Attachment 2

EF-P-1 Test Data.

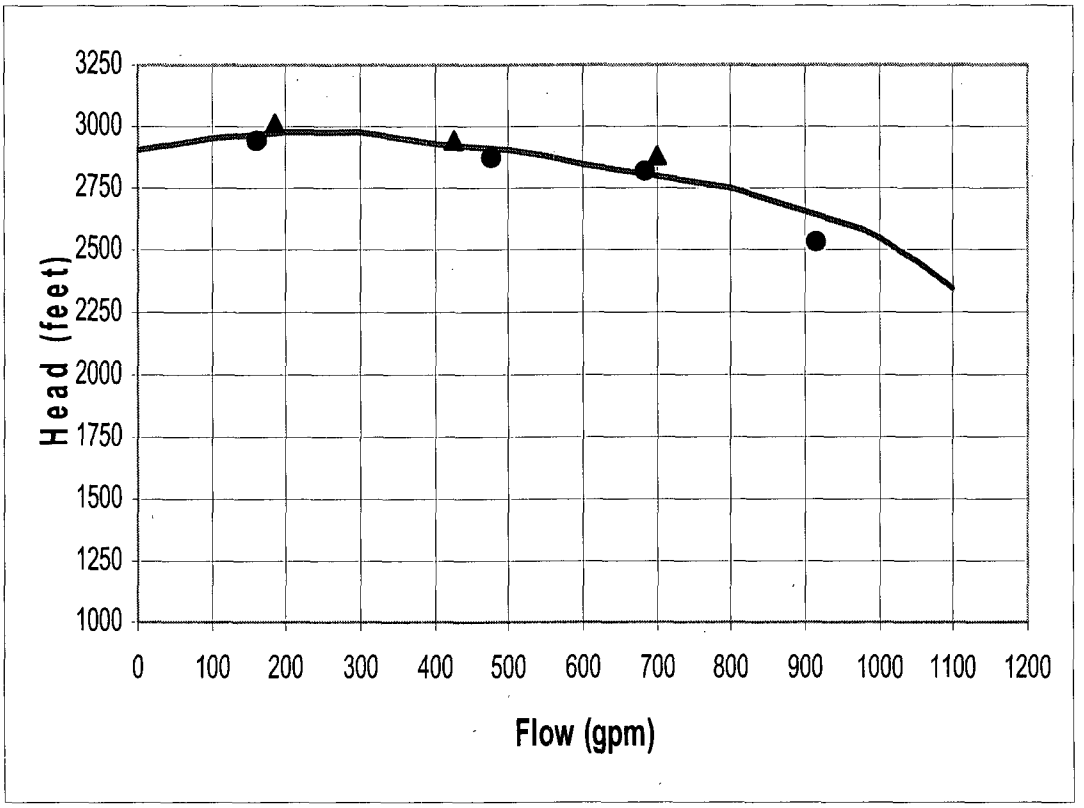


▲ **Quarterly Test** ● **Refueling Outage Test**

Quarterly Test Data			**Refueling Test Data**		
Date	Flow	TDH	Date	Flow	TDH
5/07/03	182	3003	10/14/99	536	2787
11/18/03	180	3027	11/28/01	533	2894
2/03/04	180	3025	12/01/03	526	2729

Attachment 3

EF-P-1 Preoperational Startup Test Data and 12R Outage Data



▲ **12R Refueling Data**

● **1974 Preoperational Data**

10 CFR 50.55a Request Number PR-04

Proposed Alternative
In Accordance with 10 CFR 50.55a(a)(3)(i)

Alternative Provides Acceptable Level of Quality and Safety

1. ASME Code Component(s) Affected

   DH-P-1A Decay Heat Removal Pump A
   DH-P-1B Decay Heat Removal Pump B

2. Applicable Code Edition and Addenda

   ASME OM Code 1998 Edition through 2000 Addenda

3. Applicable Code Requirement

   ISTB-1400(b), "identify each pump to be tested in accordance with the rules of this Subsection and categorize it as either a group A or group B pump and list the pumps in the plant records (see ISTB-9000). A pump that meets both group A and group B definitions shall be categorized as a group A pump."

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 ISTB-1400(b). This relief will result in testing the Decay Heat Removal pumps as group B during power operations versus group A. This proposed relief will result in a lower potential for pump degradation due to pump wear while still being capable of measuring pump performance. The basis of the relief request is that the proposed alternative would provide an acceptable level of quality and safety.

   The Decay Heat Removal pumps meet the categorization requirements of group A pumps in that they are operated routinely during plant shutdowns and refueling outages. However, these pumps also meet the requirements of group B, in that during normal operation (reactor critical) they are not operated except for testing.

   During normal power operations, the Decay Heat Removal pump is in a standby condition and is considered an essential part of the Emergency Core Cooling System (ECCS). The pump starts automatically upon receipt of a safety injection signal taking suction from the Borated Water Storage Tank during the injection phase of an accident. The pump is then aligned to take suction from the containment sump during the recirculation phase of an accident. The pump discharges to the reactor coolant system via the decay heat removal heat coolers.

ASME ISTB-1400(b) states that if a pump meets both group A and group B definitions, it shall be categorized as a group A pump. The Decay Heat Removal pumps are currently tested during normal operation, using the minimum flow recirculation loop. This test is similar to a group B test in that the pump is operated at low flow conditions (approximately 850 gpm).

The design flow rate of the Decay Heat Removal Pumps is 3000 gpm. This flow rate can only be achieved during shutdown periods when injection into the reactor coolant system at a reduced pressure is possible.

Classifying these pumps as group B during power operation minimizes the time required to perform quarterly testing. The 1998/2000 ASME Code testing requirements eliminate the two-minute minimum pump run-time for quarterly group B pump tests. Eliminating the minimum pump run-time requirement and the requirement to record differential pressure and vibration levels is expected to slightly reduce the length of each quarterly pump test and the accompanying unavailability time for these pumps. Since these pumps are not operated routinely during plant operation, except for required surveillance testing, there is no time- or wear-related degradation mechanism that would warrant performing more detailed quarterly tests on DH-P-1A/B.

NUREG/CP-0137, Vol. 1, Proceedings of the Third NRC/American Society of Mechanical Engineers (ASME) Symposium on Valve and Pump Testing, includes a paper entitled, "Description of Comprehensive Pump Test Change to ASME Code, Subsection ISTB." This paper details the philosophy of classifying pumps as group A or group B. According to the author, the intent of having different test requirements for different pump groups is to relate the requirements for the amount and degree of quarterly performance monitoring to the amount of degradation expected based on pump operation.

Testing the decay heat removal pumps quarterly as group A pumps during power operation is contrary to the philosophy of the referenced paper. Quarterly group A testing subjects these pumps to increased test requirements and performance monitoring. Also, this testing introduces the potential for more degradation due to pump wear (caused by low-flow operation) at the time when they are standby pumps and would not otherwise be subject to operation-induced degradation. Group A testing during power operation may be more detrimental to the long-term health of these components than Group B testing.

5. Proposed Alternative and Basis for Use

TMI proposes that the decay heat removal pumps (DH-P-1A and DH-P-1B) be tested as standby pumps (group B) during power operation and as continuously operating pumps (group A) during refueling operations. During refueling operations, the comprehensive pump test may be substituted for a quarterly group A test that comes due. TMI further proposes that any time a comprehensive pump test is performed, the Code-required quarterly low-flow test (group B) requirement may be deleted for that quarter.

Using the provisions of this relief request as an alternative to the specific requirements of ISTB-1400(b) identified above will provide adequate indication of

pump performance and continue to provide an acceptable level of quality and safety. Therefore, pursuant to 10 CFR 50.55a(a)(3)(i) we request relief from the specific ISTB requirements identified in this request.

This alternative provides an acceptable level of quality and safety.

6. Duration of Proposed Alternative

This proposed alternative will be utilized for the 4th 120 month interval.

7. Precedents

Similar relief request PR-12 was previously approved for Calvert Cliffs Nuclear Power Plant on May 16, 2002 (TAC Nos. MB3782 and MB3783).

8. NRC Disposition

In GL 89-04, Position 9, the NRC determined that, in cases where flow can only be established through a non-instrumented, minimum-flow path during quarterly pump testing, and a path exists at cold shutdown or refueling outages to perform a test of the pump under full or substantial flow conditions, the increased interval for flow measurement is an acceptable alternative to the Code requirements. Therefore, the NRC staff finds that the proposed alternative testing of the DHR pumps as Group B during operation, and as Group A during refueling outage is consistent with GL 89-04, Position 9, and provides reasonable assurance of operational readiness of the affected pumps.

ATTACHMENT 4

VALVE RELIEF REQUEST INDEX

(Page 1 of 1)

Relief Request No.	Description	NRC Approval Date
VR-01	2-Year Frequency of Seat Leakage Testing of Valves which are not Containment Isolation Valves	07/07/2005
VR-02	2-Year Frequency of Remote Position Indication Verification Tests for Specific Valves	07/07/2005

ATTACHMENT 5

VALVE RELIEF REQUESTS

10 CFR 50.55a Request Number VR-01

Proposed Alternative
In Accordance with 10 CFR 50.55a(a)(3)(i)

Alternative Provides Acceptable Level of Quality and Safety

1. ASME Code Component(s) Affected

Valve Number	Class	Category	Function
MU-V-14A/B	2	A/C	MU Pump Suction from BWST Stop Check Valve
MU-V-112	2	A/C	Makeup Tank Outlet Check Valve
CF-V-4A/B	1	A/C	Core Flood Tank Outlet Check Valve
CF-V-5A/B	1	A/C	Core Flood Tank and Decay Heat Pump Discharge Check Valve
NR-V-2	3	A	NR to SR Header Isolation Valve
NR-V-4A/B	3	A	Deicing Makeup Valve
NR-V-6	3	A	NR & SR Cross Connection Isolation Valve

2. Applicable Code Edition and Addenda

ASME OM Code 1998 Edition through 2000 Addenda

3. Applicable Code Requirement

ISTC-3630(a) – "Leakage Rate for Other Than Containment Isolation Valves", regarding 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). ISTC-3630(a) requires a leak test to be performed at least once every two (2) years. TMI proposes to test these valves on a refueling outage frequency in order to avoid an unnecessary shutdown. The basis of the relief request is that the proposed alternative would provide an acceptable level of quality and safety.

The subject valves are all categorized as A or A/C since they have a seat leakage requirement to fulfill their specific function in the closed direction. These valves are not containment isolation valves.

Leakage testing on the subject valves is performed during refueling outages when the associated systems can be removed from service.

Since the refueling cycle for Three Mile Island is nominally two years, a situation may exist where the plant may be required to shut down in order to perform the leakage test using the two (2) year frequency defined in the code. Therefore, an alternative is requested in accordance with 10CFR50.55a(a)(3)(i) to perform the leakage test on a refueling outage frequency, which will avoid the potential for an unnecessary plant shutdown while testing to a two (2) year frequency.

The TMI Technical Specifications define Refueling Outage Interval as 24 months. Additionally, Technical Specification 1.25 provides an interval extension of 25% for cycle lengths, which exceed the 24 months. Therefore, the proposed alternative will be similar to the TMI Technical Specifications.

5. Proposed Alternative and Basis for Use

The seat leakage test for the subject valves will be performed each refueling outage.

Performance of the seat leakage tests at a frequency of every refueling outage versus once every two years provides reasonable assurance of the seat leakage requirements of the subject valves.

Using the provisions of this relief request as an alternative to the specific requirements of ISTC-3630(a) identified above will provide adequate indication of valve performance and continue to provide an acceptable level of quality and safety. Therefore, pursuant to 10 CFR 50.55a(a)(3)(i) we request relief from the specific ISTC requirements identified in this request.

This alternative provides an acceptable level of quality and safety.

6. Duration of Proposed Alternative

This proposed alternative will be utilized for the 4th 120 month interval.

7. Precedents

This relief request was previously approved for the 3rd Ten Year Interval at Three Mile Island as VG1.

8. NRC Disposition

The proposed refueling test frequency may cause the test interval to exceed 2 years during certain extended outages, but the increase would be insignificant ($\leq$ 25%) and is consistent with TMI-1 TS's. Therefore, the NRC staff finds that the proposed alternative provides an acceptable level of quality and safety for the subject valves.

10 CFR 50.55a Request Number VR-02

Proposed Alternative
In Accordance with 10 CFR 50.55a(a)(3)(i)

Alternative Provides Acceptable Level of Quality and Safety

1. ASME Code Component(s) Affected

Valve Number	Class	Category	Function
AH-V-1Athru D	2	A	RB PURGE OUTLET ISOL VALVES
CA-V-4A/B	2	A	OTSG FW SAMPLE VALVES
CA-V-5A/B	2	A	OTSG FW SAMPLE VALVES
CA-V-189	2	A	RECLAIMED WATER TO RB VLV
CF-V-1A/B	2	B	CORE FLOOD TANK DISCHARGE ISO VALVES
CF-V-2A/B	2	A	CORE FLOOD TANK SAMPLE ISO VLVS
CF-V-19A/B	2	A	MU TO CORE FLOOD TANK ISO VLVS
CF-V-20A/B	2	A	CORE FLOOD TANK SAMPLE ISOL VLVS
CM-V-1	2	A	RB ATMOSPHERE SAMPLE VALVE
CM-V-2	2	A	RB ATMOS SAMPLE RETURN VLV
CM-V-3	2	A	RB ATMOSPHERE SAMPLE VALVE
CM-V-4	2	A	RB ATMOS SAMPLE ISOL VLV
DH-V-1	1	B	DH SUCTION ISOLATION FROM "B" HOT LEG
DH-V-2	1	B	DH DROP LINE/PUMP SUCTION
DH-V-4A/B	2	B	DH-PUMP DISCHARGE ISOL VLVS
DH-V-5A/B	2	B	DECAY HEAT SUCTION VALVES FROM BWST
DH-V-6A/B	2	B	RB SUMP RECIRC SUCTION VLVS
EF-V-2A/B	3	B	EFW PUMP HEADER CROSS CONNECT VALVES
HM-V-1A/B	2	A	H2 MONITOR OUTLET ISOL
HM-V-2A/B	2	A	H2 MONITOR INLET ISOL
HM-V-3A/B	2	A	H2 MONITOR OUTLET ISOL
HM-V-4A/B	2	A	H2 MONITOR INLET ISOL
HR-V-22A/B	2	A	RB EXHAUST TO H2 RECOMB
HR-V-23A/B	2	A	H2 RECOMB RETURN ISOL VLVS
IC-V-2	3	A	ICCW COOLANT RETURN VALVE
IC-V-3	2	A	ICCW COOLANT RETURN VALVE
IC-V-4	2	A	IC ISOL COOLANT SUPPLY
IC-V-6	2	A	IC COOLANT SUPPLY TO CRDM
MS-V-1A thru D	2	B/C	OTSG MS ISOL VALVES
MS-V-2A/B	2	B	OTSG TO EF PUMP & TURBINE BYPASS VALVES
MU-V-2A/B	1	A	LETDOWN CLR OUTLET VLVS
MU-V-3	2	A	LETDOWN COOLER ISOL VALVE
MU-V-14A/B	2	A/C	MU PUMP SUCTION FROM BWST STOP CHECK

MU-V-16A thru D	2	B	HPI CONTROL VALVES
MU-V-18	2	A	CHARGE LINE ISOL VALVE
MU-V-20	2	A	RCP SEAL WATER ISOL VLV

Valve Number	Class	Category	Function
MU-V-25	2	A	RCP SEAL RETURN ISOL VALVE
MU-V-26	2	A	RCP SEAL RETURN LETDOWN ISOL
MU-V-36	2	B	MU PUMPS RECIRC ISOLATION VALVE
MU-V-37	3	B	MU PUMPS RECIRC ISOL VALVE
NR-V-1A/B/C	3	B	NUC RIVER PUMP DISCH VALVES
NR-V-2	3	A	NR TO SR HEADER ISOLATION VALVE
NR-V-4A/B	3	A	DEICING MAKEUP VALVES
NR-V-6	3	A	HX VAULT CROSS CONNECT BETWEEN NR & SR
NS-V-4	2	A	RCP MOTOR COOLER RETURN VALVE
NS-V-15	2	A	RCP MOTOR COOLER RETURN VALVE
NS-V-35	3	A	RCP MOTOR COOLER RETURN VALVE
NS-V-52A/B/C	2	B	AH-MOTOR COOLER SUPPLY
NS-V-53A/B/C	2	B	AH-MOTOR COOLER RETURN
RB-V-2A	2	A	RB NORMAL AIR COOL SUP VLV
RB-V-7	2	A	RB NORMAL COOL RETURN ISOL
RC-V-2	1	B	PORV (RC-RV2) ISOLATION VALVE
RC-RV-2	1	C	PZR PILOT OPERATED RELIEF VALVE (PORV)
RC-V-4	1	B	DECAY HEAT PRESS SPRAY LINE ISOL VALVE
RC-V-28	1	B	PZR VENT TO RCDT ISOLATION VALVE
RC-V-40A/B	1	B	HOT LEG HIGH POINT VENT TO RCDT AND ATM
RC-V-41A/B	1	B	HOT LEG VENT TO RCDT AND ATMOSPHERE
RC-V-42	1	B	REACTOR VESSEL VENT TO RB ATMOSPHERE
RC-V-43	1	B	REACTOR VESSEL VENT TO RB ATMOSPHERE
RC-V-44	1	B	PRESSURIZER HIGH POINT VENT ISO VALVE
RR-V-1A/B	3	B	RR-PUMP DISCHARGE VALVES
RR-V-3A/B/C	2	B	RBEC COIL INLET VALVES
RR-V-4A thru D	2	B	RBEC COIL OUTLET VLVS
RR-V-5	3	B	RB COOLING COIL DISCHARGE BYPASS VALVE
RR-V-10A/B	3	B	RR PUMP RECIRC MINFLOW BYPASS VALVES
WDG-V-3	2	A	RB VENT HEADER VALVE
WDG-V-4	2	A	RB VENT HEADER VALVE
WDL-V-303	2	A	RC DRAIN PUMP DISCH VALVE
WDL-V-304	2	A	RC DRAIN PUMP DISCH VALVE
WDL-V-534	2	A	RB SUMP DRAIN TO AUX BLDG
WDL-V-535	2	A	RB SUMP DRAIN TO AUX BLDG

2. Applicable Code Edition and Addenda

ASME OM Code 1998 Edition through 2000 Addenda

3. Applicable Code Requirement

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

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-3700. The basis of the relief request is that the proposed alternative would provide an acceptable level of quality and safety.

The subject valves are power-operated valves with remote position indication. To perform the remote position verification, the valve must be cycled from its normal position (open or closed) to the full stroke position. Local observation of the valve position is verified with the remote position indication at least once every 2 years. The valve is then cycled to its normal position. Local observation of the valve is then verified again to match the remote position indication.

The subject valves listed are in systems or portions of a system, which typically cannot be isolated during normal power operations or cold shutdowns. Additionally, many of these valves are inside the reactor building and would require a containment entry to verify local valve position.

Since the refueling cycle for Three Mile Island is nominally two years, a situation may exist where the plant may be required to shut down in order to perform the 2 year position indication verification testing on these subject valves. In the event of an extended intermediate outage, the two year frequency may be exceeded. Therefore, an alternative is requested in accordance with 10CFR50.55a(a)(3)(i) to perform the verification on a refueling outage frequency, which will avoid the potential for an unnecessary plant shutdown while testing to a two (2) year frequency. The TMI Technical Specifications define Refueling Outage Interval as 24 months. Additionally, Technical Specification 1.25 provides an interval extension of 25% for cycle lengths, which exceed the 24 months. Therefore, the proposed alternative will be similar to the TMI Technical Specifications.

5. Proposed Alternative and Basis for Use

The position indication verification test as described above for the subject valves will be performed each refueling outage.

Using the provisions of this relief request as an alternative to the specific requirements of ISTC-3700 identified above will provide adequate indication of valve performance and continue to provide an acceptable level of quality and safety, and will avoid the potential for an unnecessary plant shutdown while testing to a two (2) year frequency. Therefore, pursuant to 10 CFR 50.55a(a)(3)(i) we request relief from the specific ISTC requirements identified in this request.

This alternative provides an acceptable level of quality and safety.

6. Duration of Proposed Alternative

This proposed alternative will be utilized for the 4th 120 month interval.

7. Precedents

This relief request was previously approved for the 3rd Ten Year Interval at Three Mile Island as VG1.

8. NRC Disposition

The proposed refueling test frequency may cause the verification test interval to exceed 2 years during certain extended outages, but the increase would be insignificant (≤ 25%) and is consistent with the TMI-1 TSs. Therefore, the NRC staff finds that the proposed alternative provides an acceptable level of quality and safety for the subject valves.

ATTACHMENT 6

COLD SHUTDOWN JUSTIFICATION INDEX

(Page 1 of 1)

Cold Shutdown Justification No.	Description
CSJ-01	Intermediate Cooling Water Valves (IC-V-2,3,4,6) Exercise Close, Fail Close
CSJ-02	Decay Heat Suction Isolation Valve (DH-V-1/2) Exercise Open/Close
CSJ-03	Charging Line Iso Valve (MU-V-18) Exercise Close and Fail Close
CSJ-04	RCP Seal Water Iso Valve (MU-V-20) Exercise Close and Fail Close
CSJ-05	RCP Seal Water Return Iso Valves (MU-V-25/26) Exercise Close and Fail Close
CSJ-06	Letdown Iso Valves (MU-V-2A/B, 3) Exercise Close and Fail Close
CSJ-07	RC Motor Return Iso Valve (NS-V-15) Exercise Close
CSJ-08	RC Motor Return Iso Valves (NS-V-35/4) Exercise Close
CSJ-09	Reactor Building Cooling Water Iso Valves (RB-2A/7) Exercise Close
CSJ-10	FW Isolation Valves (FW-V-16A/B,17A/B,5A/B,92A/B) Exercise Closed
CSJ-11	Pressurizer Vent Valves (RC-V-28/44) Exercise Close and Fail Close
CSJ-12	RC Vent Valves (RC-V-40A/B, 41A/B) Exercise Close and Fail Close
CSJ-13	Reactor Vessel Vent Valves (RC-V-42/43) Exercise Close and Fail Close
CSJ-14	DH Discharge Isolation Valves (DH-V-4A/B) Exercise Open/Close

ATTACHMENT 7

COLD SHUTDOWN JUSTIFICATIONS

Cold Shutdown Justification CSJ-01

Valve Number	System	Safety Class	Category
IC-V-2	IC	3	A
IC-V-3	IC	2	A
IC-V-4	IC	3	A
IC-V-6	IC	3	A

Function

These power operated valves close to isolate containment from the IC System on 1) receipt of any ESAS signal concurrent with a IC Surge Tank low level signal or 2) on a 30 psig Reactor Building pressure ESAS signal, regardless of IC Surge Tank level. These air-operated valves (IC-V-3, 4, and 6) also fail closed on loss of electrical power or pneumatic supply.

These valves have safety function to open. The IC System inside the Reactor Building is non-ASME Safety Class, Seismic Category II and does not serve any components which are required for the safe shutdown of the reactor or for the mitigation of any Design Basis accidents.

Justification

It is impracticable to full stroke exercise, partial stroke exercise or fail safe test these valves closed during normal power operation since closure testing at normal power imposes a significant risk of equipment damage.

Exercising these valves closed during power operation will isolate the cooling water supply to the Control Rod Drive Cooling Coils, Primary Letdown Coolers and Reactor Coolant Pump Heat Exchangers. Interruption of cooling water flow to these components would cause equipment damage and a potential trip of the reactor.

Alternative Test

These valve will be exercised closed (IC-V-2, 3, 4, 6) and fail safe tested closed (IC-V-3, 4, 6) during cold shutdowns when cooling water supplied to the Control Rod Drive Cooling Coils, Primary Letdown Coolers and Reactor Coolant Pump Heat Exchangers is not required. These valves will be partial stroke exercised quarterly during normal power operations.

Cold Shutdown Justification CSJ-02

Valve Number	System	Safety Class	Category
DH-V-1	DH	1	B
DH-V-2	DH	1	B

Function

This normally-closed motor-operated valve is required to open to allow use of the drop line to circulate water through the Core following a cold-leg LOCA in order to prevent the concentration of boron from exceeding its solubility limit. Precipitation of boron could result in clogged flow channels, limiting the ability to remove heat.

This valve is also opened in order to use the DH System as the normal and preferred method of placing and maintaining the Reactor in the Cold Shutdown condition, including those times when it is necessary to do so in response to a Technical Specification required-action statement. However, TMI-1 is licensed with Hot Shutdown as the "safe shutdown", condition.

This valve receives an automatic signal to close and cannot be reopened if RCS pressure exceeds 400 psig in order to prevent overpressurization of the lower pressure-rated DH System pump suction piping.

Justification

It is impracticable to full stroke exercise or partial stroke exercise this valve open or closed during normal power operation since opening this valve during normal power operation would cause over pressurization of the lower pressure DH system. Additionally, this valve is interlocked with reactor coolant system pressure such that it can not be opened while reactor coolant system pressure is greater than 400 psig.

Alternative Test

These valves will be exercised open and closed during cold shutdowns when the reactor coolant system is depressurized.

Cold Shutdown Justification CSJ-03

Valve Number	System	Safety Class	Category
MU-V-18	MU	2	A

Function

This normally-open, air-operated valve is required to close on an ESAS actuation signal of 1600 psig RCS pressure or 4 psig Reactor Building pressure to 1) assure adequate, balanced HPI flow to the RCS and 20 to isolate containment. An ESAS backup initiation signal is also provided at 500 psig RCS pressure. Closure of this valve prevents HPI flow from bypassing the cavitating venturi at the B HPI nozzle. The valve fails closed on loss of air and open on loss of power. Loss of DC power is the identified limiting single failure associated with the closing safety function of this valve.

This valve is normally in the open (i.e., throttled) position to provide makeup flow to the RCS. This open function is not required for safe shutdown or accident mitigation.

Justification

It is impracticable to full stroke exercise or fail safe test this valve closed during normal power operation since closure testing at normal power operations would lead to a potential loss of reactor coolant system inventory control and potential trip of the reactor.

Closing this valve for testing during normal power operations would interrupt makeup flow to the reactor coolant system which could cause a loss of inventory control and subsequent trip of the reactor. This valve is required to be open for throttling and maintaining RCS inventory control during power operations.

Alternative Test

This valve will be exercised closed and fail safe tested during cold shutdowns when the reactor coolant system makeup control is not required. The valve will be partial stroke exercised quarterly during normal power operations.

Cold Shutdown Justification CSJ-04

Valve Number	System	Safety Class	Category
MU-V-20	MU	2	A

Function

This normally-open, air-operated valve is closed by remote manual operation to isolate the Reactor Building (containment) following an accident. It does not receive an ESAS signal to close because of the importance of seal injection to the integrity of the RC pump shaft seals. Loss of seal injection due to an erroneous actuation of ESAS or by a non-LOCA event such as RCS overcooling could cause significant damage to the associated shaft seal or pump shaft. The valve fails closed on loss of electrical power or pneumatic supply.

The valve is open to providing shaft seal injection for the reactor coolant pump. This function is not required for safe shutdown or accident mitigation.

Justification

It is impracticable to full stroke exercise or fail safe test this valve closed during normal power operation since closure testing at normal power operations could cause significant damage to the reactor coolant pump shaft and shaft seals.

Closing this valve for testing during normal power operations would interrupt seal injection flow to the reactor coolant pump shaft seals and risk permanent damage to the reactor coolant pump seals and cause subsequent Reactor Coolant system leakage.

Alternative Test

This valve will be exercised closed and fail safe tested during cold shutdowns when the reactor coolant pumps are not in service and seal injection is not required. The valve will be partial stroke exercised quarterly during normal power operations.

Cold Shutdown Justification CSJ-05

Valve Number	System	Safety Class	Category
MU-V-25	MU	2	A
MU-V-26	MU	2	A

Function

These normally open valves close automatically on a 30 psig Reactor Building ESAS signal to isolate the Reactor Building makeup and purification system. The high pressure signal is used to ensure that sealing water flow remains available through the mechanical seals of the Reactor Coolant Pumps for those events in which continued operation of the pumps provides an advantage in maintaining flow through the Core. Valve MU-V-26 also fails closed on loss of electrical power or pneumatic supply.

These valves are normally open to provide a return flow path for the seal leakoff of the Reactor Coolant Pumps. This function is not required for safe shutdown or accident mitigation.

Justification

It is impracticable to full stroke exercise or fail safe test these valves closed during normal power operation since closure testing at normal power operations would cause significant damage to the reactor coolant pump seals.

Closing these valves for testing during normal power operations would interrupt seal leakoff flow from the reactor coolant pumps risk permanent damage to the reactor coolant pump seals and cause subsequent Reactor Coolant system leakage.

Alternative Test

These valves will be exercised closed (MU-V-25/26) and failsafe tested (MU-V-26) during cold shutdowns when the reactor coolant pumps are not in service and seal leakoff flow is not required. The valves will be partial stroke exercised quarterly during normal power operations.

Cold Shutdown Justification CSJ-06

Valve Number	System	Safety Class	Category
MU-V-2A	MU	1	A
MU-V-2B	MU	1	A
MU-V-3	MU	2	A

Function

These normally open valves receive an ESAS signal to close automatically on HPI initiation at 1600 psig RCS pressure or 4 psig Reactor Building pressure in order to isolate the MU System letdown line. Valve MU-V-3 also fails closed on loss of electrical power or pneumatic supply.

The valves are open during normal Plant operation to provide letdown flow from the RCS to the MU System for chemical and radiological control. This function is not required for safe shutdown or accident mitigation.

Justification

Closing these valves for testing during normal power operations would interrupt letdown flow from the reactor coolant system during power operation.

It is impracticable to full stroke exercise or fail safe test these valves closed during normal power operation since closure testing at normal power operations would cause: (1) a minor transient in pressurizer level control, and (2) thermal cycling of the letdown coolers. The letdown coolers are a unique "helicoil" design, and avoiding transients is necessary to prolong their life. Unnecessary cycling would lead to premature damage of the letdown coolers, whose repair would also become a significant ALARA concern.

Alternative Test

These valves will be exercised closed (MU-V-2A/B and MU-V-3) and fail safe tested (MU-V-3) during cold shutdowns when the letdown coolers are not in service and RCS letdown flow may be isolated. The valves will be partial stroke exercised quarterly during normal power operations.

Cold Shutdown Justification CSJ-07

Valve Number	System	Safety Class	Category
NS-V-15	NS	2	A

Function

This normally open motor operated valve closes on receipt of any ESAS signal coincident with a low level signal in Nuclear Services Closed Cooling Water Surge Tank (NS-T-1), or on a 30 psig Reactor Building pressure signal to isolate the NS supply header to the Reactor Coolant Pump Motor Air and Oil Coolers and Steam Generator Hot Drain Coolers (FW-C-1A and FW-C-1B).

Cooling water to the components listed above is required during normal plant operation (except the steam generator hot drain coolers). ESAS initiation circuitry is set up to keep this valve open during initial actuation, unless there is a low level Surge Tank signal concurrent with the ESAS signal, or until Reactor Building pressure reaches 30 psig. This open function allows for the continuous supply of cooling water to the RCP motors in the event that the pumps continue to run. This open function is not required for safe shutdown or accident mitigation.

Justification

It is impracticable to full stroke exercise this valve closed during normal power operation since closure testing at normal power operations would ~~cause~~ lead to eventual damage of the Reactor Coolant Pump Motor Air and Oil Coolers.

Closing this valve for testing during normal power operations would interrupt cooling water flow to the Reactor Coolant Pump Motor Air and Oil Coolers and Steam Generator Hot Drain Coolers flow would cause a brief temperature transient, and ultimately eventual damage, to the associated coolers. There is no design basis stroke time limit, and quarterly partial stroking of the valve verifies that it will perform its function to close.

Alternative Test

This valve will be exercised closed during cold shutdowns when the Reactor Coolant Pump Motor Air and Oil Coolers and Steam Generator Hot Drain Coolers are not in service and Nuclear Services cooling water flow may be isolated. The valve will be partial stroke exercised quarterly during normal power operations.

Cold Shutdown Justification CSJ-08

Valve Number	System	Safety Class	Category
NS-V-35	NS	3	A
NS-V-4	NS	3	A

Function

These normally open motor operated valves close automatically upon receipt of any ESAS signal coincident with a low level signal in Nuclear Services Closed Cooling Water Surge Tank NS-T-1, or on a 30 psig Reactor Building pressure signal to isolate the NS return header from the Reactor Coolant Pump Motor Air and Oil Coolers and Steam Generator Hot Drain Coolers.

These valves have no safety function in the open position. Cooling water to the components listed above is required during normal plant operation. ESAS initiation circuitry is set up to keep this valve open during initial actuation, unless there is a low level Surge Tank signal concurrent with the ESAS signal, or until Reactor Building pressure reaches 30 psig in order to continue supplying cooling water to the RCP motors in the event that the pumps continue to run.

Justification

It is impracticable to full stroke exercise these valves closed during normal power operation since closure testing at normal power operations would ~~cause~~ lead to eventual damage of the Reactor Coolant Pump Motor Air and Oil Coolers and Steam Generator Hot Drain Coolers.

Closing these valves for testing during normal power operations would interrupt cooling water flow to the Reactor Coolant Pump Motor Air and Oil Coolers and Steam Generator Hot Drain Coolers flow would cause a brief temperature transient, and ultimately eventual damage, to the associated coolers. There is no design basis stroke time limit, and quarterly partial stroking of the valves verifies that they will perform their function to close.

Alternative Test

These valves will be exercised closed during cold shutdowns when the Reactor Coolant Pump Motor Air and Oil Coolers and Steam Generator Hot Drain Coolers are not in service Nuclear Services cooling water flow may be isolated. The valves will be partial stroke exercised quarterly during normal power operations.

Cold Shutdown Justification CSJ-09

Valve Number	System	Safety Class	Category
RB-V-2A	RB	2	A
RB-V-7	NS	2	A

Function

These normally open motor operated valves close on receipt of an ESAS Reactor Building isolation signal on high Reactor Building Pressure (4 psig) or low RCS pressure (1600 psig or 500 psig backup) to isolate the non-safety, non-seismically qualified normal Reactor Building Industrial Cooling Water System and allow for shifting to the Reactor Building Emergency Cooling Water System.

These valves are open to allow cooling water to be supplied to the non-safety related Reactor Building Industrial Cooling Coils during normal operation. This function is not required for safe shutdown or accident mitigation.

Justification

It is impracticable to full stroke exercise these valves closed during normal power operation since closure testing at normal power operations would isolate cooling to the Reactor Building normal cooling coils. Isolation of the RB cooling coils at any time of the year would challenge the plant's ability to maintain compliance with Reactor Building Temperature Limits (Tech Spec 3.17). Additionally, if either of these valves were to fail in a non-conservative position during the cycling test, ~~they~~ this would cause a loss of the system function (NUREG-1482, revision 1, section 3.1.1), and likely require plant shutdown to avoid exceeding temperature limits within containment. This justifies deferral of testing to cold shutdown. Additionally, there is no design basis stroke time requirement, and quarterly partial stroking of the valves verifies that they will perform their function to close.

Alternative Test

These valves will be exercised closed during cold shutdowns when the Reactor Building Industrial Cooling Coils are not required to be in service and the reactor building emergency cooling water may be isolated. The valves will be partial stroke exercised quarterly during normal power operations.

Cold Shutdown Justification CSJ-10

Valve Number	System	Safety Class	Category
FW-V-5A	FW	N/A	B
FW-V-5B	FW	N/A	B
FW-V-16A	FW	N/A	B
FW-V-16B	FW	N/A	B
FW-V-17A	FW	N/A	B
FW-V-17B	FW	N/A	B
FW-V-92A	FW	N/A	B
FW-V-92B	FW	N/A	B

Function

These normally open valves must close to isolate the OTSG from the feedwater system in the event of a main steam line break. The valves are powered from an Engineered Safeguards Control Center (Class 1E) and receive an HSPS signal to close on Hi-Hi OTSG level or a Feedwater or Main Steam line break (low OTSG pressure). Downstream check valve FW-V-12A/B is relied upon for closure during a feedwater line break and containment isolation.

The valves are open during normal power operation to provide a flow path from the feedwater system to the OTSG. This function is not required for safe shutdown or accident mitigation.

Justification

It is impracticable to full stroke exercise these valves closed during normal power operation since closure of any of these valves would interrupt feedwater flow which would result in a plant transient due to a mismatch in feedwater/main steam line flow. This transient would result in a subsequent trip of the reactor and potentially injection of emergency feedwater.

This would result in an unacceptable thermal shock to the steam generators which could result in a degradation of the primary containment system boundary (OTSG tubes).

Alternative Test

These valves will be exercised closed during cold shutdowns when the feedwater system is not required to be in service.

Cold Shutdown Justification CSJ-11

Valve Number	System	Safety Class	Category
RC-V-28	RC	1	B
RC-V-44	RC	1	B

Function

These normally closed valves are opened to vent steam and noncondensible gases from the pressurizer steam space to the reactor coolant drain tank. This function assures that the pressurizer is available for pressure and volume control. This venting capability supports core cooling for events beyond the design basis. The ability to vent post accident increases the ability of the plant to deal with large quantities of noncondensible gas which could interfere with natural circulation (i.e., core cooling). The valve is also used during an OTSG tube rupture to minimize sub cooling margin and during RCS superheat conditions, however these functions are beyond the scope of inservice testing (i.e., required to shut down the reactor, maintain safe shutdown or mitigate the consequences of an accident).

When the required venting is completed, this valve is closed by remote manual operation to maintain the RCS pressure boundary and inventory. This valve does not receive any automatic actuation or isolation signals.

The individual vent path lines are sized such that an inadvertent opening of any valve will not constitute a LOCA. This design feature provides a high degree of assurance that the vents will be available when needed, and that inadvertent operation or failures will not significantly hamper the safe operation of the plant [TS 3.1.13].

Justification

It is impracticable to full or partial stroke exercise closed or fail safe test these valves during normal power operation. Exercising either of these valves during power operations places the plant in an undesirable configuration by reducing the reactor coolant system isolation barrier to only a single valve. During normal operation these valves are maintained closed at all times, they also fail closed, and they are not relied upon during or following any design basis event. Furthermore, the vent line sizing is such that inadvertent opening of the valves is within the capability of a single make-up pump and thus not considered a LOCA.

Exercising either valve during normal power operations leaves only the other valve as a single valve isolation barrier. Based on the guidance in ISTC-3521(c), full stroke exercising will be performed during cold-shutdowns.

Alternative Test

These valves will be full stroke exercised closed (RC-V-28/44) and fail safe tested closed (RC-V-44) during cold shutdowns when the Pressurizer and Reactor Coolant system is depressurized below 200 psig.

Cold Shutdown Justification CSJ-12

Valve Number	System	Safety Class	Category
RC-V-40A	RC	1	B
RC-V-40B	RC	1	B
RC-V-41A	RC	1	B
RC-V-41B	RC	1	B

Function

These normally closed solenoid operated valves are opened to vent steam and noncondensible gases from the reactor coolant system hot leg high points which cannot be vented through the reactor vessel or pressurizer steam space vents. These vents relieve to the reactor building atmosphere through a rupture disk. This venting capability supports core cooling for events beyond the design basis. The ability to vent post accident increases the ability of the plant to deal with large quantities of noncondensible gas which could interfere with natural circulation (i.e., core cooling), however these functions are beyond the scope of inservice testing (i.e., required to shut down the reactor, maintain safe shutdown or mitigate the consequences of an accident).

When the required venting is completed, this valve is closed by remote manual operation to maintain the RCS pressure boundary and inventory. This valve does not receive any automatic actuation or isolation signals however it fails closed on loss of electrical power.

The individual vent path lines are sized such that an inadvertent opening of any valve will not constitute a LOCA. This design feature provides a high degree of assurance that the vents will be available when needed, and that inadvertent operation or failures will not significantly hamper the safe operation of the plant [TS 3.1.13].

Justification

It is impracticable to full or partial stroke exercise these valves closed or fail safe test closed during normal power operation. Exercising either of these valves during power operations places the plant in an undesirable configuration by reducing the reactor coolant system isolation barrier to only a single valve in the respective path. During normal operation these valves are maintained closed at all times, they also fail closed, and they are not relied upon during or following any design basis event. Furthermore, the vent line sizing is such that inadvertent opening of the valves in a vent path is within the capability of a single make-up pump and thus not considered a LOCA.

Exercising either valve during normal power operations leaves only the other valve as a single valve isolation barrier. Based on the guidance in ISTC-3521(c), full stroke exercising will be performed during cold-shutdowns.

Alternative Test

These valves will be full stroke exercised closed and failsafe tested closed during cold shutdowns when the Reactor Coolant system is depressurized below 200 psig.

Cold Shutdown Justification CSJ-13

Valve Number	System	Safety Class	Category
RC-V-42	RC	1	B
RC-V-43	RC	1	B

Function

These normally closed solenoid operated valves are opened to vent steam and noncondensible gases from the reactor vessel head and hot and cold legs to the reactor building. This venting capability supports core cooling for events beyond the design basis. The ability to vent post accident increases the ability of the plant to deal with large quantities of noncondensible gas which could interfere with natural circulation (i.e., core cooling), however these functions are beyond the scope of inservice testing (i.e., required to shut down the reactor, maintain safe shutdown or mitigate the consequences of an accident).

When the required venting is completed, this valve is closed by remote manual operation to maintain the RCS pressure boundary and inventory. This valve does not receive any automatic actuation signals however it fails closed on loss of electrical power.

The individual vent path lines are sized such that an inadvertent opening of any valve will not constitute a LOCA. This design feature provides a high degree of assurance that the vents will be available when needed, and that inadvertent operation or failures will not significantly hamper the safe operation of the plant [TS 3.1.13].

Justification

It is impracticable to full or partial stroke exercise these valves closed or fail safe test closed during normal power operation. Exercising either of these valves during power operations places the plant in an undesirable configuration by reducing the reactor coolant system isolation barrier to only a single valve. During normal operation these valves are maintained closed at all times, they also fail closed, and they are not relied upon during or following any design basis event. Furthermore, the vent line sizing is such that inadvertent opening of the valves is within the capability of a single make-up pump and thus not considered a LOCA.

Exercising either valve during normal power operations leaves only the other valve as a single valve isolation barrier. Based on the guidance in ISTC-3521(c), full stroke exercising will be performed during cold-shutdowns.

Alternative Test

These valves will be full stroke exercised closed and failsafe tested closed during cold shutdowns when the Reactor Coolant system is depressurized below 200 psig.

Cold Shutdown Justification CSJ-14

Valve Number	System	Safety Class	Category
DH-V-4A	DH	2	B
DH-V-4B	DH	2	B

Function

This valve opens on a LPI actuation signal to provide low-pressure injection flow to the RCS in the event of a large-break LOCA. After initiation during a LBLOCA or during sump recirculation, this valve is "jogged" to throttle LPI flow to ensure adequate available NPSH to the associated DH Pump. This valve is also required to open in order to use the DH System as the normal and preferred method of placing and maintaining the Reactor in the Cold Shutdown condition. However, since TMI-1 is licensed with Hot Shutdown as the "safe shutdown", condition, this is not considered a safety function.

This valve is listed in FSAR Table 5.3-2 as a Containment Isolation Valve. The valve is required to be capable of closure by remote manual operation to provide long term Containment isolation.

Justification

It is impracticable to full stroke exercise or partial stroke exercise this valve open or closed during normal power operation since opening this valve during normal power operation could cause over pressurization of the lower pressure DH system. Opening this valve while the RCS is pressurized would leave only a single downstream check valve as the reactor coolant system pressure boundary between high and low pressure systems.

Additionally, when cycled, these valves could subject the system to pressures in excess of its design pressure. For the purpose of a cycling test, it is assumed that one or more of the upstream check valves have failed unless positive methods are available for determining the pressure or lack thereof on the high-pressure side of the valve to be cycled. (NUREG-1482, revision 1, section 3.1.1). This justifies deferral of testing to cold shutdown.

Alternative Test

These valves will be exercised open and closed during cold shutdowns when the reactor coolant system is depressurized.

ATTACHMENT 8

REFUELING OUTAGE JUSTIFICATION INDEX

(Page 1 of 1)

Refueling Outage Justification No.	Description
RJ-01	DH Pump Discharge Check Valves (DH-V-16A/B) Exercise Open
RJ-02	OTSG Sample Check Valves (CA-V-448A/B) Exercise Open/Closed
RJ-03	Main Steam Isolation Valves (MS-V-1A-D) Exercise Close
RJ-04	DH to CFT Check Valves (DH-V-22A/B) Exercise Open/Closed
RJ-05	EF Pump Discharge Check Valves (EF-V-11A/B) Exercise Open/Closed
RJ-06	IA Check Valves (IA-V-1628A/B and 1631A/B) Exercise Open/Close
RJ-07	EF Pump 1 Discharge Check Valve (EF-V-13) Exercise Open/Closed
RJ-08	2-Hour Backup Air Valves (IA-V-1625A/B, 1626A/B) Exercise and Fail Open
RJ-09	RCS Makeup Tank Check Valve (MU-V-79) Exercise Open/Close
RJ-10	MS Isolation Check Valves (MS-V-1A-D) Exercise Closed
RJ-11	RB Emergency Cooling Water Valves (RR-9A/B/C) Exercise Open/Closed
RJ-12	MU Tank Outlet Check Valve (MU-V-112) Exercise Closed
RJ-13	MU Pump BWST Check Valves (MU-V-14A/B) Exercise Open/Closed
RJ-14	RB Emergency Cooling Water Valves (RR-8A/B) Exercise Open
RJ-15	MU Pump Discharge Check Valves (MU-V-73A-C) Exercise Open
RJ-16	NR Pump Discharge Check Valves (NR-V-20A-C) Exercise Open - DELETED
RJ-17	PORV Isolation Valve (RC-V-2) Exercise Closed
RJ-18	RB Emergency Cooling Water Valves (RR-7A/B) Exercise Open/Closed
RJ-19	Pressurizer PORV (RC-RV-002) Exercise Open/Closed, Fail Closed
RJ-20	DH Pump from BWST Check Valve (DH-V-14A/B) Exercise Open/Close
RJ-21	RB Sump to DH Pump Suction Valves (DH-V-6A/B) Exercise Open/Close
RJ-22	DH Equalizing Check Valves (DH-V-166/170/171,172) Exercise Open/Close
RJ-23	Decay Heat to Aux Spray Check Valve (DH-V-69) Exercise Open/Close
RJ-24	Spent Fuel Return Check Valve (DH-V-50) Exercise Open/Close
RJ-25	CST De-Icing Supply Check Valves (CO-V-25A/B) Exercise Open/Close
RJ-26	NR System Outlet to Screen Wash Heater (NR-V-19) Exercise Open

ATTACHMENT 9

REFUELING OUTAGE JUSTIFICATIONS

Refueling Outage Justification RJ-01

Valve Number	System	Safety Class	Category
DH-V-16A	DH	2	C
DH-V-16B	DH	2	C

Function

This valve is required to open to permit flow from the Decay Heat Removal Pump to the reactor coolant system or makeup pumps suction when required during accident conditions.

In the event of a Core Flood System line break, DH Pump discharge cross-connect valves DH-V38A and DH-V38B would need to be opened to provide balanced flow to the Core. If the corresponding DH pump fails to start, this valve must close in order to prevent bypassing flow back to the Reactor Building Sump through the idle train.

Justification

It is impracticable to exercise these valves open during operations or during cold shutdown. The open exercise requires a full flow test. Performance of a forward flow test is not possible during normal operations since the decay heat removal pumps cannot overcome reactor coolant system pressure. This forward flow test during cold shutdowns is not always possible since the reactor coolant system pressure may still be at a level which prevents exercising the valves open. Additionally, the injection of DH system flow into the reactor coolant system during normal operations or cold shutdowns would effect boron concentration and reactivity.

It is impracticable to exercise these valves closed during normal power operations. The closure test of these valves requires a reverse flow or leakage test. A reverse flow test can only be performed when the cross tie isolation valves DH-V-38A/B are both open and one pump is in operation. The corresponding idle pump discharge check valve can then be reverse flow tested. This test can only be performed during cold shutdown periods when the cross tie isolation valve may be opened. These valves are maintained closed during normal power operation to maintain train separation. To perform this testing would require major plant or hardware modifications (NUREG-1482, revision 1, section 2.4.5). This justifies deferral of testing to refueling outages.

Alternative Test

These check valves will be exercised open and closed during refueling outages. The valves are verified to open with full flow during refueling outages when the DH pump can deliver the required flow rates into the reactor coolant system and closed when the cross-tie isolation valves may be opened. As permitted by ASME OM Code ISTC-3522(a) both the open and closed check valve tests will be performed during refueling outages when it is practicable to perform both tests.

Refueling Outage Justification RJ-02

Valve Number	System	Safety Class	Category
CA-V-448A	CA	2	C
CA-V-448B	CA	2	C

Function

These excess flow check valves must open to provide a flow path from the OTSG sample penetration to the downstream relief valve in the event of an overpressure condition of the containment penetration piping due to thermal expansion of the entrained liquid when the containment isolation valves are in their normally closed positions.

This valve trips closed to restrict flow in the event of a failure of relief valve CA-V-449 while sampling of OTSG is in progress.

Justification

It is impracticable to exercise these valves open and closed during normal power operation or during cold shutdown conditions. Exercising these valves requires the performance of a differential pressure and leakage test to verify the open and closed positions.

Performance of a differential pressure and leakage test requires temporary test equipment to be installed to establish a forward flow test and for verifying closure. This test is impracticable to be performed during normal power operations or during cold shutdowns since the associated OTSG sample line would be required to be out of service. To perform this testing would require major plant or hardware modifications (NUREG-1482, revision 1, section 2.4.5). Additionally, containment entry to perform the necessary test setup, performance and restoration would cause an increase in personnel radiation exposure. This justifies deferral of testing to refueling outages.

Alternative Test

These check valves will be exercised open and closed during refueling outages when the OTSG are not in service and containment entry is possible.

Refueling Outage Justification RJ-03

Valve Number	System	Safety Class	Category
MS-V-1A	MS	2	B/C
MS-V-1B	MS	2	B/C
MS-V-1C	MS	2	B/C
MS-V-1D	MS	2	B/C

Function

These normally open motor operated check valves receive no automatic isolation signal. This allows for optimum RCS heat removal during most accidents and non-accident reactor trips. These valves are required to be closed from the Control Room following a large-break LOCA, small-break LOCA, Main Steam line break, Steam Generator tube rupture, or if a loss of OTSG integrity results in Containment pressure above OTSG pressure. In these cases, the valve would be closed by the motor operator, resulting in the Category B classification. Section 10.3.1.1a of the FSAR states that the time required for the MSIV to close is not critical and is not relied upon in any accident analysis. These valves function as check valves in closing to prevent blowdown of both OTSG's in the event of a Main Steam line break upstream. Therefore, they are also classified as Category C.

Although the open position is preferred under most accident and normal shutdown conditions (and is required for Plant operation), these valves do not have any safety function in the open position. These valves are considered Containment Isolation Valves, however they are exempt from Type C testing since they are connected to a closed loop inside containment (OTSG).

Justification

It is impracticable to full stroke exercise or partial stroke exercise these valves closed during normal power operation or cold shutdown (see TSCR 246) since closure testing at normal power operations could cause a plant trip.

Closing these valves for testing during normal power operations would interrupt steam flow from the steam generator to the main steam/turbine systems. Exercising these valves closed would isolate the steam generator which would result in a severe power transient in the steam and reactor coolant systems which would lead to a subsequent trip of the plant. To perform this testing would create a condition with a high potential to cause a reactor trip (NUREG-1482, revision 1, section 2.4.5). This justifies deferral of testing to refueling outages.

Alternative Test

These valves will be exercised closed (Category B) and stroke timed during refueling outages (see TSCR 246) when the main steam system is not required to be in operation.

Refueling Outage Justification RJ-04

Valve Number	System	Safety Class	Category
DH-V-22A	DH	1	A/C
DH-V-22B	DH	1	A/C

Function

These check valves are Reactor Coolant Pressure Boundary Pressure Isolation Valves (RCPB PIV). In the closed position, the valves prevent leakage from the high pressure RCS to the lower pressure rated Decay Heat Removal System. The valves are considered containment isolation valves, however, they are exempt from Appendix J Type C testing since no potential leakage path from containment exists. Communicating the decay heat removal piping through valve DH-V-20 A and B or the effect of the water seal on the suction side of the decay heat removal pumps creates a situation in which these valves are not relied upon for containment isolation.

The valves are required to open to admit borated water from the discharge of the Decay Heat Removal Pump to the Reactor Coolant System during the injection and recirculation phases following an intermediate to large-break LOCA.

Justification

It is impracticable to exercise these valves during normal power operation or during cold shutdown conditions. Exercising these valves requires the performance of a leakage test to verify the closed position and forward flow test to verify the open position.

Performance of a forward flow test is not possible during normal operations since the decay heat removal pumps cannot overcome reactor coolant system pressure. This forward flow test during cold shutdowns is not always possible since the reactor coolant system pressure may still be at a level which prevents exercising the valves open. Additionally, the injection of DH system flow into the reactor coolant system during normal operations or cold shutdowns would effect boron concentration and reactivity.

To perform a leakage test to verify closure during normal operations or cold shutdowns, requires temporary test equipment to be installed inside containment to establish a differential pressure across the valve to verify closure. This test is impracticable to be performed during normal power operations or during cold shutdowns since the DH system would be required to be drained/vented and out of service. Additionally, containment entry to perform the necessary test setup, performance and restoration would cause an increase in personnel radiation exposure. To perform this testing would require major plant or hardware modifications (NUREG-1482, revision 1, section 2.4.5). This justifies deferral of testing to refueling outages.

Alternative Test

These check valves will be exercised closed during refueling outages in conjunction with their respective Pressure Isolation Valve seat leakage test. This test is performed when the DH system is not required to be in service, the reactor coolant system is depressurized, and containment entry is possible. The valves are verified to open with full flow during refueling outages when the DH pump can deliver the required flow rates into the reactor coolant system.

Refueling Outage Justification RJ-05

Valve Number	System	Safety Class	Category
EF-V-11A	EF	3	C
EF-V-11B	EF	3	C

Function

These check valves open to permit the Emergency Feedwater Pump to deliver Emergency Feedwater to either or both OTSG's when Emergency Feedwater is required.

Valves EF-V-11A/B must close to prevent diversion of flow through an idle or faulted emergency feedwater pump.

Justification

It is impracticable to exercise these valves open or closed during normal power operation or during cold shutdown conditions. Exercising these valves requires the performance of a leakage test to verify the closed position and forward flow test to verify the open position.

Performance of a forward flow test is not possible during normal operations since flow through the valves during power operation would inject cold water into a hot steam generator. This is impractical because injecting cold water from the Condensate Storage Tank into the hot Steam Generator during operations would thermally cycle the tubes and Emergency Feedwater nozzles. Further, injection from the Condensate Storage Tank will introduce oxygenated water into the Steam Generators. The exposure of the Steam Generator tubes to oxygenated water, especially during short shutdowns, must be minimized.

To perform a leakage test to verify closure during normal operations or cold shutdowns, requires temporary test equipment to be installed to establish a differential pressure across the valve to verify closure. This closed test requires isolation of one injection line to the OTSG and the cross connecting of two of the three Emergency Feedwater Pumps. This effectively removes two pumps from service. This configuration is not desirable nor is it permitted by the Tech Specs when the plant is operating. During short duration or unplanned Cold Shutdowns, the test could extend the outage due to the amount of time necessary for test setup, performance and restoration. To perform this testing would require major plant or hardware modifications (NUREG-1482, revision 1, section 2.4.5). This justifies deferral of testing to refueling outages.

Alternative Test

These check valves will be exercised open and closed during refueling outages when the EF pumps are able to deliver the required flow to the OTSG. The closure test performed by a differential pressure leakage test will be performed during refueling outages when the EF system and OTSG's are not required to be in service.

Refueling Outage Justification RJ-06

Valve Number	System	Safety Class	Category
IA-V-1628A	IA	N/C	C
IA-V-1628B	IA	N/C	C
IA-V-1631A	IA	N/C	C
IA-V-1631B	IA	N/C	C

Function

The IA-V-1628A/B check valves must close to isolate the non-safety related instrument air supply from the 2-Hour Backup Air system.

Check valve IA-V-1631A is required to open to provide air from the 2-Hour Backup Air system to be supplied to the essential equipment in the event of a loss of the Instrument Air Compressors. This valve closes to prevent backflow when the A train is out of service while the B train is required to supply PC-5 and MS-V-6.

Check valve IA-V-1631B is required to open to provide a flow path from the 2-Hour Backup Air system to MS-V-6 and the PC-5Controller.

Justification

It is impracticable to full stroke exercise these valves open or closed during normal power operation or during cold shutdowns since the closure test requires a backflow leakage test. This testing would require rendering all of the associated essential components inoperable while performing the back flow leakage or respective forward flow tests. The required full flow and backflow leakage tests can only be performed during refueling outages when it is possible to declare the associated instrument air supplied components inoperable. To perform this testing would require major plant or hardware modifications (NUREG-1482, revision 1, section 2.4.5). This justifies deferral of testing to refueling outages.

Alternative Test

These check valves will be exercised open and closed during refueling outages when the Instrument Air System is not required to be in service. As permitted by ASME OM Code ISTC-3522(a) both the open and closed check valve tests will be performed during refueling outages when it is practicable to perform both tests.

Refueling Outage Justification RJ-07

Valve Number	System	Safety Class	Category
EF-V-13	EF	3	C

Function

This check valve opens to permit the turbine-driven Emergency Feedwater Pump EF-P1 to deliver Emergency Feedwater to either or both OTSG's when emergency feedwater is required to be in operation. The valve must open to provide a minimum of 350 gpm during design accident conditions.

This valve closes to prevent diversion of flow by recirculation through EF-P1 if idle or faulted.

Justification

It is impracticable to exercise this valve open or closed during normal power operation or during cold shutdown conditions. Exercising the valve requires the performance of a leakage test to verify the closed position and forward flow test to verify the open position.

Performance of a forward flow test is not possible during normal operations since flow through the valves during power operation would inject cold water into a hot steam generator. This is impractical because injecting cold water from the Condensate Storage Tank into the hot Steam Generator during operations would thermally cycle the tubes and Emergency Feedwater nozzles. Further, injection from the Condensate Storage Tank will introduce oxygenated water into the Steam Generators. The exposure of the Steam Generator tubes to oxygenated water, especially during short shutdowns, must be minimized.

To perform a leakage test to verify closure during normal operations or cold shutdowns, requires temporary test equipment to be installed to establish a differential pressure across the valve to verify closure. This closed test requires that part of the EF system is inoperable and removes redundancy for providing Emergency Feedwater to each Steam Generator. The closed test requires that the OTSG be isolated and pressurized to create a differential across the valve. This configuration is not ~~desirable nor~~ permitted by the Tech Specs when the plant is operating. Furthermore, during short duration or unplanned Cold Shutdowns, the test could extend the outage due to the amount of time necessary for test setup, performance and restoration. To perform this testing would require major plant or hardware modifications (NUREG-1482, revision 1, section 2.4.5). This justifies deferral of testing to refueling outages.

Alternative Test

This check valve will be exercised open during refueling outages when the EF pump is able to deliver the required flow to the OTSG. The closure test performed by a differential pressure leakage test will be performed during refueling outages when the EF system and OTSG's are not required to be in service.

Refueling Outage Justification RJ-08

Valve Number	System	Safety Class	Category
IA-V-1625A	IA	A	B
IA-V-1625B	IA	A	B
IA-V-1626A	IA	A	B
IA-V-1626B	IA	A	B

Function

These air operated 3-way valves must open to provide a flow path from the 2-Hr Backup Supply Air Bottle Rack to the essential EF and MS air actuators and positioners. The valves are normally aligned in their safety-related position from the Train A 2-Hr Backup Supply Air Bottle Rack to the supply header to assure a 2 hour supply of actuating air in the event of a loss of the IA Compressors. In the event of a loss of supply pressure, this valve fails to the vented position (i.e., it closes off the downstream side) to delay a loss of pressure to the valves.

Justification

It is impracticable to exercise open or fail open these valves during normal power operations or during cold shutdowns. To exercise these valves requires the normal instrument air supply to be isolated to the Emergency Feedwater and Main Steam valves actuators and positioners thereby rendering them inoperable. The components supplied by the 2-Hr Backup Air Bottles are required to be operable during normal operations and during cold shutdowns when the EF and MS systems are still required to be inservice. To perform this testing would require major plant or hardware modifications (NUREG-1482, revision 1, section 2.4.5). This justifies deferral of testing to refueling outages.

Alternative Test

These valves will be exercised and failsafe tested open during refueling outages when the EF and MS systems are not required to be inservice and the 2-Hour backup air system is not required.

Refueling Outage Justification RJ-09

Valve Number	System	Safety Class	Category
MU-V-79	MU	2	A

Function

This check valve must close to prevent diversion of HPI injection flow from the discharge of MU Pumps MU-P-1A or MU-P-1B to the Makeup Tank or other portions of the letdown/purification parts of the system. However, upstream manual valve MU-V-78 is administratively maintained in the locked closed position and relied upon for isolation of the letdown/purification system. This valve is categorized as A since closure of this valve is important to ECCS bypass leakage [UFSAR 6.4]. This valve is a potential leakage path from the reactor building sump or associated system when contaminated water is circulated following a LOCA [C-1101-210-E270-014].

This valve opens during plant shutdowns when the HPI function of the system is not required to be operable in order to allow for purification and chemical treatment of the RCS without the use of an MU pump. This function is not required for safe shutdown or accident mitigation.

Justification

It is impracticable to full stroke exercise this valve open or closed during normal power operation or during cold shutdowns since the open test requires a leakage test to verify closure. This test requires draining and venting of the associated piping to perform the leakage test. This test can only be performed during refueling outages when the makeup system is not required to be in operation to facilitate this test. To perform this testing would require major plant or hardware modifications (NUREG-1482, revision 1, section 2.4.5). This justifies deferral of testing to refueling outages.

Alternative Test

This valve will be exercised open and closed during refueling outages when the MU system is not required to be in service. As permitted by ASME OM Code ISTC-3522(a) both the open and closed check valve tests will be performed during refueling outages when it is practicable to perform both tests.

Refueling Outage Justification RJ-10

Valve Number	System	Safety Class	Category
MS-V-1A	MS	2	B/C
MS-V-1B	MS	2	B/C
MS-V-1C	MS	2	B/C
MS-V-1D	MS	2	B/C

Function

These normally open motor operated check valves receive no automatic isolation signal in order to allow for optimum RCS heat removal during most accidents and non-accident reactor trips. These valves are required to be closed from the Control Room following a large-break LOCA, small-break LOCA, Main Steam line break, or Steam Generator tube rupture, or if a loss of OTSG integrity results in Containment pressure above OTSG pressure. In these cases, the valve would be closed by the motor operator, resulting in the Category B classification. Section 10.3.1.1a of the FSAR states that the time required for the MSIV to close is not critical and is not relied upon in any accident analysis. These valves function as check valves in closing to prevent blowdown of both OTSG's in the event of a Main Steam line break upstream. Therefore, they are also classified as Category C.

Although the open position is preferred under most accident and normal shutdown conditions and is required for Plant operation, the valves do not have any safety function in the open position. These valves are considered a Containment Isolation Valves, however they are exempt from Type C testing since it is connected to a closed loop inside containment (OTSG).

Justification

It is impracticable to exercise these valves closed during normal power operation or during cold shutdowns.

Closing these valves for testing during normal power operations would interrupt steam flow from the steam generator to the main steam/turbine systems. Exercising these valves closed would isolate the steam generator which would result in a severe power transient in the steam and reactor coolant systems which would lead to a subsequent trip of the plant.

The closure test of the check valve function requires that one OTSG be depressurized while pressure on the other is monitored. Effectively, the closed function is verified by a leak test. To perform a leakage test to verify closure during normal operations or during cold shutdowns, requires temporary test equipment to be installed to establish a differential pressure across the valve to verify closure. This test can only be done during refueling outages when the steam generators may be isolated. To perform this testing would create a condition with a high potential to cause a reactor trip (NUREG-1482, revision 1, section 2.4.5). This justifies deferral of testing to refueling outages.

Alternative Test

These valves will be exercised closed (Category C) during refueling outages when the main steam system is not required to be in operation. The open (Category C) check valve function is verified during normal operations with system flow.

Refueling Outage Justification RJ-11

Valve Number	System	Safety Class	Category
RR-V-9A	RR	3	C
RR-V-9B	RR	3	C
RR-V-9C	RR	3	C

Function

These check valves must open to provide a return flow path to the River from the Emergency RB Cooling Coil for post-accident cooling and pressure control of the Reactor Building.

The valves close to prevent reverse flow through a faulted cooling coil, however downstream motor operated valve RR-V-4A-D is normally closed and relied upon for isolation of the cooling coil. Therefore this closed function is not required for safe shutdown or accident mitigation.

Justification

It is impracticable to exercise these check valves open or closed during normal power operation or during cold shutdowns. Exercising the valves open requires the performance of a full flow test to verify the open position. Exercising the valves closed requires a leakage or reverse flow test.

Performance of a full flow test through these valves requires the RBEC pump to introduce river water into the Reactor Building Emergency Cooling Coils. Since river water contains silt and microorganisms, the system must be drained to the Reactor Building sump and refilled with Nuclear Services Closed Cooling Water. Approximately 5,000 gallons of water must be processed through the Liquid Waste Disposal System. This is not practical for a quarterly or cold shutdown frequency. Additionally, test performance will discharge a quantity of corrosion inhibitor to the river, an environmental release that should be minimized.

To perform a leakage test or reverse flow test to verify closure during normal operations or during cold shutdown, requires temporary test equipment to be installed inside containment to establish a differential pressure across the valve to verify closure. This test is impracticable to be performed during normal power operations or during cold shutdowns since the RB Emergency Cooling Water system would be required to be drained/vented and out of service. Additionally, containment entry to perform the necessary test setup, performance and restoration would cause an increase in personnel radiation exposure and delay startup from a cold shutdown condition. To perform this testing would require major plant or hardware modifications (NUREG-1482, revision 1, section 2.4.5). This justifies deferral of testing to refueling outages.

Alternative Test

These check valves will be exercised open and closed during refueling outages when full forward and reverse flow testing can be performed and the reactor building emergency cooling coils are not required to be in service.

Refueling Outage Justification RJ-12

Valve Number	System	Safety Class	Category
MU-V-112	MU	2	A/C

Function

This check valve is required to close to prevent pumping post-accident liquid from the RB Sump into the Makeup Tank when operating the DH and MU Systems in the "piggyback" mode. This valve is located in the outlet line of Makeup Tank MU-T-1 and forms a boundary between the portion of the MU System which is required for safe shutdown/accident mitigation and the non-safety related makeup tank.

This valve opens to allow makeup flow from Makeup Tank MU-T-1 to the suction of the operating Makeup Pump (normally MU-P-1B) during normal operation. Downstream motor-operated isolation valve, MU-V12, does not receive any signal to close in the event of an accident and would probably be left open to provide additional injection inventory to the BWST. However, the Makeup Tank is not assumed to be available in any of the accidents or faulted conditions described in Chapters 6 or 14 of the FSAR. Therefore, this valve does not have a safety function to open.

Justification

It is impracticable to exercise this valve closed during normal power operation or during cold shutdowns. Exercising the valve requires the performance of a leakage or reverse flow test to verify the closed position.

To perform a leakage test or reverse flow test to verify closure during normal operations or cold shutdowns, requires temporary test equipment to be installed to establish a differential pressure across the valve to verify closure. This test is impracticable to be performed during normal power operations or during cold shutdowns since the MU system and DH system would be required to be drained/vented and out of service to perform a leakage test. To perform a reverse flow test using the DH system to pressurize the valve would require removing both the MU and DH system from service. This testing is impracticable to perform during normal power operations or during cold shutdown conditions. To perform this testing would require major plant or hardware modifications (NUREG-1482, revision 1, section 2.4.5). This justifies deferral of testing to refueling outages.

Alternative Test

This valve will be exercised closed during refueling outages when the MU and DH systems are not required to be in service. The open non-safety direction is verified using normal system flow during normal power operations.

Refueling Outage Justification RJ-13

Valve Number	System	Safety Class	Category
MU-V-14A	MU	2	A/C
MU-V-14B	MU	2	A/C

Function

These motor operated check valves are required to open on an ESAS actuation signal of 1600 psig RCS pressure or 4 psig Reactor Building pressure to provide suction from the BWST to the MU Pumps for HPI initiation. An ESAS backup initiation signal is also provided at 500 psig RCS pressure.

The valves are required to close following the post-LOCA injection phase to isolate the BWST during the recirculation phase. In the "piggyback" mode, this is the only valve that separates the BWST from the discharge of the DH Pumps.

Justification

It is impracticable to exercise this valve open or closed during normal power operation or during cold shutdowns. Exercising the valve requires the performance of a leakage or reverse flow test to verify the closed position and full flow test to verify the open position.

To perform a leakage test or reverse flow test to verify closure during normal operations or cold shutdowns, requires temporary test equipment to be installed to establish a differential pressure across the valve to verify closure. This test is impracticable to be performed during normal power operations or during cold shutdowns since the test lineup requires isolation of the Makeup Tank and observation of level decrease over time. This procedure can significantly lengthen an unplanned Cold Shutdown. To verify the full open position, a full flow test using the BWST as a suction source is required. Injection of highly borated water from the BWST into the reactor coolant system is not practicable during normal operations or during cold shutdown due the significant effect it will have on reactivity and RCS inventory control. Additionally, performance of this full flow test may lengthen the time to reach criticality. The delay would occur because the boron concentration would need to be diluted by water from a Reactor Coolant Bleed Tank. To perform this testing would require major plant or hardware modifications (NUREG-1482, revision 1, section 2.4.5). This justifies deferral of testing to refueling outages.

Alternative Test

This valve will be exercised closed during refueling outages in conjunction with the respective leakage test when the MU system is not required to be in service. The valve will be exercised open during refueling outages with flow by injecting BWST water in to the reactor coolant system.

Refueling Outage Justification RJ-14

Valve Number	System	Safety Class	Category
RR-V-8A	RR	3	C
RR-V-8B	RR	3	C

Function

These check valves must open to provide flow from the RBEC Pumps to the Reactor Building Emergency Cooling Coils for post-accident cooling and pressure control. The valves may also be required to open to provide a safety-related, seismically-qualified backup suction source to the Emergency Feedwater Pumps.

These valves are required to close to prevent diversion of flow in the event of a failure of the RBEC Pump to start or continue running or of an upstream pipe break.

Justification

It is impracticable to exercise these check valves open during normal power operation or during cold shutdowns. Exercising the valves open requires the performance of a full flow test to verify the open position.

Performance of a full flow test through these valves requires the RBEC pump to introduce river water into the Reactor Building Emergency Cooling Coils. Since river water contains silt and microorganisms, the system must be drained to the Reactor Building sump and refilled with Nuclear Services Closed Cooling Water. Approximately 5,000 gallons of water must be processed through the Liquid Waste Disposal System. This is not practical for a quarterly or cold shutdown frequency. Additionally, test performance will discharge a quantity of corrosion inhibitor to the river, an environmental release that should be minimized. To perform this testing would require major plant or hardware modifications (NUREG-1482, revision 1, section 2.4.5). This justifies deferral of testing to refueling outages.

Alternative Test

These check valves will be exercised open during refueling outages when full flow testing can be performed and the reactor building emergency cooling coils are not required to be in service. The closure test is performed quarterly using reverse flow from the Nuclear Services Closed Cooling Water system.

Refueling Outage Justification RJ-15

Valve Number	System	Safety Class	Category
MU-V-73A	MU	2	C
MU-V-73B	MU	2	C
MU-V-73C	MU	2	C

Function

In the open position, these check valves allow required HPI flow to be supplied by the Makeup Pumps to the RCS in response to an ESAS initiation at 1600 psig RCS pressure or 4 psig Reactor Building pressure, or by a backup signal at 500 psig RCS pressure.

In the closed position, the valves prevent diversion of flow by recirculation through the pump in the event that the pump fails to start or is secured by the operator during the later stages of the accident or for post-accident recirculation (i.e., "piggyback") operation.

Justification

It is impracticable to exercise these check valves open during normal power operation or during cold shutdowns. Exercising the valve open requires the performance of a full flow test to verify the open position.

Full flow testing of these valves requires injection into the Reactor Coolant System (RCS). During normal power operations or during cold shutdowns the injection flow into the RCS is limited to avoid pressure transients in the RCS. Attaining full flow requires that additional injection valves be opened. Tech Spec 3.1.12.3 will not permit opening of the injection valves (MU-V16A, B, C, D) when RCS temperature is below 275 degrees F with the Reactor Head in place. This means testing at Cold Shutdown is not possible and that the test must be performed as the plant shuts down or restarts. To perform this testing would require major plant or hardware modifications (NUREG-1482, revision 1, section 2.4.5). This justifies deferral of testing to refueling outages.

Alternative Test

These check valves will be exercised open during refueling outages when injection to the reactor coolant system is possible. The valves are exercised closed by reverse flow testing during normal power operations when the MU pumps are tested.

Refueling Outage Justification RJ-16

Valve Number	System	Safety Class	Category
NR-V-20A	NR	3	C
NR-V-20B	NR	3	C
NR-V-20C	NR	3	C

Function

In the open position, this valve allows flow from the discharge of the Nuclear Services River Water Pump to flow to the Nuclear Services Heat Exchangers to provide heat removal for the Nuclear Services Closed Cycle Cooling Water System. The Nuclear Services Closed Cycle Cooling Water System provides cooling to components which are required to achieve or maintain safe shutdown of the Plant or mitigate the consequences of an accident.

In the closed position, this valve prevent diversion of Nuclear Services River Water System flow away from the Nuclear Services Heat Exchangers if the nuclear services river water pump trips or fails to start.

Deleted this justification after revising the quarterly testing in 2008 to use a flow that satisfies design basis requirements.

Refueling Outage Justification RJ-17

Valve Number	System	Safety Class	Category
RC-V-2	RC	1	B

Function

This valve provides isolation capability to protect against a small break LOCA caused by a stuck open PORV. Section 4.2.4.2 of the FSAR states, however, that in response to NUREG 0737, Item II.K.3.1, it was concluded that the requirements of II.K.3.1 and II.K.3.2 are met with the existing PORV safety valve and Reactor high-pressure trip set points and that an automatic PORV isolation system is not required for TMI-1. Nevertheless, this valve is provided for that purpose and tested accordingly.

This valve must open to provide a flow path from the pressurizer to the reactor coolant drain tank when the power operated relief valve (PORV) is required to be open for reactor coolant system depressurization.

Justification

It is impracticable to full or partial stroke exercise this valve during normal power operations or cold shutdown when the PORV (RC-R-002) is inoperable due to excessive seat leakage. Opening the valve may result in inadvertent depressurization of the RCS.

When this valve is closed to isolate an inoperable PORV (due to excessive leakage) the valve is administratively maintained closed with power to it. If required to open to perform its intended safety function, the valve is opened by the operator. Opening this valve at any time while the PORV is inoperable due to excessive seat leakage would result in an uncontrolled reactor coolant system discharge to the reactor coolant drain tank, a loss of pressurizer pressure control, and a potential inadvertent depressurization of the RCS. To perform this testing would create a condition with a high potential to cause a reactor trip (NUREG-1482, revision 1, section 2.4.5). This justifies deferral of testing to refueling outages.

Alternative Test

This valve will be exercised closed quarterly when it is not required to be closed to isolate an inoperable PORV. The valve will be exercised closed during refueling outages when the RCS is depressurized when it is not required to be closed to isolate an inoperable PORV.

Refueling Outage Justification RJ-18

Valve Number	System	Safety Class	Category
RR-V-7A	RR	3	C
RR-V-7B	RR	3	C

Function

These check valves must open to provide a flow path from the RBEC Pumps to the Reactor Building Emergency Cooling Coils for post-accident cooling and pressure control. The valves may also be required to open to provide a safety-related, seismically-qualified backup suction source to the Emergency Feedwater Pumps.

These valves close to prevent reverse flow through a faulted or idle RBEC pump, however, downstream valves RR-V-8A/B and RR-V-1A/B are relied upon for this function. Therefore the closed function is not required for safe shutdown or accident mitigation.

Justification

It is impracticable to exercise these check valves open or closed during normal power operation or during cold shutdowns. Exercising the valves open requires the performance of a full flow test to verify the open position. Exercising the valves closed requires a leakage or reverse flow test.

Performance of a full flow test through these valves requires the RBEC pump to introduce river water into the Reactor Building Emergency Cooling Coils. Since river water contains silt and microorganisms, the system must be drained to the Reactor Building sump and refilled with Nuclear Services Closed Cooling Water. Approximately 5,000 gallons of water must be processed through the Liquid Waste Disposal System. This is not practical for a quarterly or cold shutdown frequency. Additionally, test performance will discharge a quantity of corrosion inhibitor to the river, an environmental release that should be minimized. To perform this testing would require major plant or hardware modifications (NUREG-1482, revision 1, section 2.4.5). This justifies deferral of testing to refueling outages.

Alternative Test

These check valves will be exercised open and closed during refueling outages when full flow testing can be performed and the reactor building emergency cooling coils are not required to be in service. The closure test is performed on the non-operating pump discharge check using reverse flow when the operating pump check valve is tested open.

Refueling Outage Justification RJ-19

Valve Number	System	Safety Class	Category
RC-RV-002	RC	1	B/C

Function

Operation of this valve is controlled by the opening or closing of a pilot valve which causes unbalanced forces to exist on the main valve disc. The pilot valve is opened or closed by a solenoid in response to the opening and closing set points of 2450 psig and 2400 psig, respectively. A console switch allows the Operator to have the option of manually opening the PORV to vent RCS pressure or to allow automatic venting.

Manual venting RCS pressure would permit anticipatory reduction of pressure following an event which would normally result in high RC pressure and thus avoid unnecessary challenges to the Code safety valves (RC-RV1A and B). This valve has safety functions in both the open and closed directions to control and maintain RCS pressure and inventory.

Justification

It is impracticable to full or partial stroke exercise or fail safe test this valve open or closed during normal power operation or during cold shutdowns. Exercising this valve open/closed and fail safe testing during these conditions may cause equipment damage or a trip of the reactor.

Exercising this valve during normal power operations could cause a rapid depressurization of the reactor coolant system causing a pressure transient and subsequent trip of the plant. Additionally, exercising this valve during power operations or cold shutdowns would potentially damage the valve seats. To perform this testing would create a condition with a high potential to cause a reactor trip (NUREG-1482, revision 1, section 2.4.5). This justifies deferral of testing to refueling outages.

Alternative Test

This valve will be exercised open and closed and fail safe tested during refueling outages when the reactor coolant system is depressurized.

During each refueling outage one of the following tests will be performed:

1) Actuate during shutdown conditions, or
2) Remove and bench test, or
3) Remove and replace with a spare valve that had been bench tested within the last three years.

In addition, an as-found and as-left visual examination will be performed. For in-place testing the stroke time will be determined by acoustic monitors. For bench testing, the stroke time will be determined by observation. Fail safe testing will be accomplished by observing valve closure upon the removal of the open actuation signal.

Refueling Outage Justification RJ-20

Valve Number	System	Safety Class	Category
DH-V-14A	DH	2	C
DH-V-14B	DH	2	C

Function

This check valve opens to permit the Decay Heat Removal Pump to take suction from the BWST. This valve is required to close to prevent potential flow from the Reactor Building Sump into the BWST in the event that DH-V 005A/B fails to close following an accident while the Reactor Building is under pressure.

Justification

It is impracticable to exercise these valves during normal power operations or cold shutdown when DH system is required to be in service.

To exercise the valve open requires full flow injection from the BWST into the reactor coolant system. This test is impracticable to perform during plant operation or during cold shutdown since full flow injection of borated water into the reactor coolant system would result in severe reactor power oscillations and subsequent reactor trip during plant operations. During cold shutdown, this test would result in delaying unit startup due to the amount time necessary to clean up the DH and RC systems along with refilling the BWST.

To exercise the valve closed would require a leakage test. This test would require the entire DH suction piping to be drained and vented. The test would render the associated DH system inoperable during plant operations and during cold shutdown periods. This test would also delay unit startup from the cold shutdown condition due to the amount of piping required to be filled. To perform this testing would require major plant or hardware modifications (NUREG-1482, revision 1, section 2.4.5). This justifies deferral of testing to refueling outages.

Alternative Test

These valves will be exercised open and closed during refueling outages when the DH and RC systems are not required to be inservice to allow for full flow injection and leakage testing of the subject valves.

Refueling Outage Justification RJ-21

Valve Number	System	Safety Class	Category
DH-V-6A	DH	2	B
DH-V-6B	DH	2	B

Function

These valves must be capable of closure to provide long term Containment isolation following an accident. However, since the DH System is filled with water and is a closed system outside Containment, it is very improbable that leakage would occur through this valve. Furthermore, this valve will be opened and may remain open indefinitely following an accident. This valve is exempt from Type C leakage testing since it is in a penetration which is continuously submerged in water during accident conditions (water-sealed).

This valve must be opened to shift suction of the Decay Heat Removal Pump from the BWST to the Reactor Building Sump when the BWST inventory is depleted following a LOCA in order to initiate the post-LOCA recirculation mode. The valve is closed by remote manual operation.

Justification

It is impracticable to exercise these valves during normal power operations or cold shutdown.

Exercising these valves would introduce contaminated reactor building sump water into the DH system suction piping and potentially the reactor coolant system. Additionally, blanking the reactor building sump to perform testing would render the associated LPI train inoperable. This testing would require potential draining and filling of the DH system suction piping rendering the DH system inoperable. This testing would potentially delay unit startup from a cold shutdown to perform the necessary cleanup of the system (drain and fill). In addition, this testing would require processing of unnecessary radioactive waste. To perform this testing would require major plant or hardware modifications (NUREG-1482, revision 1, section 2.4.5). This justifies deferral of testing to refueling outages.

Alternative Test

These valves will be exercised open and closed during refueling outages when the DH and RC systems are not required to be inservice and the reactor building sump level is such that radioactive fluid is not introduced into the DH system suction piping.

Refueling Outage Justification RJ-22

Valve Number	System	Safety Class	Category
DH-V-166A	DH	2	B
DH-V-166B	DH	2	B
DH-V-170	DH	2	B
DH-V-171	DH	2	B
DH-V-172	DH	2	B

Function

These check valves must open to allow pressure between the seats and portions of piping of certain valves equalize with downstream (RCS) pressure in order to prevent pressure-locking of the boundary valves allowing them to be opened when required.

The valves close to prevent back flow of RCS fluid into the area between the seats and portions of piping to prevent pressure-locking of the valve of the respective valves.

Justification

It is impracticable to exercise these valves open or closed during normal power operations or cold shutdown.

Exercising these valves closed requires draining of reactor coolant system fluid to perform backflow testing to verify closure capability of the subject check valves. This test is essentially a leakage rate test which would require refilling and venting of the associated portions of the reactor coolant system. Additionally, increased personnel radiation exposure would be realized due to the close proximity of these valves to the reactor building. The full flow open test of these check valves is also impracticable to perform due to the same venting and draining setup. To perform this testing would require major plant or hardware modifications (NUREG-1482, revision 1, section 2.4.5). This justifies deferral of testing to refueling outages.

Alternative Test

These valves will be exercised open and closed during refueling outages when the DH and RC systems are not required to be inservice. As permitted by ASME OM Code ISTC-3522(a) both the open and closed check valve tests will be performed during refueling outages when it is practicable to perform both tests.

Refueling Outage Justification RJ-23

Valve Number	System	Safety Class	Category
DH-V-69	DH	2	A/C

Function

This check valve must open to allow circulation of water from the decay heat system through the auxiliary spray line to prevent the concentration of boron in the Core from exceeding its solubility limit. This method of preventing boron precipitation provides a backup to the drop leg method, which is not single-failure proof.

The valve closes to isolate containment from the decay heat removal system.

Justification

It is impracticable to full stroke exercise this valve open or closed during normal power operation since injection in to the RCS through this line is not possible with the RCS pressurized. The Decay Heat discharge pressure is approximately 200 psig while the normal RCS pressure is greater than 2100 psig. The closure test of this check valve is performed by using a back flow leakage test to verify disk closure. This test requires entry in to the reactor building to perform the necessary test setup and restoration. It is impracticable to perform this leakage test during normal power operations or during cold shutdowns. Entry in to the reactor building is not possible during normal power operations due to the elevated dose. Performance of a leakage test during cold shutdowns is impracticable since a significant amount of piping would be required to be drained and vented along with an increase to personnel exposure. To perform this testing would require major plant or hardware modifications (NUREG-1482, revision 1, section 2.4.5). This justifies deferral of testing to refueling outages.

Alternative Test

This valve will be exercised open and closed during refueling outages when the reactor coolant system is depressurized and radiation levels are reduced. As permitted by ASME OM Code ISTC-3522(a) both the open and closed check valve tests will be performed during refueling outages when it is practicable to perform both tests.

Refueling Outage Justification RJ-24

Valve Number	System	Safety Class	Category
DH-V-50	DH	2	A/C

Function

This valve is categorized as A since closure of this valve is important to ECCS bypass leakage. This valve is a potential leakage path from the reactor building sump or associated system when contaminated water is circulated following a LOCA [C-1101-210-E270-014].

This valve closes to prevent diversion of flow from the Decay Heat Removal Pump DH-P-1A suction in the event of a loss of upstream piping, however, upstream manual isolation valve, SF-V-44 is maintained closed and is also classified as Seismic Class I. Additionally, the cleanup supply line from the spent fuel pool is maintained closed during normal power operations.

This valve opens to provide a flow path from the spent fuel pool cleanup system to the suction of the decay heat removal pump. This function is not required for safe shutdown or accident mitigation.

Justification

It is impracticable to full stroke exercise this valve open or closed during normal power operation or during cold shutdowns since the open test requires the spent fuel pool cleanup line to be opened and flow established from the spent fuel pool to the suction of the DH pumps. This evolution can only be performed during refueling outages when the DH system is in cleanup mode. The closure test of this valve requires pressurization of the DH suction piping. This test can not be performed during normal power operations without rendering the DH system inoperable. To perform this testing would require major plant or hardware modifications (NUREG-1482, revision 1, section 2.4.5). This justifies deferral of testing to refueling outages.

Alternative Test

This valve will be exercised open and closed during refueling outages when the DH system can be lined up for spent fuel pool cooling. As permitted by ASME OM Code ISTC-3522(a) both the open and closed check valve tests will be performed during refueling outages when it is practicable to perform both tests.

Refueling Outage Justification RJ-25

Valve Number	System	Safety Class	Category
CO-V-25A	CO	3	C
CO-V-25B	CO	3	C

Function

These check valves must close to prevent backflow from the associated condensate storage tank to the non-safety related de-icing piping in the event that a pipe or alternate condensate storage tank rupture occurs. This function ensures that the contents of the respective condensate storage tank will be available to the suction of the EFW pumps.

The valve opens when the system is in the de-ice mode to provide a warm water flow path from the suction of the condensate booster pumps to the condensate storage tank. This function is not required for safe shutdown or accident mitigation since the condensate and de-icing piping is non-safety related.

Justification

It is impracticable to full stroke exercise this valve closed during normal power operation. The de-icing lane manual valves from the condensate booster pumps (CO-V-26A/B) are throttled during de-icing operations. As such, they do not provide a zero leakage boundary from the condensate booster pump suction pressure. During refueling outages with the condensate system out of service, the closed safety function of CO-V-25A/B can be verified by a back leakage test. To perform this testing would require major plant or hardware modifications (NUREG-1482, revision 1, section 2.4.5). This justifies deferral of testing to refueling outages.

Alternative Test

These valves will be exercised closed during refueling outages using the head of the condensate storage tanks. The open, non-safety function is verified by normal winter operations of de-icing flow to the condensate storage. As permitted by ASME OM Code ISTC-3522(a) both the closed and non-safety open check valve tests will be performed during refueling outages when it is practicable to perform both tests.

Refueling Outage Justification RJ-26

Valve Number	System	Safety Class	Category
NR-V-19	NR	3	B

Function

This normally closed motor-operated valve must open to provide a flow path from the Nuclear Services River Water System to the Intake Screen and Pump House to support emergency de-icing operations. This valve may be opened / throttled to limit flow for environmental discharge limit concerns or to provide flow balancing when valves NR-V-4A/B are open. Emergency de-icing is required in the event of a LOCA with a loss of off-site power (Circulating Water System is unavailable). The Circulating Water System is used to prevent ice buildup during normal plant operations, but is not available in the event of a loss of off-site power. Thus, in the event of a design basis accident (i.e., a LOCA with loss of off-site power), it could become necessary to open the valve, in order to assure adequate cooling water availability for accident mitigation. This valve is not actuated by ES actuation.

This valve is normally closed to isolate the deicing flow path thereby ensuring the nuclear services river water is returned to the collection sump. This closed function is not required for safe shutdown or accident mitigation since the cooling water return path through both the normal return and de-icing line is the river in both cases.

Topical report 113 (Generic Letter 89-10 Motor Operated Valve Program Description) excludes NR-V-19 (and NR-V-18) from the program based on "neither valve requires stroking for any safety-related reason and, hence, neither one has an active safety function." The GL 89-10 program recognizes local operator actions to open the valve if required during an accident, thereby eliminating the requirement for remote operation. Topical report 107 (Risk Ranking for the Motor Operated Valve Program in Response to GL 89-10) does not specify a risk ranking for NR-V-19 since it has no active safety function.

Safety Evaluation SE-412611-002, revision 1 (NR-V-18 and NR-V-19 Motor Operator Quality Classification Change) concludes that the operators for these valves are not required to be active components, but they are required to maintain passive position of the valve disc.

While the open function of this valve is not required as an active function for a design basis accident, the valve will be open stroke time tested to ensure this function is available if required (rather than operator action).

Justification

It is impracticable to exercise this valve open during normal power operation or during cold shutdowns. Exercising the valve open requires coordinating the closure of NR-V-18 with the opening of NR-V-19 to maintain greater than 31 PSIG at NR-PI-217 (to prevent pump runout or temperature excursions on equipment cooled by this system). To perform this testing would create a condition with a potential to cause system or component damage (NUREG-1482, revision 1, section 2.4.5). This justifies deferral of testing to refueling outages.

Alternative Test

This valve will be exercised open during refueling outages in conjunction with the refueling interval testing of NSRW pumps, when the system is configured for low heat load operations.

ATTACHMENT 10

STATON TECHNICAL POSITION INDEX

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Technical Position No.	Description
TP-01	Bi-directional Testing of Check Valves
TP-02	Check Valve Condition Monitoring
TP-03	Fail Safe Testing of Valves
TP-04	Classification of Skid Mounted Components
TP-05	Passive Valves Without Test Requirements
TP-06	Check Valve Closure in Conjunction with Appendix J Testing
TP-07	Testing of Power Operated Valves with both Active and Passive Safety Functions
TP-08	Manual Valve Exercising Frequency
TP-09	Categorization of IST Pumps (Group A or B)
TP-10	Classification of AS-V-4 as Passive and Categorized as B/C
TP-11	Classification of Thermal Relief Valves
TP-12	Classification of Reactor Building XFC's (BS-V-1103-1108) as Passive
TP-13	Testing of River Water Pump Vacuum Breaker Check Valves

ATTACHMENT 11

STATION TECHNICAL POSITIONS

Technical Position TP-01
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Bi-directional Testing of Check Valves

Purpose

The purpose of this Technical Position is to establish the station position for the verification of the non-safety direction exercise testing of check valves by normal plant operations.

Applicability

This Technical Position is applicable to testing of the non-safety function (direction) of check valves which are included in the Inservice Testing Program. This position applies to those check valves required to be tested in accordance with Subsection ISTC (ASME OM Code 1998 Edition through 2000 Addenda) and Appendix II - Condition Monitoring (ASME OM Code 1998 Edition through 2000 Addenda). This Technical Position does not apply to testing of the safety function (direction) of check valves included in the Inservice Testing Program.

Background

The ASME OM Code 1998 through 2000 Addenda section ISTC-3550, "Valves in Regular Use", states:

> "Valves that operate in the course of plant operation at a frequency that would satisfy the exercising requirements of this Subsection need not be additionally exercised, provided that the observations otherwise required for testing are made and analyzed during such operation and recorded in the plant record at intervals no greater than specified in ISTC-3510."

Section ISTC-3510 requires that check valves shall be exercised nominally every 3 months with exceptions (for extended periods) referenced.

Section ISTC-5221(a)(2) states:

> "Check valves that have a safety function in only the open direction shall be exercised by initiating flow and observing that the obturator has traveled to either the full open position or to the position required to perform its intended function(s) (see ISTC-1100), and verify closure."

Section ISTC-5221(a)(3) states:

> "Check valves that have a safety function in only the close direction shall be exercised by initiating flow and observing that the obturator has traveled [to] at least the partially open position,[2] and verify that on cessation or reversal of flow, the obturator has traveled to the seat."
>
> "[2]The partially open position should correspond to the normal or expected system flow."

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Normal or expected system flow may vary with plant configuration and alignment, however, the open "safety function" of a check valve typically requires a specified design accident flow rate. Since Three Mile Island Unit 1 Operations staff is trained in recognizing normal plant conditions, Operator judgment is acceptable in determining the check valve non-safety direction by obtaining normal or expected flow rates for the plant operating condition.

In summary, check valve non-safety function direction is satisfactorily demonstrated by verifying closure or passing normal or expected flow as applicable.

Position

Three Mile Island will verify the non-safety position of check valves included in the Inservice Testing Program using the plant surveillance program. In lieu of a dedicated surveillance to perform the non-safety direction testing, the following alternate verifications may be performed as follows:

1. An appropriate means shall be determined which establishes the method for determining the open/closed non-safety function of the check valve during normal operations. The position determination may be by direct indicator, or by other positive means such as changes in system pressure, flow rate, level, temperature, seat leakage, etc. This determination shall be documented in the respective Condition Monitoring Plan for the specific check valve group. For check valves included in the Inservice Testing Program and not included in the Condition Monitoring Plan, this determination shall be documented in the IST Bases Document for the specific check valve group.

2. Observation and analysis of plant processes that a check valve is satisfying its' non-safety direction function may used. As an example, a check valve that has a safety function only in the closed direction and normally provides a flow path to maintain plant operations. If the check valve is not open to pass flow, an alarm or indication would identify a problem to the operator. The operator would respond to take appropriate actions. An Issue Report would then be generated for the abnormal plant condition which would identify the check valve failure.

3. Observation and analysis of plant logs and other records satisfied by Operator or Engineering reviews (System Monitoring Plans) may be an acceptable method for verifying a check valves non-safety direction during normal plant operations.

The open/closed non-safety function shall be recorded at a frequency required by ISTC-3510, nominally every 3 months, with exceptions as provided, in plant records such as Three Mile Island Operating Logs, Electronic Rounds, chart recorders, automated data loggers, etc. The safety function direction testing requires a Quality Record in the form of a surveillance test. Records as indicated above in 1 through 3 are satisfactory for the non-safety direction testing. A condition report shall be generated for any issues regarding check valve operability.

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Justification

This Technical Position requires that the method of determining the non-safety position be established and documented in either the Condition Monitoring Plan or the IST Bases Document. The plant systems and operator actions provide for the observations and analysis that the valve is satisfying its' non-safety function. Additionally, the recording of parameters which demonstrate valve position is satisfied at a frequency in accordance with ISTC-3510. These actions collectively demonstrate the non-safety position of Inservice Testing Program check valves in regular use as required by ISTC-3550.

Technical Position TP-02
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Check Valve Condition Monitoring

Purpose

The purpose of this Technical Position is to document Three Mile Island's position on establishing and implementing a Check Valve Condition Monitoring Program in accordance with mandatory Appendix II of the ASME OM Code 1998 Edition through 2000 Addenda. The Condition Monitoring Program specified in Appendix II provides certain flexibility in establishing test types, examinations, and preventive maintenance activities along with their associated intervals, when justified based on check valve performance and operating condition.

Applicability

This Technical Position is applicable to certain valves or groups of valves as permitted by ISTC-5222, Condition Monitoring Program and is in compliance with Exelon Corporate Procedure ER-AA-321-1005.

Background

10CFR50.55a was revised 9/30/02 to endorse the ASME OM-1998 Edition through the latest edition and addenda with modifications. These modifications have been incorporated into the 2000 Addenda of the 1998 Edition of the ASME OM Code. This edition of the ASME OM Code provides provisions to implement a check valve condition monitoring program for selected valves or groups of valves in accordance with mandatory Appendix II. Three Mile Island's Inservice Testing Program for the 4th Ten Year Interval has been developed in accordance with the ASME OM Code 1998 Edition through 2000 Addenda. This edition of the Code provides an alternative in section ISTC-5222, Condition Monitoring Program, to the testing requirements of ISTC-3510, ISTC-3520, ISTC-3540 and ISTC-5221. This section specifies that the program shall be implemented in accordance with Appendix II, Check Valve Condition Monitoring Program.

Position

Three Mile Island will implement a Check Valve Condition Monitoring program for selected valves or groups of valves in accordance with ISTC-5222 and Appendix II. The following guidelines will be adhered to for administering this program. Additionally, if the Appendix II program is discontinued for a valve or group of valves, then the requirements of ISTC-3510, ISTC-3520, ISTC-3550, and ISTC-3521 shall be implemented.

1. Purpose

   The purpose of the Check Valve Condition Monitoring Program is to improve check valve performance and to optimize testing, examination, and preventive maintenance activities in order to maintain the continued acceptable performance of a select valve or group of valves.

2. Scope

The Three Mile Island Valve Check Valve Condition Monitoring Program will be applied to individual check valves or groups of check valves which are either candidates for improved performance or candidates which will be monitored for improved valve performance.

a. Candidates for improved valve performance are those check valves which may exhibit one or more of the following attributes:

   i. The valve(s) exhibits an unusually high failure rate during inservice testing or operations;
   ii. The valve(s) can not be exercised under normal operating conditions or during shutdown;
   iii. The valve(s) exhibits unusual, abnormal, or unexpected behavior during exercising or operations.

b. Candidates for monitoring for improved valve performance using optimization techniques, examination, and preventive maintenance activities are those check valves with documented acceptable performance that:

   i. Have had their performance improved under this program;
   ii. Cannot be exercised or are not readily exercised during normal operating condition or during shutdown;
   iii. Can only be disassembled and examined; or
   iv. It is decided that all of the associated activities of the valve or group will be optimized.

3. Groupings

For valves which are grouped together the following valve attributes shall be considered:

a. Valves shall be of the same manufacturer, design, size, service media, materials of construction, and orientation.
b. Maintenance and modification history shall be reviewed.
c. Test history and results shall be reviewed.
d. System design shall be considered to determine potential flow instabilities, degree of disassembly, and the need for tolerance and dimensional measurements

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(Page 3 of 5)

4. Analysis

An analysis of the test and maintenance history shall be performed to establish the basis for specifying inservice testing, examination, and preventive maintenance activities. This analysis shall include the following:

a. Identify any common failure mode or corrective maintenance patterns.
b. Analyze these common patterns to determine their significance and to identify potential failure mechanisms:

    i. Determine if certain preventive maintenance activities would mitigate the failure or maintenance patterns;
    ii. Determine if certain condition monitoring activities are possible and effective in monitoring for these failure mechanisms;
    iii. Determine if periodic disassembly and examination would be an effective method in monitoring for these failure mechanisms.
    iv. Determine if the valve grouping is required to be changed.

5. Condition Monitoring Activities

a. Performance Improvement Activities

    i. If sufficient information is not available or the results of the analysis performed in 4 above are not conclusive, an interim period not to exceed 2 refueling outages shall be established to determine the cause of the failure or maintenance patterns. The following activities shall be performed at sufficient intervals over the interim period.

        1. Identify interim tests (e.g. nonintrusive) to assess the performance of the valve of group of valves.
        2. Identify interim examinations to evaluate potential degradation mechanisms.
        3. Identify other types of analysis to be performed which will assess check valve condition.
        4. Identify which of these activities will be performed on each valve.
        5. Identify the interval of each activity.

    ii. Complete or revise the condition monitoring test plans to document the check valve program performance improvement activities and their associated frequencies.

    iii. Perform these activities at their assigned intervals until:

        1. Sufficient information is obtained to permit an adequate analysis, or
        2. Until the end of the interim period (2 refueling outages or 3 years, whichever is longer).

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iv. After performance, a review shall be performed for each activity to determine if changes to the program are required. If changes are required, the program shall be revised before the next performance of the activity.

b. Optimization of Condition Monitoring Activities

i. If sufficient information is available to assess the performance adequacy of the check valve or group, then the following activities shall be performed:

1. Identify appropriate preventive maintenance activities including the intervals that are required to maintain the continued acceptable performance of the check valve or group of check valves.
2. Identify the applicable examination activities including the interval that will be used to periodically assess the condition of each check valve or group of check valves.
3. Identify the applicable test activities including intervals that will be used to periodically verify the acceptable performance of each check valve or group of check valves.
4. Identify which of these activities, including the interval, will be performed on each valve in the group.

ii. Revise the condition monitoring plans to document the optimized condition monitoring program activities and associated intervals for each activity.
iii. Continue performance of these activities at their associated intervals.
iv. Review the results of the performance of each activity to determine if changes to the optimized condition monitoring program are required.

6. Test Requirements and Frequency

The following requirements apply when implementing the above plans for a single valve or group of valves

a. Valve opening and closing functions must be demonstrated when flow testing or examination methods (nonintrusive, or disassembly and examination) are used.

b. The initial interval for tests and associated examinations may not exceed two fuel cycles or 3 years, whichever is longer.

c. Extension of the initial interval may not exceed one fuel cycle per extension with the maximum interval not to exceed 10 years.

d. If the Appendix II condition monitoring program is discontinued, then the requirements of ISTC 4.5.1 through 4.5.4 must be implemented,

Technical Position TP-02
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e. The provisions of ISTC-3510, ISTC-3520 and ISTC-3540 in addition to ISTC-5221 must be implemented if the Appendix II condition monitoring program is discontinued.

f. Trending and evaluation of existing data must be used to reduce or extend the time interval between tests.

7. Documentation

The condition monitoring program shall be documented per the Check Valve Condition Monitoring Administrative Procedure. The plan for each check valve or group of check valves shall be documented in the Condition Monitoring Tab and shall contain as a minimum the following information:

a. The list of valves in each group including the group basis.
b. Date the valve or group of valves was evaluated for inclusion or exclusion from the condition monitoring program.
c. The Safety Function of the valve or valve group.
d. Analysis/justification which forms the basis for the program.
e. Identification of the failure or maintenance patterns for each valve
f. Condition monitoring activities including intervals for each valve or valve group.
g. Expert Panel review results and comments
h. PRA Ranking (if available)

Technical Position TP-03
(Page 1 of 1)

Fail Safe Testing of Valves

Purpose

The purpose of this Technical Position is to establish Three Mile Island's position for fail safe testing of valves in conjunction with stroke time exercising or position indication testing.

Applicability

This Technical Position is applicable to valves with fail safe actuators required to be tested in accordance with ISTC-3560.

Background

The ASME OM Code 1998 through 2000 Addenda section ISTC-3560 requires;

> "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."

Section ISTC-3510 states;

> "Active Category A, Category B, and Category C check valves shall exercised nominally every 3 months..."

Position

In cases where normal valve operator action moves the valve to the open or closed position by de-energizing the operator electrically, by venting air, or both, the exercise test will satisfy the fail safe test requirements and an additional test specific for fail safe testing will not be performed.

Three Mile Island will also use remote position indication as applicable to verify proper fail safe operation, provided that the indication system for the valve is periodically verified in accordance with ISTC-3700.

Justification

Three Mile Island's Inservice Testing Program valves that fail open or closed upon loss of actuator power use the fail safe mechanism to stroke the valve to its safety position. For example, an air operated valve that fails closed may use air to open the valve against spring force. When the actuator control switch is placed in the closed position, air is vented from the diaphragm and the spring moves the obturator to the closed position.

Technical Position TP-04
(Page 1 of 2)

Classification of Skid Mounted Components

Purpose

The purpose of this technical position is to clarify requirements for classification of various skid mounted components, and to clarify the testing requirements of these components.

Background

The ASME Code allows classification of some components as skid mounted when their satisfactory operation is demonstrated by the satisfactory performance of the associated major components. Testing of the major component is sufficient to satisfy Inservice Testing requirements for skid mounted components. In section 3.4 of NUREG 1482, the NRC supports the designation of components as skid mounted:

> "The staff has determined that the testing of the major component is an acceptable means for verifying the operational readiness of the skid-mounted and component subassemblies if the licensee documents this approach in the IST Program. This is acceptable for both Code class components and non-Code class components tested and tracked by the IST Program."

In the 1996a addenda to the ASME OM Code (endorsed by 10CFR50.55(a) in October 2000), the term skid-mounted was clarified by the addition of ISTA paragraph 1.7:

> ISTA 1.7 Definitions
>
> *Skid mounted components and component sub assemblies* – components integral to or that support operation of major components, even though these components may not be located directly on the skid. In general, these components are supplied by the manufacturer of the major component. Examples include: diesel skid-mounted fuel oil pumps and valves, steam admission and trip throttle valves for high-pressure coolant injection or auxiliary feedwater turbine-driven pumps, and solenoid-operated valve provided to control the air-operated valve.

This definition was further clarified in the 1998 Edition of the ASME Code:

> ISTA-2000 DEFINITIONS
>
> *Skid mounted pumps and valves* – pumps and valves integral to or that support operation of major components, even though these components may not be located directly on the skid. In general, these pumps and valves are supplied by the manufacturer of the major component. Examples include:
>
> (a) diesel fuel oil pumps and valves;
> (b) steam admission and trip throttle valves for high-pressure coolant injection pumps;
> (c) steam admission and trip throttle valves for auxiliary feedwater turbine driven pumps;
> (d) solenoid-operated valves provided to control an air-operated valve.

Technical Position TP-04
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Additionally the Subsections pertaining to pumps (ISTB) and valves (ISTC) includes exclusions/exemptions for skid mounted components;

ISTB-1200(c) Exclusions

Skid-mounted pumps that are tested as part of the major component and are justified by the Owner to be adequately tested.

ISTC-1200 Exemptions

Skid-mounted valves are excluded from this Subsection provided they are tested as part of the major component and are justified by the Owner to be adequately tested.

Position

The 1998 ASME OM Code definition of skid mounted should be used for classification of components in the Three Mile Island Inservice Testing Program. In addition, for a component to be considered skid mounted:

- The major component associated with the skid mounted component must be surveillance tested at a frequency sufficient to meet ASME Code test frequency for the skid mounted component.
- Satisfactory operation of the skid mounted component must be demonstrated by satisfactory operation of the major component.
- The IST Bases Document should describe the bases for classifying a component as skid mounted, and the IST Program Plan should reference this technical position for the component.

Justification

Classification of components as skid mounted eliminates the need for testing of sub components that are redundant with testing of major components provided testing of the major components demonstrates satisfactory operation of the "skid mounted" components.

Technical Position TP-05
(Page 1 of 1)

Passive Valves Without Test Requirements

Purpose

The purpose of this Technical Position is to establish Three Mile Island's position for valves which perform a passive safety function. No testing in accordance with ISTC is required.

Applicability

This Technical Position is applicable to valves which perform a passive function in accordance with ISTC-2000 and do not have inservice testing requirements per Table ISTC-3500-1. This position is typical of Category B, passive valves which do not have position indication.

> "An example is a manual valve which must remain in its normal position during an accident, to perform its intended function."

Typically, manual valves which perform a safety function, are locked in their safety position and administratively controlled by TMI procedures. These valves would be considered passive. If they do not have remote position indicating systems and are categorized as B, they would not be subjected to any test requirements in accordance with Table ISTC-3500-1.

Position

The Three Mile Island Inservice Testing Program, Valve Tables - Attachment 13, will not list valves which meet the following criteria.

- The valve is categorized B (seat leakage in the closed position is inconsequential for fulfillment of the valves' required function(s)) in accordance with ISTC-1300.
- The valve is considered passive (valve maintains obturator position and is not required to change obturator position to accomplish the required function(s)) in accordance with ISTC-2000.
- The valve does not have a remote position indicating system which detects and indicates valve position.

Justification

Valves which meet the positions above will not be listed in the TMI Inservice Testing Program, Valve Tables - Attachment 13, however, the basis for categorization and consideration of active/passive functions shall be documented in the IST Program Basis Document.

Technical Position TP-06
(Page 1 of 1)

Check Valve Closure Verification in Conjunction with Appendix J Seat Leakage Testing

Purpose

The purpose of this Technical Position is to establish Three Mile Island's position for the verification of check valve closure in conjunction with Appendix J leakage testing.

Applicability

This Technical Position is applicable to check valves included in the IST Program which are categorized as A/C and are Containment Isolation Valves:

Background

These check valves are categorized as A/C in accordance with ASME OM Code ISTC-1300, Valve Categories:

> "Category A – valves for which seat leakage is limited to a specific maximum amount in the closed position for fulfillment of their required function"
>
> "Category C – valves that are self-actuating in response to some system characteristic, such as pressure (relief valves) or flow direction (check valves) for fulfillment of the required functions"

Based on the valve category, the following test requirements of Table ISTC-3500-1 apply:

Category A test	Leakage Test in accordance with Appendix J Program
Category C test	Check Valve Exercise Test Open and Closed

Position

These valves require a seat leakage test in accordance with 10CFR50 Appendix J and a closure verification test in accordance with ISTC-3522. Three Mile Island will perform the Category C testing in accordance with the frequency requirements of ISTC-3510 where practicable. If testing is not practicable during quarterly operations or during shutdowns, the check valve will be tested during refueling outages.

The verification of check valve closure will be performed as the seat leakage test required by Appendix J.

Justification

All valves for this position will be documented in the IST Program Plan as category A/C. A deferred testing justification or check valve condition monitoring plan shall also be documented describing the impracticability of performing a closure test during normal operations or during cold shutdowns.

Technical Position TP-07
(Page 1 of 2)

Testing of Power Operated Valves with Both Active and Passive Safety Functions

Purpose

The purpose of this Technical Position is to establish Three Mile Island's testing requirements for power operated valves which have both an active and passive safety function.

Applicability

This Technical Position is applicable to power operated valves which have an active safety function in one direction while performing a passive safety function in the other direction. The following valves apply to this category at Three Mile Island:

Valve No.	Active Safety Direction	Passive Safety Direction
DH-V-5A	Closed	Open
DH-V-5B	Closed	Open
EF-V-2A	Closed	Open
EF-V-2B	Closed	Open
EF-V-4	Open	Closed
EF-V-5	Open	Closed
MS-V-2A	Closed	Open
MS-V-2B	Closed	Open
RC-V-2	Closed	Open

Background

The IST Program requires valves to be exercised to the position(s) required to fulfill their safety function(s). In addition, valves with remote position indication shall have their position indication verified. The Code does not restrict position indication to active valves.

Position

Several valves included in the plant are designed to perform passive safety functions during accident conditions, and then based on plant accident response, are designed to change positions to perform another (active) function. Once in their final position, there exist no conditions in which they would be required to be placed in their original passive position.

These valves are typically emergency core cooling system valves, which require changing position during different phases of the accident. After the original passive safety function (e.g. provide flow path) is performed, the valves are repositioned to perform the active safety function (e.g. provide containment isolation or to allow injection from another water source). The valves are not required to return to their original position.

Technical Position TP-07
(Page 2 of 2)

Power operated valves with passive functions in one direction and active in the other, will be exercised and stroke timed to only their active position. If these valves have position indication, the position indication verification will include verification of both positions.

Justification

Code Interpretation 01-02 (response to inquiry OMI 99-07) addressed this issue.

Question: If a valve has safety functions in both the open and closed positions and is maintained in one of these positions, but is only required to move from the initial position to the other and is not required to return to the initial position, is stroke timing in both directions required?

Reply: No

Technical Position TP-08
(Page 1 of 2)

Manual Valve Exercise Frequency

Purpose

The purpose of this Technical Position is to establish Three Mile Island's position for the frequency of exercising those manual valves which are required to be included in the Inservice Testing program with an active safety function and therefore required to be exercised.

Applicability

This Technical Position is applicable to the manual valves included in the Inservice Testing Program.

Background

The ASME OM Code 1998 through 2000 Addenda section ISTC-3540 states;

> "Manual valves shall be full-stroke exercised at least once every 5 years, except where adverse conditions[1] may require the valve to be tested more frequently to ensure operational readiness."
>
> [1]Harsh service environment, lubricant hardening, corrosive or sediment laden process fluid, or degraded valve components are some examples of adverse conditions.

In the Federal Register for the Proposed Rule Change dated September 26, 2002, the NRC stated the following with regards to manual valve exercise frequency;

> "Section 50.55a(b)(3)(vi) in the proposed rule would require an exercise interval of 2 years for manual valves within the scope of the ASME OM Code rather than the exercise interval of 5 years specified in the 1999 and the 2000 Addenda of the ASME Code. The 1998 Edition of the ASME OM Code specified an interval of 3 months for manual valves within the scope of the Code. The 1999 Addenda to the ASME OM Code revised ISTC-3540 to extend the exercise frequency for manual valves to 5 years."

The NRC goes further to state that;

> "Section 50.55a(b)(3)(vi) is revised to clarify that the interval for exercising manual valves may not exceed 2 years when using the 1999 Addenda and 2000 Addenda of ISTC-3540"

Technical Position TP-08

(Page 1 of 2)

Position

Three Mile Island will perform exercising of manual valves (which have an active function) within the scope of the IST Program at a frequency not to exceed 2 years.

Justification

The NRC Rule Change will be adopted for the frequency of exercising manual valves at least once every 2 years. This interval is more frequent than required by the Edition of the Code used by Three Mile Island, therefore no other justification is required.

Technical Position TP-09
(Page 1 of 2)

Categorization of IST Pumps (Group A or B)

Position

Three Mile Island has categorized the pumps required to be included in the Inservice Testing Program as either Group A or B in accordance with the requirements of ISTB-1300/2000.

Group A pumps are pumps that are operated continuously or routinely during normal operation, cold shutdown, or refueling operations. The following pumps are categorized as Group A at Three Mile Island Nuclear Station:

Pump Number	Class	Group	Function
AH-P-3A	3	A	Control Building Chilled Water
AH-P-3B	3	A	Control Building Chilled Water
DC-P-1A	3	A	Decay Heat Closed Cooling Water
DC-P-1B	3	A	Decay Heat Closed Cooling Water
DH-P-1A	2	A	Decay Heat Removal
DH-P-1B	2	A	Decay Heat Removal
DR-P-1A	3	A	Decay Heat River Water
DR-P-1B	3	A	Decay Heat River Water
MU-P-1B	2	A	Makeup & Purification
NR-P-1A	3	A	Nuclear Services River Water
NR-P-1B	3	A	Nuclear Services River Water
NR-P-1C	3	A	Nuclear Services River Water
NS-P-1A	3	A	Nuclear Services Closed Cooling Water
NS-P-1B	3	A	Nuclear Services Closed Cooling Water
NS-P-1C	3	A	Nuclear Services Closed Cooling Water

Group B pumps are those pumps in standby systems that are not operated routinely except for testing. The following pumps are categorized as Group B at Three Mile Island Nuclear Station:

Pump Number	Class	Group	Function
BS-P-1A	2	B	Building Spray
BS-P-1B	2	B	Building Spray
EF-P-1	2	B	Emergency Feedwater
EF-P-2A	2	B	Emergency Feedwater
EF-P-2B	2	B	Emergency Feedwater
MU-P-1A	2	B	Makeup & Purification
MU-P-1C	2	B	Makeup & Purification
RR-P-1A	3	B	Reactor Building Emergency Cooling River Water
RR-P-1B	3	B	Reactor Building Emergency Cooling River Water

Technical Position TP-09
(Page 2 of 2)

Group A Pump Tests – Group A tests are performed quarterly for each pump categorized as A. The following inservice test parameters are measured for each Group A pump test:

- Speed (if pump is variable speed)
- Differential Pressure
- Discharge Pressure, (for positive displacement pumps)
- Flow Rate
- Vibration

Group B Pump Tests - Group B tests are performed quarterly for each pump categorized as B. The following inservice test parameters are measured for each Group B pump test.

- Speed (if pump is variable speed)
- Differential Pressure[(1)]
- Flow Rate[(1)]

[(1)] For positive displacement pumps, flow rate shall be measured or determined, for all other pumps, differential pressure or flow rate shall be measured or determined.

Comprehensive Pump Tests – Comprehensive pump tests are performed biennially for all pumps in the Inservice Testing Program. The following inservice test parameters are measured for each Comprehensive pump test:

- Speed (if pump is variable speed)
- Differential Pressure
- Discharge Pressure, (for positive displacement pumps)
- Flow Rate
- Vibration

The following instrument accuracy requirements apply to each test type:

Parameter	Group A	Group B	Comprehensive
Pressure	+/- 2.0%	+/- 2.0%	+/- 0.5%
Flow Rate	+/- 2.0%	+/- 2.0%	+/- 2.0%
Speed	+/- 2.0%	+/- 2.0%	+/- 2.0%
Vibration	+/- 5.0%	+/- 5.0%	+/- 5.0%
Differential Pressure	+/- 2.0%	+/- 2.0%	+/- 0.5%

Technical Position TP-10
(Page 1 of 2)

Classification of Auxiliary Steam Check Valve as Passive

Purpose

The purpose of this Technical Position is to establish Three Mile Island's position for classification and categorization of the Auxiliary Steam Supply Check Valve as Passive category B/C.

Applicability

This Technical Position is applicable to **AS-V-4**.

This motor operated check valve must remain closed to prevent diversion of steam flow away from Emergency Feedwater Pump Turbine, EF-V-1, by isolating the non-safety related, Seismic Class III Auxiliary Steam System piping from the Main Steam Supply Header to the pump turbine. When performing this safety function, pressure would be on the opposite (downstream) side of the valve, which means that the actuator does not perform any function in satisfying the safety function of the valve. Therefore this valve is classified as Category C (check) and is considered passive [ISTC-2000]. This valve is maintained in the closed position during normal operation by positive force applied by its motor operator.

This valve is opened only to perform testing of the emergency feedwater pump. This function is not required for safe shutdown or accident mitigation since the auxiliary boiler is non-seismic and non-safety related.

Background

The ASME OM Code 1998 through 2000 Addenda section ISTC-2000 provides a definition of passive valves.

> "*passive valves*: valves that maintain obturator position and are not required to change obturator position to accomplish the required function(s)"

The Code also provides valve category definitions as follows:

> "Category B – valves for which seat leakage in the closed position is inconsequential for fulfillment of the required function(s)"
>
> "Category C – valves that are self-actuating in response to some system characteristic, such as pressure (relief valves) or flow direction (check valves) for fulfillment of the required functions"

Position

Three Mile Island classifies this valve (AS-V-4) as passive since it is not required to change position to perform its intended function. The valve has been categorized as Category B since leakage in the closed position is inconsequential for fulfillment of its required function.

Technical Position TP-10
(Page 2 of 2)

Position (continued)

No exercising testing is required since the valve is considered a category B valve based on ISTC-1300, Valve Categories. Since the check valve function of the valve is not required and the valve is maintained closed by a motor operator during accident conditions, the only testing will be the category B requirement for passive valves (position indication verification).

Technical Position TP-11
(Page 1 of 2)

Classification of Thermal Relief Valves

Purpose

The purpose of this Technical Position is to establish Three Mile Island's position for the classification of relief valves within the scope of the inservice testing program as "Thermal Relief Valves".

Applicability

This Technical Position is applicable to relief valves which provide overpressure protection due to thermal expansion of fluid. The following valves at Three Mile Island will be classified as thermal relief valves:

Valve No.	Class	Category
CA-V-443	2	C
CA-V-446	2	C
CA-V-449	2	C
CF-V-46A/B	2	C
DC-V-15A/B	3	C
DC-V-16A/B	3	C
DC-V-17A/B	3	C
DC-V-18A/B	3	C
DR-V-8A/B	3	C
IC-V-102	2	C
MU-V-238	2	C
NS-V-211	2	C
NR-V-21A/B	3	C
NR-V-25A,B,C,D	3	C
NS-V-36A,B,C	2	C
NS-V-44A,B,C	3	C
NS-V-46A/B	3	C
NS-V-48A/B	3	C
NS-V-49A/B	3	C
WDL-V-727	2	C

Background

The ASME OM Code requires valves which perform an overpressure protection function to be included in the IST Program and tested in accordance with Appendix I. Appendix I requirements are that each ASME Class 2 relief valve be tested once every 10 years and that 20% of the valves within a relief valve grouping be tested every 48 months. However, Appendix I of the ASME OM Code defines thermal relief valves as a relief device whose only overpressure protection function is to protect isolated components, or portions of systems, from fluid expansion caused by changes in fluid temperature. Section I-1390 requires valves in thermal relief applications to be tested every 10 years unless performance data indicates more frequent testing. In lieu of testing, thermal relief valves may be replaced every 10 years, unless performance data indicates more frequent replacements are necessary.

Technical Position TP-11
(Page 2 of 2)

The US Nuclear Regulatory Commission issued Generic Letter 96-06 to request licensees to 1) determine if their containment air cooler cooling water systems are susceptible to either water hammer or two-phase flow conditions during postulated accident conditions and to 2) determine if piping systems that penetrate containment are susceptible to thermal expansion of fluid which could cause pipes to rupture.

In response to Generic Letter 96-06, TMI identified eleven containment penetrations to be susceptible to thermally induced overpressurization. Subsequently overpressure protection devices were installed on the affected penetrations.

(NOTE: Penetrations 213 and 214 for OTSG sampling are protected by one relief valve, and penetration 329 for reactor coolant pump seal return did not require installation of a relief valve since resulting stresses were found to be within code acceptable limits.)

The subject valves listed above are those valves within the scope of the Inservice Testing Program which were installed in response to Generic Letter 96-06 or are classified as thermal relief valves.

Position

The subject valves are included in the TMI Inservice Testing Program as Category C, relief valves which perform a thermal relief function. These valves will be replaced or tested on a 10 year frequency unless performance data indicates a need for more frequent tests or replacements. Any as-found test with a lift pressure that would cause the associated piping system to exceed allowable stresses (see calculation C-1101-104-E610-024, Pipe Stress Analysis for TMI in Response to GL 96-06) will indicate a need for more frequent testing or replacement.

Technical Position TP-12
(Page 1 of 1)

Classification of Reactor Building Excess Flow Check Valves as Passive

Purpose

The purpose of this Technical Position is to establish Three Mile Island's position for the classification of the Reactor Building pressure instrument excess flow check valves as passive.

Applicability

This Technical Position is applicable to the following valves at Three Mile Island:

Valve No.	Class	Category
BS-V-1103	2	C
BS-V-1104	2	C
BS-V-1105	2	C
BS-V-1106	2	C
BS-V-1107	2	C
BS-V-1108	2	C

Background

These check valves must open to provide a flow path from the containment atmosphere to the associated reactor building pressure instruments. In the open position, the valves provide a flow path from the reactor building atmosphere to the downstream safety-related instruments necessary for reactor building spray pump initiation and reactor building valve isolation. The valves are maintained open by an internal spring such that the valve is not required to change position to perform the open safety function. Therefore these valves are considered passive [ISTC-2000].

The valves would close on excess flow to isolate the Containment atmosphere from the Auxiliary Building in the event of a downstream instrument line break following an accident. This function is not required for safe shutdown or accident mitigation since an event cause a line break downstream of this valve is not credited in the UFSAR. Additionally, any reactor building pressure surge would not prohibit the valve from performing its open safety function. Re-opening of this valve following closure is not a safety function due to the inherent design of the spring and poppet arrangement. No design basis accident or pressure transients are described in the UFSAR which would cause this valve to be required to close and then reopen and the associated downstream pressure instruments are not credited for any post-accident function.

Position

The subject valves are included in the TMI Inservice Testing Program as Category C, passive check valves. Table 3500-1 of ISTB does not address Category C, Passive valves. Therefore TMI will apply the testing requirements for Category B valves since these valves do not have seat leakage test requirements.

Based on the Table 3500-1 requirements, these valves are not required to have any tests since remote position indication for these valves does not exist and there are no seat leakage requirements for these valves.

Technical Position TP-13
(Page 1 of 2)

Testing of River Water Pump Vacuum Breaker Check Valves

Purpose

The purpose of this Technical Position is to establish Three Mile Island's position for testing the check valves that perform the vacuum breaker function for the river water pumps in the IST program.

Applicability

This Technical Position is applicable to the following valves at Three Mile Island:

Valve No.	Class	Category
DR-V-7A/B	3	C
NR-V-22A/B/C	3	C
RR-V-12A/B	3	C

Background

These check valves must open to act as vacuum breakers to prevent draining of the associated system piping downstream of the river water piping column. This eliminates the potential for voiding in other portions of the system piping, and the associated water hammer upon startup of the pumps.

The valves would close to prevent diversion of flow from the system with the associated pumps running. The swing check configuration is such that the valves are normally closed when the pumps are not operating.

The subject valves are included in the TMI Inservice Testing Program as Category C, active check valves with safety functions in both directions. The ISTC-3510 requirement is that these valves be exercised quarterly. The specific testing requirement from ISTC-5221 is,

> "(a) Check valves that have a safety function in both directions shall be exercised by initiating flow and observing that the obturator has traveled to either the full open position or to the position required to perform its intended function, and verify that on cessation or reversal of flow, the obturator has traveled to the seat. ...Observations shall be made by observing a direct indicator or by other positive means (e.g., changes in system pressure, flow rate, level, temperature, seat leakage, testing or non-intrusive testing results).
> (b) If a mechanical exerciser is used to exercise the valve, the force or torque required to move the obturator shall meet the acceptance criteria specified by the owner."

Position

TMI will apply provision (b) using a mechanical device to open the valve when the pump is not operating, then provision (a) to verify valve closure after the associated river water pump has been started.

The mechanical device provision appears to have been written for a device to attach to the hinge of a swing-check valve. This is described in NUREG-1492 rev 1 as follows,

> "Mechanical exercisers are attached to a hinge pin that is fixed to the disc and penetrates the valve body. Many of these valves involve swing check valves that manufacturers supplied with a lever arm and counterweight modification. The counterweight is used to effect the opening or closing response of the disc to flow conditions, depending upon the lever arm's location relative to the disc. The counterweight modification involves the use of a packing gland to seal the hinge pin penetration of the valve body."

Thus, the requirement to develop acceptance criteria is based partially on the additional forces required to overcome the weight of the disc/counterweights and the packing friction.
The subject valves in TMI's river water systems are only 2-inch valves, and they are configured with direct access to the valves being available from the air inlet side. The valves have no counterweights, but only small springs to ensure the discs return to the closed position. The mechanical device used to manipulate the valve will be a blunt rod pushing the valve disc from the closed position to the open position, with the owner's acceptance criteria being that the valve disk travels freely and does not tend to stick in the open or closed position. This is similar to the manual disc movement done during check valve disassemblies for IST under condition monitoring.

There is no minimum flow requirement associated with the vacuum breaker function. These check valves are located approximately 30 feet above the river water level in the screen house, and this elevation corresponds to a maximum opening force of 40 pounds on the 2-inch diameter valve discs when the corresponding pump is shut down. Although the valves are accessible for manipulated by hand, a short blunt rod is used as a precaution for personnel safety. The manual manipulation can easily determine whether excessive force is needed to overcome a 'stuck closed' condition, and the valve disk can be felt to return closed from its open position. Therefore, no specific force criteria are needed to determine whether the valves may have been stuck closed or be binding during travel. Furthermore, the valve disks are visible during this testing, so test personnel are not dependent on only the force required to move the discs. This method has been used on these valves for more than 20 years and has identified sticking and spring failure.

The final verification of valve closure will be to visually verify leakage not exceeding 1 drop per minute from the valve after the pump has been started, thus imparting reverse flow/pressure on the valve.

These provisions provide positive means of verifying proper full stroke operation of the valves, thus meeting the intent of the check valve exercising requirement in ISTC-5221.

ATTACHMENT 12

INSERVICE TESTING PUMP TABLE

Pump Tag	Safety Class	Pump Type	Pump Driver	Nominal Speed	P&ID	P&ID Coor.	Category	Test Type	Test Freq.	Relief Request	Tech. Pos.
NS-P-1A	3	C	M		302-610	G-3	A	DPa	M3	PR-02	
								DPc	Y2		
								Qc	Y2		
								Va	M3	PR-02	
								Vc	Y2		
	Pump Name:	**NUCLEAR SERVICE CLOSED COOLING WATER PUMP "A"**									
AH-P-3A	3	C	M		302-847	C-5	A	DPa	M3		
								DPc	Y2		
								Qa	M3		
								Qc	Y2		
								Va	M3		
								Vc	Y2		
	Pump Name:	**CONTROL BUILDING CHILLED WATER SUPPLY PUMP "A"**									
AH-P-3B	3	C	M		302-847	A-5	A	DPa	M3		
								DPc	Y2		
								Qa	M3		
								Qc	Y2		
								Va	M3		
								Vc	Y2		
	Pump Name:	**CONTROL BUILDING CHILLED WATER SUPPLY PUMP "B"**									
BS-P-1A	2	C	M		302-712	A-6	B	DP	M3		
								DPc	Y2		
								Q	M3		
								Qb	M3		
								Qc	Y2		
								V	M3		
								Vc	Y2		
	Pump Name:	**REACTOR BUILDING SPRAY PUMP "A"**									

Pump Tag	Safety Class	Pump Type	Pump Driver	Nominal Speed	P&ID	P&ID Coor.	Category	Test Type	Test Freq.	Relief Request	Tech. Pos.
BS-P-1B	2	C	M		302-712	B-6	B	DP	M3		
								DPc	Y2		
								Q	M3		
								Qb	M3		
								Qc	Y2		
								V	M3		
								Vc	Y2		
	Pump Name:	**REACTOR BUILDING SPRAY PUMP "B"**									
DC-P-1A	3	C	M		302-645	D-3	A	DPa	M3		
								DPc	Y2		
								Qa	M3		
								Qc	Y2		
								Va	M3		
								Vc	Y2		
	Pump Name:	**DH CLOSED COOLING WATER PUMP "A"**									
DC-P-1B	3	C	M		302-645	D-2	A	DPa	M3		
								DPc	Y2		
								Qa	M3		
								Qc	Y2		
								Va	M3		
								Vc	Y2		
	Pump Name:	**DH CLOSED COOLING WATER PUMP "B"**									
DF-P-1A		PD	M	1750	302-351	D-7	N/A	Q	M3		TP-04
	Pump Name:	**DIESEL FUEL OIL PUMP "A"**									
DF-P-1B		PD	M	1750	302-351	D-6	N/A	Q	M3		TP-04
	Pump Name:	**DIESEL FUEL OIL PUMP "B"**									
DF-P-1C		PD	M	1750	302-351	D-3	N/A	Q	M3		TP-04
	Pump Name:	**DIESEL FUEL OIL PUMP "C"**									
DF-P-1D		PD	M	1750	302-351	D-2	N/A	Q	M3		TP-04
	Pump Name:	**DIESEL FUEL OIL PUMP "D"**									

Pump Tag	Safety Class	Pump Type	Pump Driver	Nominal Speed	P&ID	P&ID Coor.	Category	Test Type	Test Freq.	Relief Request	Tech. Pos.
DH-P-1A	2	C	M		302-640	D-5	A	DPa	M3	PR-04	
								DPc	Y2	PR-04	
								Qa	M3	PR-04	
								Qc	Y2	PR-04	
								Va	M3	PR-04	
								Vc	Y2	PR-04	
	Pump Name:	**DECAY HEAT REMOVAL PUMP "A"**									
DH-P-1B	2	C	M		302-640	D-3	A	DPa	M3	PR-04	
								DPc	Y2	PR-04	
								Qa	M3	PR-04	
								Qc	Y2	PR-04	
								Va	M3	PR-04	
								Vc	Y2	PR-04	
	Pump Name:	**DECAY HEAT REMOVAL PUMP "B"**									
DR-P-1A	3	VLS	M		302-202	A-7	A	DPa	M3		
								DPc	Y2		
								Qa	M3		
								Qc	Y2		
								Va	M3		
								Vc	Y2		
	Pump Name:	**DECAY HEAT RIVER WATER PUMP "A"**									
DR-P-1B	3	VLS	M		302-202	A-6	A	DPa	M3		
								DPc	Y2		
								Qa	M3		
								Qc	Y2		
								Va	M3		
								Vc	Y2		
	Pump Name:	**DECAY HEAT RIVER WATER PUMP "B"**									
EF-P-1	2	C	ST	3600	302-082	D-7	B	DPc	Y2	PR-03	
								Qb	M3		
								Qc	Y2	PR-03	
								Vc	Y2	PR-03	
	Pump Name:	**Steam Driven Emergency Feed Water Pump**									

Pump Tag	Safety Class	Pump Type	Pump Driver	Nominal Speed	P&ID	P&ID Coor.	Category	Test Type	Test Freq.	Relief Request	Tech. Pos.
EF-P-2A	2	C	M	3570	302-082	F-6	B	DPc	Y2		
								Qb	M3		
								Qc	Y2		
								Vc	Y2		
	Pump Name:	**Electric Driven Emergency Feed Pump**									
EF-P-2B	2	C	M	3570	302-082	B-6	B	DPc	Y2		
								Qb	M3		
								Qc	Y2		
								Vc	Y2		
	Pump Name:	**Electric Driven Emergency Feed Pump**									
EG-P-1A		VBC	M		302-351	C-8	N/A	NONE	M3		TP-04
	Pump Name:	**EDG A AIR START AIR COMPRESSOR**									
EG-P-1B		VBC	M		302-351	C-1	N/A	NONE	M3		TP-04
	Pump Name:	**EDG B AIR START COMPRESSOR**									
MU-P-1A	2	C	M		302-661	C-5	B	DPb	M3		
								DPc	Y2		
								Qc	Y2		
								Vc	Y2		
	Pump Name:	**MAKEUP & PURIFICATION PUMP "A"**									
MU-P-1B	2	C	M		302-661	C-4	A	DPa	M3		
								DPc	Y2		
								Qa	M3		
								Qc	Y2		
								Va	M3		
								Vc	Y2		
	Pump Name:	**MAKEUP & PURIFICATION PUMP "B"**									
MU-P-1C	2	C	M		302-661	C-3	B	DPb	M3		
								DPc	Y2		
								Qc	Y2		
								Vc	Y2		
	Pump Name:	**MAKEUP & PURIFICATION PUMP "C"**									

Pump Tag	Safety Class	Pump Type	Pump Driver	Nominal Speed	P&ID	P&ID Coor.	Category	Test Type	Test Freq.	Relief Request	Tech. Pos.
NR-P-1A	3	VLS	M		302-202	A-10	A	DPa	M3		
								DPc	Y2		
								Qa	M3		
								Qc	Y2		
								Va	M3		
								Vc	Y2		
	Pump Name:	**NUCLEAR SERVICE RIVER WATER PUMP "A"**									
NR-P-1B	3	VLS	M		302-202	A-9	A	DPa	M3		
								DPc	Y2		
								Qa	M3		
								Qc	Y2		
								Va	M3		
								Vc	Y2		
	Pump Name:	**NUCLEAR SERVICE RIVER WATER PUMP "B"**									
NR-P-1C	3	VLS	M		302-202	A-9	A	DPa	M3		
								DPc	Y2		
								Qa	M3		
								Qc	Y2		
								Va	M3		
								Vc	Y2		
	Pump Name:	**NUCLEAR SERVICE RIVER WATER PUMP "C"**									
NS-P-1B	3	C	M		302-610	G-3	A	DPa	M3	PR-02	
								DPc	Y2		
								Qc	Y2		
								Va	M3	PR-02	
								Vc	Y2		
	Pump Name:	**NUCLEAR SERVICE CLOSED COOLING WATER PUMP "B"**									
NS-P-1C	3	C	M		302-610	G-2	A	DPa	M3	PR-02	
								DPc	Y2		
								Qc	Y2		
								Va	M3	PR-02	
								Vc	Y2		
	Pump Name:	**NUCLEAR SERVICE CLOSED COOLING WATER PUMP "C"**									

Pump Tag	Safety Class	Pump Type	Pump Driver	Nominal Speed	P&ID	P&ID Coor.	Category	Test Type	Test Freq.	Relief Request	Tech. Pos.
RR-P-1A	3	VLS	M		302-611	D-2	B	DPb	M3		
								DPc	Y2		
								Qc	Y2		
								Vc	Y2		
	Pump Name:	**RB EMERGENCY COOLING RIVER WATER PUMP "A"**									
RR-P-1B	3	VLS	M		301-611	D-2	B	DPb	M3		
								DPc	Y2		
								Qc	Y2		
								Vc	Y2		
	Pump Name:	**RB EMERGENCY COOLING RIVER WATER PUMP "B"**									

ATTACHMENT 13

INSERVICE TESTING VALVE TABLE

REACTOR BUILDING PURGE (AH)

Valve Tag	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
AH-V-11A	302-847	G-7	3	B	5.0	3W	AO	A	T	O	FO	M3			TP-03
											SO	M3			
	Valve Name:	**CONTROL BLDG VENT UNIT "A" COOLING COIL DISCH VLV**													
AH-V-11B	302-847	G-4	3	B	5.0	3W	AO	A	T	O	FO	M3			TP-03
											SO	M3			
	Valve Name:	**CONTROL BLDG VENT UNIT "B" COOLING COIL DISCH VLV**													
AH-V-1A	302-831	G-6	2	A	48.0	BTF	AO	A	C	C	FC	M3			TP-03
											LTJ	AJ			
											PI	Y2	VR-02		
											SC	M3			
	Valve Name:	**CONTAINMENT ISOLATION - RB PURGE OUTLET ISOL VALVE**													
AH-V-1B	302-831	F-6	2	A	48.0	BTF	MO	A	C	C	LTJ	AJ			
											PI	Y2	VR-02		
											SC	M3			
	Valve Name:	**CONTAINMENT ISOLATION - RB PURGE OUTLET ISOL VALVE**													
AH-V-1C	302-831	C-6	2	A	48.0	BTF	MO	A	C	C	LTJ	AJ			
											PI	Y2	VR-02		
											SC	M3			
	Valve Name:	**CONTAINMENT ISOLATION - RB PURGE INLET ISOL VALVE**													
AH-V-1D	302-831	C-6	2	A	48.0	BTF	AO	A	C	C	FC	M3			TP-03
											LTJ	AJ			
											PI	Y2	VR-02		
											SC	M3			
	Valve Name:	**CONTAINMENT ISOLATION - RB PURGE INLET ISOL VALVE**													

EMERGENCY FEEDWATER (AS)

Valve Tag	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
AS-V-4	302-011	E-5	3	B/C	4.0	SCK	MO	P	C	C	PI	Y2			TP-10
	Valve Name:	**AUX STEAM STOP CHECK VALVE SUPPLY TO EF-U1**													

REACTOR BUILDING SPRAY (BS)

Valve Tag	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
BS-V-1A	302-712	A-7	2	B	8.0	GL	MO	A	C	O/C	PI	Y2			
											SC	M3			
											SO	M3			
	Valve Name:	**BS-P1A DISCHARGE ISOLATION VALVE**													
BS-V-1B	302-712	B-7	2	B	8.0	GL	MO	A	C	O/C	PI	Y2			
											SC	M3			
											SO	M3			
	Valve Name:	**BS-P1B DISCHARGE ISOLATION VALVE**													
BS-V-30A	302-712	A-7	2	C	8.0	CK	SA	A	C	O/C	CCD	CM			TP-02
											COD	CM			TP-02
	Valve Name:	**CONTAINMENT ISOLATION - BS NOZZLE INLET CHECK VLV**													
BS-V-30B	302-712	B-7	2	C	8.0	CK	SA	A	C	O/C	CCD	CM			TP-02
											COD	CM			TP-02
	Valve Name:	**CONTAINMENT ISOLATION - BS NOZZLE INLET CHECK VLV**													
BS-V-3A	302-712	A-3	2	B	10.0	GA	MO	A	C	O	PI	Y2			
											SO	M3			
	Valve Name:	**BS-P1A SUCTION VALVE**													
BS-V-3B	302-712	B-3	2	B	10.0	GA	MO	A	C	O	PI	Y2			
											SO	M3			
	Valve Name:	**BS-P1B SUCTION VALVE**													
BS-V-45A	302-712	B-5	2	C	1.0	RV	SA	A	C	O/C	RT	Y10			
	Valve Name:	**BS-P1A SUCTION RELIEF**													
BS-V-45B	302-712	C-5	2	C	1.0	RV	SA	A	C	O/C	RT	Y10			
	Valve Name:	**BS-P1B SUCTION RELIEF**													
BS-V-59	302-712	B-6	2	A	6.0	GA	M	P	LC	C	LTH	Y2			
	Valve Name:	**TEST LINE ISOLATION VALVE TO BWST**													
BS-V-60A	302-712	B-7	2	A	6.0	GA	M	P	LC	C	LTH	Y2			
	Valve Name:	**BS-P1A TEST LINE ISOL AND DISCHARGE CROSS CONNECT**													

REACTOR BUILDING SPRAY (BS)

Valve Tag	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
BS-V-60B	302-712	B-7	2	A	6.0	GA	M	P	LC	C	LTH	Y2			
	Valve Name:	**BS-P1B TEST LINE ISOL AND DISCHARGE CROSS CONNECT**													
BS-V-63A	302-712	F-3	2	C	1.0	RV	SA	A	C	O/C	RT	Y10			
	Valve Name:	**NAOH TANK OUTLET RELIEF**													
BS-V-63B	302-712	E-3	2	C	1.0	RV	SA	A	C	O/C	RT	Y10			
	Valve Name:	**NAOH TANK OUTLET RELIEF**													

REACTOR PLANT CHEMICAL ADDITION (CA)

Valve Tag	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
CA-V-13	302-671	D-7	1	A	0.5	GL	MO	A	O/C	O/C	LTJ	AJ			
											PI	Y2			
											SC	M3			
											SO	M3			
	Valve Name:	**CONTAINMENT ISOLATION - RCS LETDOWN SAMPLE VALVE**													
CA-V-189	302-669	G-4	2	A	2.0	GA	AO	P	C	C	LTJ	AJ			
											PI	Y2			
	Valve Name:	**CONTAINMENT INTEGRITY - RECLAIMED WATER TO RB VLV**													
CA-V-192	302-669	G-3	2	A/C	2.0	CK	SA	A	C	C	CCL	CM			TP-02/06
											COF	CM			TP-01/02
											LTJ	AJ			
	Valve Name:	**CONTAINMENT ISOLATION - RECLAIMED FEED TO RB CHK**													
CA-V-2	302-671	D-7	1	A	1.0	GA	AO	A	O/C	O/C	FC	M3			TP-03
											LTJ	AJ			
											PI	Y2			
											SC	M3			
											SO	M3			
	Valve Name:	**CONTAINMENT ISOLATION - RC SAMPLE ISOLATION VALVE**													
CA-V-3	302-671	C-8	1	B	1.0	GL	MO	A	O/C	O	PI	Y2			
											SO	M3			
	Valve Name:	**RCS FROM MU LETDOWN LINE SAMPLE ISOL VLV**													
CA-V-443	302-669	F-3	2	A/C	0.25	RV	SA	A	C	O/C	LTJ	AJ			
											RT	Y10			TP-11
	Valve Name:	**RECLAIMED WATER TO RB CONTAINMENT ISOL AND RELIEF**													
CA-V-446	302-671	D-7	2	A/C	1.0	RV	SA	A	C	O/C	LTJ	AJ			
											RT	Y10			TP-11
	Valve Name:	**RC SAMPLE CONTAINMENT ISOLATION AND RELIEF**													
CA-V-448A	302-671	C-7	2	C	0.375	XFC	SA	A	O	O	CO	RR		RJ-02	
	Valve Name:	**OTSG A SAMPLE PENETRATION EXCESS FLOW CHECK**													

REACTOR PLANT CHEMICAL ADDITION (CA)

Valve Tag	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
CA-V-448B	302-671	C-7	2	C	0.375	XFC	SA	A	O	O	CO	RR		RJ-02	
	Valve Name:	**OTSG B SAMPLE PENETRATION EXCESS FLOW CHECK**													
CA-V-449	302-671	C-7	2	A/C	1.0	RV	SA	A	C	O/C	LTJ	AJ			
											RT	Y10			TP-11
	Valve Name:	**OTSG SAMPLE CONTAINMENT ISOLATION AND RELIEF**													
CA-V-4A	302-671	C-7	2	A	1.0	GL	MO	P	C	C	LTJ	AJ			
											PI	Y2	VR-02		
											SC	M3			
	Valve Name:	**CONTAINMENT ISOLATION - OTSG "A" FW SAMPLE VALVE**													
CA-V-4B	302-671	B-7	2	A	1.0	GL	MO	P	C	C	LTJ	AJ			
											PI	Y2	VR-02		
											SC	M3			
	Valve Name:	**CONTAINMENT ISOLATION - OTSG "B" FW SAMPLE VALVE**													
CA-V-5A	302-671	C-7	2	A	1.0	GA	AO	A	C	C	FC	M3			TP-03
											LTJ	AJ			
											PI	Y2	VR-02		
											SC	M3			
	Valve Name:	**CONTAINMENT ISOLATION - OTSG "A" FW SAMPLE VALVE**													
CA-V-5B	302-671	B-7	2	A	1.0	GA	AO	A	C	C	FC	M3			TP-03
											LTJ	AJ			
											PI	Y2	VR-02		
											SC	M3			
	Valve Name:	**CONTAINMENT ISOLATION - OTSG "B" FW SAMPLE VALVE**													

CORE FLOOD (CF)

Valve Tag	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
CF-V-12A	302-711	F-7	2	A/C	1.0	CK	SA	A	C	C	CCL	CM			TP-02/06
											COF	CM			TP-01/02
											LTJ	AJ			
	Valve Name:	**CONTAINMENT ISOLATION - CF-T1A MAKEUP CHECK VLV**													
CF-V-12B	302-711	F-3	2	A/C	1.0	CK	SA	A	C	C	CCL	CM			TP-02/06
											COF	CM			TP-01/02
											LTJ	AJ			
	Valve Name:	**CONTAINMENT ISOLATION - CF-T1B MAKEUP CHECK VLV**													
CF-V-19A	302-711	F-8	2	A	1.0	GA	AO	P	C	C	LTJ	AJ			
											PI	Y2	VR-02		
	Valve Name:	**CONTAINMENT ISOLATION - MU TO CF-T1A**													
CF-V-19B	302-711	F-3	2	A	1.0	GA	AO	P	C	C	LTJ	AJ			
											PI	Y2	VR-02		
	Valve Name:	**CONTAINMENT ISOLATION - MU TO CF-T1B**													
CF-V-1A	302-711	C-7	2	B	14.0	GA	MO	P	O	O	PI	Y2	VR-02		
	Valve Name:	**CORE FLOOD TANK "A" - DISCHARGE ISOLATION VALVE**													
CF-V-1B	302-711	C-3	2	B	14.0	GA	MO	P	O	O	PI	Y2	VR-02		
	Valve Name:	**CORE FLOOD TANK "B" - DISCHARGE ISOLATION VALVE**													
CF-V-20A	302-711	D-6	2	A	1.0	GA	AO	P	C	C	LTJ	AJ			
											PI	Y2	VR-02		
	Valve Name:	**CONTAINMENT ISOLATION - CF-T1A SAMPLE ISOL VLV**													
CF-V-20B	302-711	D-5	2	A	1.0	GA	AO	P	C	C	LTJ	AJ			
											PI	Y2	VR-02		
	Valve Name:	**CONTAINMENT ISOLATION - CF-T1B SAMPLE ISOL VLV**													
CF-V-21A	302-711	G-7	2	C	2.0	RV	SA	A	C	O/C	RT	Y10			
	Valve Name:	**CORE FLOOD TANK CF-T-1A RELIEF**													
CF-V-21B	302-711	G-3	2	C	2.0	RV	SA	A	C	O/C	RT	Y10			
	Valve Name:	**CORE FLOOD TANK CF-T-1B RELIEF**													

CORE FLOOD (CF)

Valve Tag	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
CF-V-2A	302-711	D-7	2	A	1.0	GL	MO	P	C	C	LTJ	AJ			
											PI	Y2	VR-02		
	Valve Name:	**CONTAINMENT ISOLATION - CF-T1A SAMPLE ISO VLV**													
CF-V-2B	302-711	D-4	2	A	1.0	GL	MO	P	C	C	LTJ	AJ			
											PI	Y2	VR-02		
	Valve Name:	**CONTAINMENT ISOLATION - CF-T1B SAMPLE ISO VLV**													
CF-V-3A	302-711	F-6	2	B	1.0	GL	MO	P	C	C	PI	Y2			
	Valve Name:	**CORE FLOOD TANK CF-T-1A REMOTE VENT**													
CF-V-3B	302-711	F-4	2	B	1.0	GL	MO	P	C	C	PI	Y2			
	Valve Name:	**CORE FLOOD TANK CF-T-1B REMOTE VENT**													
CF-V-46A	302-711	D-6	2	C	0.25	RV	SA	A	C	O/C	LTJ	AJ			
											RT	Y10			TP-11
	Valve Name:	**CONTAINMENT PENETRATION 348 RELIEF**													
CF-V-46B	302-711	D-4	2	C	0.25	RV	SA	A	C	O/C	LTJ	AJ			
											RT	Y10			TP-11
	Valve Name:	**CONTAINMENT PENETRATION 349 RELIEF**													
CF-V-4A	302-711	B-4	1	A/C	14.0	CK	SA	A	C	O/C	CC	Y2			
											COF	CM			
											LTH	Y2	VR-01		
	Valve Name:	**CORE FLOOD TANK "A" OUTLET CHECK VALVE**													
CF-V-4B	302-711	B-7	1	A/C	14.0	CK	SA	A	C	O/C	CC	Y2			
											COF	CM			
											LTH	Y2	VR-01		
	Valve Name:	**CORE FLOOD TANK "B" OUTLET CHECK VALVE**													
CF-V-5A	302-711	B-4	1	A/C	14.0	CK	SA	A	C	O/C	CC	Y2			
											COF	CM			
											LTH	Y2	VR-01		
	Valve Name:	**CF-T1A & DH PUMP DISCH CHECK VALVE**													

CORE FLOOD (CF)

Valve Tag	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
CF-V-5B	302-711	B-6	1	A/C	14.0	CK	SA	A	C	O/C	CC	Y2			
											COF	CM			
											LTH	Y2	VR-01		

Valve Name: **CF-T1B & DH PUMP DISCH CHECK VALVE**

CONTROL BUILDING CHILLED WATER (CH)

Valve Tag	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
CH-V-22A	302-847	C-4	3	C	4.0	CK	SA	A	SYS	O	CC	M3			
											CO	M3			
	Valve Name:	**AH-3CB CHILLED WATER DISCHARGE CHECK VALVE**													
CH-V-22B	302-847	B-4	3	C	4.0	CK	SA	A	SYS	O	CC	M3			
											CO	M3			
	Valve Name:	**AH-3CB CHILLED WATER DISCHARGE CHECK VALVE**													

CONTAINMENT MONITORING (CM)

Valve Tag	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
CM-V-1	302-721	F-7	2	A	1.0	GL	AO	A	O	C	FC	M3			TP-03
											LTJ	AJ			
											PI	Y2	VR-02		
											SC	M3			
	Valve Name:	**CONTAINMENT ISOLATION - RB ATMOSPHERE SAMPLE VALVE**													
CM-V-2	302-721	F-7	2	A	1.0	GL	AO	A	O	C	FC	M3			TP-03
											LTJ	AJ			
											PI	Y2	VR-02		
											SC	M3			
	Valve Name:	**CONTAINMENT ISOLATION - RB ATMOS SAMPLE RETURN VLV**													
CM-V-3	302-721	H-7	2	A	1.0	BAL	AO	A	O	C	FC	M3			TP-03
											LTJ	AJ			
											PI	Y2	VR-02		
											SC	M3			
	Valve Name:	**CONTAINMENT ISOLATION - RB ATMOSPHERE SAMPLE VALVE**													
CM-V-4	302-721	H-7	2	A	1.0	BAL	AO	A	O	C	FC	M3			TP-03
											LTJ	AJ			
											PI	Y2	VR-02		
											SC	M3			
	Valve Name:	**CONTAINMENT ISOLATION - RB ATMOS SAMPLE ISOL VLV**													

CONDENSATE (CO)

Valve Tag	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
CO-V-111A	302-101	E-6	3	B	4.0	GA	MO	A	O	C	PI	Y2			
											SC	M3			
	Valve Name:	**CONDENSATE STORAGE TANK "A" ISOLATION TIE VALVE**													
CO-V-111B	302-101	E-6	3	B	4.0	GA	MO	A	O	C	PI	Y2			
											SC	M3			
	Valve Name:	**CONDENSATE STORAGE TANK "B" ISOLATION TIE VALVE**													
CO-V-14A	302-101	E-5	3	B	12.0	GA	MO	A	O	C	PI	Y2			
											SC	M3			
	Valve Name:	**CONDENSATE STORAGE TANK "A" ISOLATION VALVE**													
CO-V-14B	302-101	F-5	3	B	12.0	GA	MO	A	O	C	PI	Y2			
											SC	M3			
	Valve Name:	**CONDENSATE STORAGE TANK "B" ISOLATION VALVE**													
CO-V-16A	302-082	C-8	3	C	10.0	CK	SA	A	SYS	O/C	CCD	CM			TP-02
											COD	CM			TP-02
											COF	Y2			
	Valve Name:	**CONDENSATE CHECK VALVE - SUPPLY TO EFW PUMPS**													
CO-V-16B	302-082	F-8	3	C	10.0	CK	SA	A	SYS	O/C	CCD	CM			TP-02
											COD	CM			TP-02
											COF	M3			
	Valve Name:	**CONDENSATE CHECK VALVE - SUPPLY TO EFW PUMPS**													
CO-V-175A	302-101	E-6	3	C	2.0	CK	SA	A	SYS	O/C	CCD	CM			TP-02
											COD	CM			TP-02
	Valve Name:	**EFW PUMP BEARING COOLING RETURN CHECK VALVE**													
CO-V-175B	302-101	E-6	3	C	2.0	CK	SA	A	SYS	O/C	CCD	CM			TP-02
											COD	CM			TP-02
	Valve Name:	**EFW PUMP BEARING COOLING RETURN CHECK VALVE**													
CO-V-25A	302-101	C-4	3	C	2.0	CK	SA	A	C	C	CC	RR		RJ-25	
											CO	RR		RJ-25	TP-01
	Valve Name:	**CST-A DE-ICE LINE INLET CHECK**													

CONDENSATE (CO)

Valve Tag	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
CO-V-25B	302-101	E-5	3	C	2.0	CK	SA	A	C	C	CC	RR		RJ-25	
											CO	RR		RJ-25	TP-01

Valve Name: **CST-B DE-ICE LINE INLET CHECK**

DECAY HEAT CLOSED CYCLE COOLING WATER (DC)

Valve Tag	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
DC-V-15A	302-645	A-8	3	C	0.5	RV	SA	A	C	O/C	RT	Y10			TP-11
	Valve Name:	**DH REMOVAL COOLER DH-C-1A SHELL SIDE RELIEF**													
DC-V-15B	302-645	C-9	3	C	0.5	RV	SA	A	C	O/C	RT	Y10			TP-11
	Valve Name:	**DH REMOVAL COOLER DH-C-1B SHELL SIDE RELIEF**													
DC-V-16A	302-645	C-6	3	C	0.5	RV	SA	A	C	O/C	RT	Y10			TP-11
	Valve Name:	**BS-P-1A MOTOR AND BEARING COOLING WATER RELIEF**													
DC-V-16B	302-645	C-7	3	C	0.5	RV	SA	A	C	O/C	RT	Y10			TP-11
	Valve Name:	**BS-P-1B MOTOR AND BEARING COOLING WATER RELIEF**													
DC-V-17A	302-645	E-6	3	C	0.5	RV	SA	A	C	O/C	RT	Y10			TP-11
	Valve Name:	**DH-P-1A MOTOR AND BEARING COOLING WATER RELIEF**													
DC-V-17B	302-645	E-7	3	C	0.5	RV	SA	A	C	O/C	RT	Y10			TP-11
	Valve Name:	**DH-P-1B MOTOR AND BEARING COOLING WATER RELIEF**													
DC-V-18A	302-645	D-3	3	C	0.5	RV	SA	A	C	O/C	RT	Y10			TP-11
	Valve Name:	**DC-P-1A BEARING COOLING WATER RELIEF**													
DC-V-18B	302-645	D-2	3	C	0.5	RV	SA	A	C	O/C	RT	Y10			TP-11
	Valve Name:	**DC-P-1B BEARING COOLING WATER RELIEF**													
DC-V-52A	302-645	F-10	3	C	1.0	RV	SA	A	C	O/C	RT	Y10			TP-11
	Valve Name:	**DH SERVICE COOLER DC-C-2A RELIEF**													
DC-V-52B	302-645	F-8	3	C	1.0	RV	SA	A	C	O/C	RT	Y10			TP-11
	Valve Name:	**DH SERVICE COOLER DC-C-2B RELIEF**													

EMERGENCY DIESEL GENERATORS FUEL SYSTEMS (DF)

Valve Tag	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
DF-V-23A	302-283	D-7	A	C	2.0	SCK	SA	A	C	O/C	CC	M3			TP-04
											CO	M3			TP-04
	Valve Name:	**DF-T1 FOOT VALVE**													
DF-V-23B	302-283	D-7	A	C	2.0	SCK	SA	A	C	O/C	CC	M3			TP-04
											CO	M3			TP-04
	Valve Name:	**DF-T1 FOOT VALVE**													
DF-V-28A	302-351	C-5	A	C	1.5	CK	SA	A	C	O/C	CC	M3			TP-04
											CO	M3			TP-04
	Valve Name:	**EG-Y-1A FUEL INJECTION PUMPS SUPPLY CHECK**													
DF-V-28B	302-351	C-4	A	C	1.5	CK	SA	A	C	O/C	CC	M3			TP-04
											CO	M3			TP-04
	Valve Name:	**EG-Y-1B FUEL INJECTION PUMPS SUPPLY CHECK**													
DF-V-79	302-351	D-6	A	N/A		RV	SA	A	C	O/C	LTO	M3			TP-04
	Valve Name:	**DF-P-1A DISCHARGE RELIEF**													
DF-V-7A	302-351	D-7	A	C	1.0	CK	SA	A	C	O/C	CC	M3			TP-04
											CO	M3			TP-04
	Valve Name:	**DF-P1A DISCHARGE CHECK VALVE**													
DF-V-7B	302-351	D-6	A	C	1.0	CK	SA	A	C	O/C	CC	M3			TP-04
											CO	M3			TP-04
	Valve Name:	**DF-P1B DISCHARGE CHECK VALVE**													
DF-V-7C	302-351	D-3	A	C	1.0	CK	SA	A	C	O/C	CC	M3			TP-04
											CO	M3			TP-04
	Valve Name:	**DF-P1C DISCHARGE CHECK VALVE**													
DF-V-7D	302-351	D-3	A	C	1.0	CK	SA	A	C	O/C	CC	M3			TP-04
											CO	M3			TP-04
	Valve Name:	**DF-P1D DISCHARGE CHECK VALVE**													
DF-V-80	302-351	D-6	A	N/A		RV	SA	A	C	O/C	LTO	M3			TP-04
	Valve Name:	**DF-P-1B DISCHARGE RELIEF**													

EMERGENCY DIESEL GENERATORS FUEL SYSTEMS (DF)

Valve Tag	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
DF-V-81	302-351	D-3	A	N/A		RV	SA	A	C	O/C	LTO	M3			TP-04
	Valve Name:	**DF-P-1C DISCHARGE RELIEF**													
DF-V-82	302-351	D-2	A	N/A		RV	SA	A	C	O/C	LTO	M3			TP-04
	Valve Name:	**DF-P-1D DISCHARGE RELIEF**													

DECAY HEAT REMOVAL (DH)

Valve Tag	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
DH-V-1	302-640	E-7	1	B	12.0	GA	MO	P	C	O	PI	Y2	VR-02		
											SO	CS		CSJ-02	
	Valve Name:	**DECAY HEAT SUCTION ISOLATION FROM "B" HOT LEG**													
DH-V-13A	302-640	C-6	2	C	1.0	RV	SA	A	C	O/C	RT	Y10			
	Valve Name:	**DH-P-1A SUCTION RELIEF**													
DH-V-13B	302-640	C-4	2	C	1.0	RV	SA	A	C	O/C	RT	Y10			
	Valve Name:	**DH-P-1B SUCTION RELIEF**													
DH-V-14A	302-640	C-3	2	A/C	14.0	CK	SA	A	C	O/C	CC	RR		RJ-20	
											CO	RR		RJ-20	
											LTO	Y2			
	Valve Name:	**DH PUMP SUCTION FROM BWST CHECK VALVE**													
DH-V-14B	302-640	B-4	2	A/C	14.0	CK	SA	A	C	O/C	CC	RR		RJ-20	
											CO	RR		RJ-20	
											LTO	Y2			
	Valve Name:	**DH PUMP SUCTION FROM BWST CHECK VALVE**													
DH-V-166A	302-640	G-7	2	C	0.5	CK	SA	A	C	O/C	CC	RR		RJ-22	
											CO	RR		RJ-22	
	Valve Name:	**DH-V 004A INLET DISC PRESSURE EQUALIZATION CHECK**													
DH-V-166B	302-640	H-7	2	C	0.5	CK	SA	A	C	O/C	CC	RR		RJ-22	
											CO	RR		RJ-22	
	Valve Name:	**DH-V 004B INLET DISC PRESSURE EQUALIZATION CHECK**													
DH-V-16A	302-640	D-5	2	C	10.0	CK	SA	A	SYS	O/C	CC	RR		RJ-01	
											CO	RR		RJ-01	
	Valve Name:	**DH-P1A DISCHARGE CHECK VALVE**													
DH-V-16B	302-640	D-3	2	C	10.0	CK	SA	A	SYS	O/C	CC	RR		RJ-01	
											CO	RR		RJ-01	
	Valve Name:	**DECAY HEAT PUMP "B" DISCHARGE CHECK VALVE**													

DECAY HEAT REMOVAL (DH)

Valve Tag	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
DH-V-170	302-640	E-7	2	C	0.5	CK	SA	A	C	O	CO	RR		RJ-22	
	Valve Name:	**DH-V 001 INTERDISC OVERPRESSURE RELIEF CHECK**													
DH-V-171	302-640	D-7	2	C	0.5	CK	SA	A	C	O	CO	RR		RJ-22	
	Valve Name:	**DH-V 002 INTERDISC OVERPRESSURE RELIEF CHECK**													
DH-V-172	302-640	D-7	2	C	0.5	CK	SA	A	C	O	CO	RR		RJ-22	
	Valve Name:	**DH-V1/V2 DEAD LEG PRESSURE EQUALIZATION RELIEF CHK**													
DH-V-18A	302-640	F-5	2	C	1.0	RV	SA	A	C	O/C	RT	Y10			
	Valve Name:	**DH LOOP A INJECTION HEADER RELIEF**													
DH-V-18B	302-640	F-4	2	C	1.0	RV	SA	A	C	O/C	RT	Y10			
	Valve Name:	**DH LOOP B INJECTION HEADER RELIEF**													
DH-V-2	302-640	E-7	1	B	12.0	GA	MO	A	C	O/C	PI	Y2	VR-02		
											SC	CS		CSJ-02	
											SO	CS		CSJ-02	
	Valve Name:	**CONTAINMENT ISOLATION - DH DROP LINE/PUMP SUCTION**													
DH-V-21	302-640	H-5	3	A	3.0	GL	M	P	LC	C	LTO	Y2			
	Valve Name:	**DH PUMPS DISCHARGE TEST ISOLATION VALVE**													
DH-V-22A	302-640	G-8	1	A/C	10.0	CK	SA	A	C	O/C	CC	RR		RJ-04	
											CO	RR		RJ-04	
											LTH	Y2			
	Valve Name:	**CONTAINMENT ISOLATION - DH-P1A DISCHARGE CHK TO CF**													
DH-V-22B	302-640	G-8	1	A/C	10.0	CK	SA	A	C	O/C	CC	RR		RJ-04	
											CO	RR		RJ-04	
											LTH	Y2			
	Valve Name:	**CONTAINMENT ISOLATION - DH-P1B DISCH CHK TO CF**													
DH-V-3	302-640	E-6	2	B	12.0	GA	MO	A	C	O/C	PI	Y2			
											SC	M3			
											SO	M3			
	Valve Name:	**CONTAINMENT ISOLATION - DH DROP LINE VLV**													

DECAY HEAT REMOVAL (DH)

Valve Tag	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
DH-V-37	302-640	E-7	2	C	1.0	RV	SA	A	C	O/C	RT	Y10			
	Valve Name:	**DECAY HEAT DROP LEG INTERVALVE RELIEF**													
DH-V-38A	302-640	F-5	2	B	6.0	GA	M	A	LC	O/C	SC	Y2			TP-08
											SO	Y2			TP-08
	Valve Name:	**DECAY HEAT CROSSOVER VALVE**													
DH-V-38B	302-640	F-5	2	B	6.0	GA	M	A	LC	O/C	SC	Y2			TP-08
											SO	Y2			TP-08
	Valve Name:	**DECAY HEAT CROSSOVER VALVE**													
DH-V-4A	302-640	G-6	2	B	10.0	GA	MO	A	C	O/C	PI	Y2	VR-02		
											SC	CS		CSJ-14	
											SO	CS		CSJ-14	
	Valve Name:	**CONTAINMENT ISOLATION - DH-P1A DISCHARGE ISOL VLV**													
DH-V-4B	302-640	G-6	2	B	10.0	GA	MO	A	C	O/C	PI	Y2	VR-02		
											SC	CS		CSJ-14	
											SO	CS		CSJ-14	
	Valve Name:	**CONTAINMENT ISOLATION - DH-P1B DISCHARGE ISOL VLV**													
DH-V-50	302-640	B-5	2	A/C	4.0	CK	SA	A	C	C	CC	RR		RJ-24	
											CO	RR		RJ-24	TP-01
											LTO	Y2			
	Valve Name:	**SPENT FUEL RETURN CLEANUP CHECK VALVE**													
DH-V-57A	302-640	D-3	2	C	1.0	RV	SA	A	C	O/C	RT	Y10			
	Valve Name:	**DH-P-1A SUCTION FROM BWST RELIEF**													
DH-V-57B	302-640	B-3	2	C	1.0	RV	SA	A	C	O/C	RT	Y10			
	Valve Name:	**DH-P-1B SUCTION FROM BWST RELIEF**													
DH-V-5A	302-640	C-2	2	B	14.0	GA	MO	A	O	O/C	PI	Y2	VR-02		
											SC	M3			TP-07
	Valve Name:	**DECAY HEAT SUCTION VALVE FROM BWST**													

DECAY HEAT REMOVAL (DH)

Valve Tag	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
DH-V-5B	302-640	B-3	2	B	14.0	GA	MO	A	O	O/C	PI	Y2	VR-02		
											SC	M3			TP-07
	Valve Name:	**DH PUMP SUCTION FROM BWST**													
DH-V-64	302-640	F-6	2	A	2.0	GL	M	A	LC	O/C	LTJ	AJ			
											SC	Y2			TP-08
											SO	Y2			TP-08
	Valve Name:	**CONTAINMENT ISOLATION - DH TO PZR SPRAY ISOL VLV**													
DH-V-67	302-640	F-7	2	C	1.0	RV	SA	A	C	O/C	RT	Y10			
	Valve Name:	**PRESSURIZER SPRAY LINE RELIEF**													
DH-V-69	302-640	F-7	2	A/C	1.5	CK	SA	A	C	O/C	CC	RR		RJ-23	TP-06
											CO	RR		RJ-23	
											LTJ	AJ			
	Valve Name:	**CONTAINMENT ISOLATION - DH TO PZR AUX SPRAY LINE**													
DH-V-6A	302-640	C-7	2	B	14.0	GA	MO	A	C	O/C	PI	Y2	VR-02		
											SC	RR		RJ-21	
											SO	RR		RJ-21	
	Valve Name:	**CONTAINMENT ISOLATION - RB SUMP RECIRC SUCTION VLV**													
DH-V-6B	302-640	B-7	2	B	14.0	GA	MO	A	C	O/C	PI	Y2	VR-02		
											SC	RR		RJ-21	
											SO	RR		RJ-21	
	Valve Name:	**CONTAINMENT ISOLATION - RB SUMP RECIRC SUCTION**													
DH-V-7A	302-640	G-3	2	B	4.0	GA	MO	A	C	O	PI	Y2			
											SO	M3			
	Valve Name:	**DH-C1A DISCHARGE VALVE TO MAKEUP SYSTEM**													
DH-V-7B	302-640	G-3	2	B	4.0	GA	MO	A	C	O	PI	Y2			
											SO	M3			
	Valve Name:	**DH-C1B DISCHARGE VALVE TO MAKEUP SYSTEM**													

DECAY HEAT RIVER WATER (DR)

Valve Tag	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
DR-V-1A	302-202	C-7	3	B	20.0	BTF	MO	A	C	O	PI	Y2			
											SO	M3			
	Valve Name:	**DR-P1A DISCHARGE VALVE**													
DR-V-1B	302-202	C-6	3	B	20.0	BTF	MO	A	C	O	PI	Y2			
											SO	M3			
	Valve Name:	**DR-P1B DISCHARGE VALVE**													
DR-V-7A	302-202	B-7	3	C	2.0	CK	SA	A	SYS	O/C	CC	M3			
											CO	M3			TP-13
	Valve Name:	**DR-P1A COLUMN VACUUM BREAKER (Check Valve)**													
DR-V-7B	302-202	B-6	3	C	2.0	CK	SA	A	SYS	O/C	CC	M3			
											CO	M3			TP-13
	Valve Name:	**DR-P1B COLUMN VACUUM BREAKER (Check Valve)**													
DR-V-8A	302-202	G-7	3	C	2.0	RV	SA	A	C	O/C	RT	Y10			TP-11
	Valve Name:	**DECAY HEAT SERVICE COOLER DC-C-2A RELIEF**													
DR-V-8B	302-202	F-7	3	C	2.0	RV	SA	A	C	O/C	RT	Y10			TP-11
	Valve Name:	**DECAY HEAT SERVICE COOLER DC-C-2B RELIEF**													

EMERGENCY FEEDWATER (EF)

Valve Tag	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
EF-V-11A	302-082	F-6	3	C	4.0	CK	SA	A	SYS	O/C	CC	RR		RJ-05	
											CO	RR		RJ-05	
	Valve Name:	**EF-P2A DISCHARGE CHECK VALVE**													
EF-V-11B	302-082	B-6	3	C	4.0	CK	SA	A	SYS	O/C	CC	RR		RJ-05	
											CO	RR		RJ-05	
	Valve Name:	**EF-P2B DISCHARGE CHECK VALVE**													
EF-V-12A	302-082	D-4	2	C	6.0	CK	SA	A	SYS	O/C	CCF	CM			TP-02
											CCT	CM			TP-02
											COF	CM			TP-02
	Valve Name:	**CONTAINMENT ISOLATION - EFW TO OTSG "A" CHECK VLV**													
EF-V-12B	302-082	B-3	2	C	6.0	CK	SA	A	SYS	O/C	CCF	CM			TP-02
											CCT	CM			TP-02
											COF	CM			TP-02
	Valve Name:	**CONTAINMENT ISOLATION - EFW TO OTSG "B" CHECK VLV**													
EF-V-13	302-082	E-6	3	C	6.0	CK	SA	A	SYS	O/C	CC	RR		RJ-07	
											CO	RR		RJ-07	
	Valve Name:	**EF-P1 DISCHARGE CHECK VALVE**													
EF-V-19A	302-082	F-6	3	C	1.5	CK	SA	A	SYS	O/C	CC	M3			
											CO	M3			
	Valve Name:	**EF-P2A RECIRC LINE CHECK VALVE**													
EF-V-19B	302-082	B-6	3	C	1.5	CK	SA	A	SYS	O/C	CC	M3			
											CO	M3			
	Valve Name:	**EF-P2B RECIRC LINE CHECK VALVE**													
EF-V-21	302-082	D-6	3	C	2.0	CK	SA	A	SYS	O/C	CC	M3			
											CO	M3			
	Valve Name:	**EF-P1 RECIRCULATION CHECK VALVE**													
EF-V-2A	302-082	F-5	3	B	6.0	GA	MO	A	O	C	PI	Y2	VR-02		
											SC	M3			TP-07
	Valve Name:	**EFW PUMP DISCHARGE HEADER CROSS CONNECT VALVE**													

EMERGENCY FEEDWATER (EF)

Valve Tag	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
EF-V-2B	302-082	D-5	3	B	6.0	GA	MO	A	O	C	PI	Y2	VR-02		
											SC	M3			TP-07
	Valve Name:	**EFW PUMP DISCHARGE HEADER CROSS CONNECT VALVE**													
EF-V-30A	302-082	F-4	2	B	3.0	PLG	AO	A	C	O/C	FC	M3			TP-03
											PI	Y2			
											SC	M3			
											SO	M3			
	Valve Name:	**EFW TO OTSG "A" FLOW CONTROL VALVE**													
EF-V-30B	302-082	B-5	2	B	3.0	PLG	AO	A	C	O/C	FC	M3			TP-03
											PI	Y2			
											SC	M3			
											SO	M3			
	Valve Name:	**EFW TO OTSG "B" FLOW CONTROL VALVE**													
EF-V-30C	302-082	B-5	2	B	3.0	PLG	AO	A	C	O/C	FC	M3			TP-03
											PI	Y2			
											SC	M3			
											SO	M3			
	Valve Name:	**EFW TO OTSG "A" FLOW CONTROL VALVE**													
EF-V-30D	302-082	G-5	2	B	3.0	PLG	AO	A	C	O/C	FC	M3			TP-03
											PI	Y2			
											SC	M3			
											SO	M3			
	Valve Name:	**EFW TO OTSG "B" FLOW CONTROL VALVE**													
EF-V-35	302-082	F-1	3	C	3.0	RV	SA	A	C	O/C	RT	Y10			
	Valve Name:	**EF-P1 BEARING COOLING WTR RETURN RELIEF**													
EF-V-39A	302-082	F-2	3	C	1.5	RV	SA	A	C	O/C	RT	Y10			
	Valve Name:	**EF-P2A BEARING COOLING WTR RETURN RELIEF**													
EF-V-39B	302-082	F-3	3	C	1.5	RV	SA	A	C	O/C	RT	Y10			
	Valve Name:	**EF-P2B BEARING COOLING WTR RETURN RELIEF**													

EMERGENCY FEEDWATER (EF)

Valve Tag	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
EF-V-4	302-611	E-1	3	B	6.0	GA	MO	A	C	O/C	PI	Y2			
											SO	M3			TP-07
	Valve Name:	**EMERGENCY RIVER WATER SUPPLY TO EFW PUMPS**													
EF-V-5	302-611	F-1	3	B	6.0	GA	MO	A	C	O/C	PI	Y2			
											SO	M3			TP-07
	Valve Name:	**EMERGENCY RIVER WATER SUPPLY TO EFW PUMPS**													

EMERGENCY DIESEL GENERATORS SUPPORT SYST (EG)

Valve Tag	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
EG-V-10A	302-351	F-8	A	C	0.75	CK	SA	P	C	C	CC	M3			TP-04
											CO	M3			TP-01
	Valve Name:	**EG-T1A-1 AIR START SYS. RECEIVER INLET CHECK**													
EG-V-10B	302-351	F-1	A	C	0.75	CK	SA	P	C	C	CC	M3			TP-04
											CO	M3			TP-01
	Valve Name:	**EG-T1B-1 AIR START SYS. RECEIVER INLET CHECK**													
EG-V-10C	302-351	D-8	A	C	0.75	CK	SA	P	C	C	CC	M3			TP-04
											CO	M3			TP-01
	Valve Name:	**EG-T1A-2 AIR START SYS. RECEIVER INLET CHECK**													
EG-V-10D	302-351	D-1	A	C	0.75	CK	SA	P	C	C	CC	M3			TP-04
											CO	M3			TP-01
	Valve Name:	**EG-T1B-2 AIR START RECEIVER INLET CHECK**													
EG-V-15A	302-351	F-6	A	B	1.5	BAL	M	P	O	O	CO	M3			TP-05
	Valve Name:	**EG-Y-1A STARTING AIR HEADER ISOL**													
EG-V-15B	302-351	F-3	A	B	1.5	BAL	M	P	O	O	CO	M3			TP-05
	Valve Name:	**EG-Y-1B STARTING AIR HEADER ISOL**													
EG-V-16A	302-351	F-6	A	B	1.5	DIA	SO	A	C	O/C	SO	M3			TP-04
	Valve Name:	**AIR START FOR DIESEL GENERATOR 1A**													
EG-V-16B	302-351	F-3	A	B	1.5	DIA	SO	A	C	O/C	SO	M3			TP-04
	Valve Name:	**AIR START FOR DIESEL GENERATOR 1B**													
EG-V-16C	302-351	E-6	A	B	1.5	DIA	SO	A	C	O/C	SO	M3			TP-04
	Valve Name:	**AIR START FOR EG-Y1A**													
EG-V-16D	302-351	E-3	A	B	1.5	DIA	SO	A	C	O/C	SO	M3			TP-04
	Valve Name:	**AIR START FOR EG-Y1B**													
EG-V-2A	302-351	G-8	A	C	0.5	RV	SA	A	C	O/C	RT	Y10			
	Valve Name:	**STARTING AIR RECEIVER EG-T-1A-1 RELIEF**													

EMERGENCY DIESEL GENERATORS SUPPORT SYST (EG)

Valve Tag	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
EG-V-2B	302-351	G-1	A	C	0.5	RV	SA	A	C	O/C	RT	Y10			
	Valve Name:	**STARTING AIR RECEIVER EG-T-1B-1 RELIEF**													
EG-V-31A	302-354	E-5	A	C	5.0	3W	SA	A	SYS	O/C	CC	M3			TP-04
											CO	M3			TP-04
											D&I	Y10			
	Valve Name:	**EDG "A" JACKET COOLANT TEMP CONTROL VALVE**													
EG-V-31B	302-354	E-1	A	C	5.0	3W	SA	A	SYS	O/C	CC	M3			TP-04
											CO	M3			TP-04
											D&I	Y10			
	Valve Name:	**EDG "B" JACKET COOLANT TEMPERATURE CONTROL VALVE**													
EG-V-32A	302-354	C-6	A	C	4.0	CK	SA	A	SYS	O	CC	M3			TP-04
											CO	M3			TP-04
											D&I	Y10			
	Valve Name:	**EG-C3A/A COOL RADIATOR OUTLET CHECK VALVE**													
EG-V-32B	302-354	C-3	A	C	4.0	CK	SA	A	SYS	O	CC	M3			TP-04
											CO	M3			TP-04
											D&I	Y10			
	Valve Name:	**EG-C3B/A COOL RADIATOR OUTLET CHECK VALVE**													
EG-V-32C	302-354	C-5	A	C	4.0	CK	SA	A	SYS	O	CC	M3			TP-04
											CO	M3			TP-04
											D&I	Y10			
	Valve Name:	**EG-C3A/B COOL RADIATOR OUTLET CHECK VALVE**													
EG-V-32D	302-354	C-2	A	C	4.0	CK	SA	A	SYS	O	CC	M3			TP-04
											CO	M3			TP-04
											D&I	Y10			
	Valve Name:	**EG-C3B/B COOL RADIATOR OUTLET CHECK VALVE**													

EMERGENCY DIESEL GENERATORS SUPPORT SYST (EG)

Valve Tag	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
EG-V-34A	302-354	E-5	A	C	5.0	CK	SA	A	SYS	C	CC	M3			TP-04
											CO	M3			TP-04
											D&I	Y10			
	Valve Name:	**JACKET COOLANT RADIATOR BYPASS CHECK VALVE**													
EG-V-34B	302-354	E-1	A	C	5.0	CK	SA	A	SYS	C	CC	M3			TP-04
											CO	M3			TP-04
											D&I	Y10			
	Valve Name:	**JACKET COOLANT RADIATOR BYPASS CHECK VALVE**													
EG-V-3A	302-351	E-8	A	C	0.5	RV	SA	A	C	O/C	RT	Y10			
	Valve Name:	**STARTING AIR RECEIVER EG-T-1A-2 RELIEF**													
EG-V-3B	302-351	E-1	A	C	0.5	RV	SA	A	C	O/C	RT	Y10			
	Valve Name:	**STARTING AIR RECEIVER EG-T-1B-2 RELIEF**													
EG-V-47A	302-354	F-7	A	C	4.0	3W	SA	A	SYS	O/C	D&I	Y10			
											SO	M3			TP-04
	Valve Name:	**TEMPERATURE CONTROL VALVE FROM PUMP EG-P2A**													
EG-V-47B	302-354	F-3	A	C	4.0	3W	SA	A	SYS	O/C	D&I	Y10			
											SO	M3			TP-04
	Valve Name:	**TEMPERATURE CONTROL VALVE FROM PUMP EG-P2B**													
EG-V-48A	302-354	F-6	A	C	4.0	CK	SA	A	C	O/C	CC	M3			TP-04
											CO	M3			TP-04
											D&I	Y10			
	Valve Name:	**AIR COOLING PUMP "A" DISCHARGE CHECK VALVE**													
EG-V-48B	302-354	F-3	A	C	4.0	CK	SA	A	C	O/C	CC	M3			TP-04
											CO	M3			TP-04
											D&I	Y10			
	Valve Name:	**AIR COOLING PUMP "B" DISCHARGE CHECK VALVE**													
EG-V-76A	302-353	G-7	A	C		RV	SA	A	C	O/C	RT	Y10			
	Valve Name:	**EG-Y-1A TURBO-CHARGER LUBE OIL SUPPLY RELIEF**													

EMERGENCY DIESEL GENERATORS SUPPORT SYST (EG)

Valve Tag	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
EG-V-76B	302-353	G-3	A	C		RV	SA	A	C	O/C	RT	Y10			
	Valve Name:	**EG-Y-1B TURBO-CHARGER LUBE OIL SUPPLY RELIEF**													
EG-V-77A	302-353	G-7	A	C	0.5	CK	SA	A	SYS	O/C	CC	M3			TP-04
											CO	M3			TP-04
	Valve Name:	**EG-Y-1A TURBO-CHARGER LUBE OIL SUPPLY CHECK**													
EG-V-77B	302-353	G-3	A	C	0.5	CK	SA	A	SYS	O/C	CC	M3			TP-04
											CO	M3			TP-04
	Valve Name:	**EG-Y-1B TURBO-CHARGER LUBE OIL SUPPLY CHECK**													
EG-V-7A	302-353	G-10	A	C		RV	SA	A	C	O/C	RT	Y10			
	Valve Name:	**EG-Y-1A ENGINE-DRIVEN FO PUMP EG-P-9A DISCH RELIEF**													
EG-V-7B	302-353	G-5	A	C		RV	SA	A	C	O/C	RT	Y10			
	Valve Name:	**EG-Y-1B ENGINE-DRIVEN FO PUMP EG-P-9B DISCH RELIEF**													

FIRE SERVICE WATER (FS)

Valve Tag	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
FS-V-401	302-231-2	D-5	2	A	4.0	GA	M	P	LC	C	LTJ	AJ			

Valve Name: **CONTAINMENT ISOLATION - FIRE SERVICE WATER**

FEEDWATER (FW)

Valve Tag	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
FW-V-12A	302-081	B-6	2	C	20.0	CK	SA	A	O	C	CCD	CM			TP-02
											COD	CM			TP-01/02
											COF	CM			TP-01/02
	Valve Name:	**CONTAINMENT ISOLATION - OTSG "A" INLET CHECK VALVE**													
FW-V-12B	302-081	B-3	2	C	20.0	CK	SA	A	O	C	CCD	CM			TP-02
											COD	CM			TP-01/02
											COF	CM			TP-01/02
	Valve Name:	**CONTAINMENT ISOLATION - OTSG "B" INLET CHECK VALVE**													
FW-V-16A	302-081	B-6	N/A	B	6.0	ANG	AO	A	O	C	PI	Y2			
											SC	CS		CSJ-10	
	Valve Name:	**MAIN FEEDWATER STARTUP FLOW CONTROL VALVE**													
FW-V-16B	302-081	B-3	N/A	B	6.0	ANG	AO	A	O	C	PI	Y2			
											SC	CS		CSJ-10	
	Valve Name:	**MAIN FEEDWATER STARTUP FLOW CONTROL VALVE**													
FW-V-17A	302-081	C-6	N/A	B	20.0	ANG	AO	A	O	C	PI	Y2			
											SC	CS		CSJ-10	
	Valve Name:	**MAIN FEEDWATER CONTROL VALVE**													
FW-V-17B	302-081	C-3	N/A	B	20.0	ANG	AO	A	O	C	PI	Y2			
											SC	CS		CSJ-10	
	Valve Name:	**MAIN FEEDWATER CONTROL VALVE**													
FW-V-5A	302-081	C-6	N/A	B	20.0	GA	MO	A	O	C	PI	Y2			
											SC	CS		CSJ-10	
	Valve Name:	**MAIN FEEDWATER "A" BLOCK VALVE**													
FW-V-5B	302-081	C-3	N/A	B	20.0	GA	MO	A	O	C	PI	Y2			
											SC	CS		CSJ-10	
	Valve Name:	**MAIN FEEDWATER "B" BLOCK VALVE**													
FW-V-92A	302-081	B-6	N/A	B	6.0	GA	MO	A	O	C	PI	Y2			
											SC	CS		CSJ-10	
	Valve Name:	**OTSG "A" STARTUP FEEDWATER BLOCK VALVE**													

FEEDWATER (FW)

Valve Tag	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
FW-V-92B	302-081	B-3	N/A	B	6.0	GA	MO	A	O	C	PI	Y2			
											SC	CS		CSJ-10	

Valve Name: **OTSG "B" STARTUP FEEDWATER BLOCK VALVE**

CONTAIMENT HYDROGEN MONITORING (HM)

Valve Tag	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
HM-V-1A	302-674	F-5	2	A	1.0	GL	SO	A	C	O/C	FC	M3			TP-03
											LTJ	AJ			
											PI	Y2	VR-02		
											SC	M3			
											SO	M3			
	Valve Name:	**CONTAINMENT ISOLATION - H2 MONITOR "A" OUTLET ISOL**													
HM-V-1B	302-674	C-5	2	A	1.0	GL	SO	A	C	O/C	FC	M3			TP-03
											LTJ	AJ			
											PI	Y2	VR-02		
											SC	M3			
											SO	M3			
	Valve Name:	**CONTAINMENT ISOLATION - H2 MONITOR "B" OUTLET ISOL**													
HM-V-2A	302-674	E-5	2	A	1.0	GL	SO	A	C	O/C	FC	M3			TP-03
											LTJ	AJ			
											PI	Y2	VR-02		
											SC	M3			
											SO	M3			
	Valve Name:	**CONTAINMENT ISOLATION - "A" H2 MONITOR INLET ISOL**													
HM-V-2B	302-674	C-5	2	A	1.0	GL	SO	A	C	O/C	FC	M3			TP-03
											LTJ	AJ			
											PI	Y2	VR-02		
											SC	M3			
											SO	M3			
	Valve Name:	**CONTAINMENT ISOLATION - "B" H2 MONITOR INLET ISOL**													
HM-V-3A	302-674	F-5	2	A	1.0	GL	SO	A	C	O/C	FC	M3			TP-03
											LTJ	AJ			
											PI	Y2	VR-02		
											SC	M3			
											SO	M3			
	Valve Name:	**CONTAINMENT ISOLATION - "A" H2 MONITOR OUTLET ISOL**													

CONTAIMENT HYDROGEN MONITORING (HM)

Valve Tag	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
HM-V-3B	302-674	C-5	2	A	1.0	GL	SO	A	C	O/C	FC	M3			TP-03
											LTJ	AJ			
											PI	Y2	VR-02		
											SC	M3			
											SO	M3			
	Valve Name:	**CONTAINMENT ISOLATION - "B" H2 MONITOR INLET ISOL**													
HM-V-4A	302-674	E-5	2	A	1.0	GL	SO	A	C	O/C	FC	M3			TP-03
											LTJ	AJ			
											PI	Y2	VR-02		
											SC	M3			
											SO	M3			
	Valve Name:	**CONTAINMENT ISOLATION - "A" H2 MONITOR INLET ISOL**													
HM-V-4B	302-674	C-5	2	A	1.0	GL	SO	A	C	O/C	FC	M3			TP-03
											LTJ	AJ			
											PI	Y2	VR-02		
											SC	M3			
											SO	M3			
	Valve Name:	**CONTAINMENT ISOLATION - "B" H2 MONITOR INLET ISOL**													

HYDROGEN PURGE DISCHARGE SYSTEM (HP)

Valve Tag	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
HP-V-1	302-721	B-7	2	A	6.0	GA	M	P	LC	C	LTJ	AJ			
	Valve Name:	**CONTAINMENT ISOLATION - H2 PURGE ISOLATION VALVE**													
HP-V-6	302-721	B-7	2	A	6.0	GA	M	P	LC	C	LTJ	AJ			
	Valve Name:	**CONTAINMENT ISOLATION - H2 PURGE RB ISOL VALVE**													

POST LOCA HYDROGEN RECOMBINER SYSTEM (HR)

Valve Tag	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
HR-V-22A	302-722	D-7	2	A	2.0	GL	SO	P	C	C	LTJ	AJ			
											PI	Y2	VR-02		
	Valve Name:	**CONTAINMENT ISOLATION - RB EXHAUST TO H2 RECOMB**													
HR-V-22B	302-722	C-7	2	A	2.0	GL	SO	P	C	C	LTJ	AJ			
											PI	Y2	VR-02		
	Valve Name:	**CONTAINMENT ISOLATION - RB EXHAUST TO H2 RECOMB**													
HR-V-23A	302-722	C-7	2	A	2.0	GL	SO	P	C	C	LTJ	AJ			
											PI	Y2	VR-02		
	Valve Name:	**CONTAINMENT ISOLATION - H2 RECOMB RETURN ISOL VLV**													
HR-V-23B	302-722	B-7	2	A	2.0	GL	SO	P	C	C	LTJ	AJ			
											PI	Y2	VR-02		
	Valve Name:	**CONTAINMENT ISOLATION - H2 RECOMB RETURN ISOL VLV**													
HR-V-2A	302-722	E-5	2	A	2.0	GL	M	P	LC	C	LTJ	AJ			
	Valve Name:	**CONTAINMENT ISOLATION - HR-R1A/B RB SUPPLY VALVE**													
HR-V-2B	302-722	E-5	2	A	2.0	GL	M	P	LC	C	LTJ	AJ			
	Valve Name:	**CONTAINMENT ISOLATION - HR-R1A/B RB SUPPLY**													
HR-V-4A	302-722	F-5	2	A	2.0	GL	M	A	LC	O/C	LTJ	AJ			
	Valve Name:	**CONTAINMENT ISOLATION - HR-R1A/B RB RETURN VALVE**													
HR-V-4B	302-722	F-5	2	A	2.0	GL	M	A	LC	O/C	LTJ	AJ			
	Valve Name:	**CONTAINMENT ISOLATION - HR-R1A/B RB RETURN VALVE**													

INSTRUMENT AIR (IA)

Valve Tag	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
IA-V-1624A	302-273	C-7	N/A	C	2.5	RV	SA	A	C	O/C	RT	Y10			
	Valve Name:	**2-HR BACKUP AIR SYSTEM "A" RELIEF**													
IA-V-1624B	302-273	C-4	N/A	C	2.5	RV	SA	A	C	O/C	RT	Y10			
	Valve Name:	**2-HR BACKUP AIR SYSTEM "B" RELIEF**													
IA-V-1626A	302-273	C-6	A	B	0.75	3W	AO	P	O	O	FO	RR		RJ-08	TP-03
	Valve Name:	**2-HR BACKUP AIR SYSTEM HEADER SUPPLY VALVE**													
IA-V-1626B	302-273	C-4	A	B	0.75	3W	AO	P	O	O	FO	RR		RJ-08	TP-03
											SO	RR		RJ-08	
	Valve Name:	**2-HR BACKUP AIR SYSTEM HEADER SUPPLY VALVE**													
IA-V-1628A	302-273	C-6	N/A	C	1.0	CK	SA	A	SYS	C	CC	RR		RJ-06	
											CO	RR		RJ-06	TP-01
	Valve Name:	**2-HR BACKUP AIR SYSTEM "A" INST AIR SUPPLY CHECK**													
IA-V-1628B	302-273	C-6	N/A	C	1.0	CK	SA	A	SYS	C	CC	RR		RJ-06	
											CO	RR		RJ-06	TP-01
	Valve Name:	**2-HR BACKUP AIR SYSTEM "B" INST AIR SUPPLY CHECK**													
IA-V-1631A	302-273	D-6	N/A	C	1.0	CK	SA	A	C	O/C	CC	RR		RJ-06	
											CO	RR		RJ-06	
	Valve Name:	**2-HR BACKUP AIR SYSTEM "A" SUPPLY CHECK**													
IA-V-1631B	302-273	E-5	N/A	C	1.0	CK	SA	A	C	O	CC	RR		RJ-06	TP-01
											CO	RR		RJ-06	
	Valve Name:	**2-HR BACKUP AIR SYSTEM CROSSOVER CHECK**													
IA-V-1632	302-273	E-5	N/A	B	1.0	BAL	M	A	C	O/C	SC	Y2			TP-08
											SO	Y2			TP-08
	Valve Name:	**2-HR BACKUP AIR SYSTEM CROSSOVER CHECK**													
IA-V-20	302-271		2	A	2.0	GL	M	P	LC	C	LTJ	AJ			
	Valve Name:	**CONTAINMENT ISOLATION - IA INNER RB ISOL VALVE**													
IA-V-6	302-271		2	A	2.0	GL	M	P	LC	C	LTJ	AJ			
	Valve Name:	**CONTAINMENT ISOLATION - RB INST AIR CONN VALVE**													

INTERMEDIATE COOLING WATER SYSTEM (IC)

Valve Tag	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
IC-V-102	302-620	C-5	2	A/C	0.25	RV	SA	A	C	O/C	LTJ	AJ			
											RT	Y10			TP-11
	Valve Name:	**CONTAINMENT PENETRATION RELIEF VALVE**													
IC-V-16	302-620	G-6	2	A/C	3.0	CK	SA	A	O	C	CCL	CM			TP-02/06
											COF	CM			TP-01/02
											LTJ	AJ			
	Valve Name:	**CONTAINMENT ISOLATION - CRD COOLING CHECK VALVE**													
IC-V-18	302-620	H-6	2	A/C	6.0	CK	SA	A	O	C	CCL	CM			TP-02/06
											COF	CM			TP-01/02
											LTJ	AJ			
	Valve Name:	**CONTAINMENT ISOLATION - LETDOWN SUPPLY CHECK VLV**													
IC-V-2	302-620	C-6	3	A	6.0	GA	MO	A	O	C	LTJ	AJ			
											PI	Y2	VR-02		
											SC	CS		CSJ-01	
											SP	M3		CSJ-01	
	Valve Name:	**CONTAINMENT ISOLATION - ICCW COOLANT RETURN VALVE**													
IC-V-3	302-620	C-5	2	A	6.0	PLG	AO	A	O	C	FC	CS		CSJ-01	TP-03
											LTJ	AJ			
											PI	Y2	VR-02		
											SC	CS		CSJ-01	
											SP	M3		CSJ-01	
	Valve Name:	**CONTAINMENT ISOLATION - ICCW COOLANT RETURN VALVE**													
IC-V-4	302-620	H-5	2	A	6.0	PLG	AO	A	O	C	FC	CS		CSJ-01	TP-03
											LTJ	AJ			
											PI	Y2	VR-02		
											SC	CS		CSJ-01	
											SP	M3		CSJ-01	
	Valve Name:	**CONTAINMENT ISOLATION - IC ISOL COOLANT SUPPLY**													

INTERMEDIATE COOLING WATER SYSTEM (IC)

Valve Tag	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
IC-V-6	302-620	G-5	2	A	3.0	GA	AO	A	O	C	FC	CS		CSJ-01	TP-03
											LTJ	AJ			
											PI	Y2	VR-02		
											SC	CS		CSJ-01	
											SP	M3		CSJ-01	

Valve Name: **CONTAINMENT ISOLATION - IC COOLANT SUPPLY TO CRDM**

MAIN STEAM (MS)

Valve Tag	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
MS-V-13A	302-011	F-3	3	B	2.0	GL	AO	A	C	O	FO	M3			TP-03
											PI	Y2			
											SO	M3			
	Valve Name:	**MAIN STEAM SUPPLY TO EF-P1 FROM OTSG "A"**													
MS-V-13B	302-011	F-3	3	B	2.0	GL	AO	A	C	O	FO	M3			TP-03
											PI	Y2			
											SO	M3			
	Valve Name:	**MAIN STEAM SUPPLY TO EF-P1 FROM OTSG "B"**													
MS-V-17A	302-011	G-8	2	C	10.0	RV	SA	A	C	O/C	RT	Y5			
	Valve Name:	**OTSG "A" MS RELIEF VALVE**													
MS-V-17B	302-011	G-8	2	C	10.0	RV	SA	A	C	O/C	RT	Y5			
	Valve Name:	**OTSG "A" MS RELIEF VALVE**													
MS-V-17C	302-011	H-8	2	C	10.0	RV	SA	A	C	O/C	RT	Y5			
	Valve Name:	**OTSG "B" MS RELIEF VALVE**													
MS-V-17D	302-011	H-8	2	C	10.0	RV	SA	A	C	O/C	RT	Y5			
	Valve Name:	**OTSG MS RELIEF VALVE**													
MS-V-18A	302-011	G-9	2	C	10.0	RV	SA	A	C	O/C	RT	Y5			
	Valve Name:	**OTSG "A" MS RELIEF VALVE**													
MS-V-18B	302-011	G-9	2	C	10.0	RV	SA	A	C	O/C	RT	Y5			
	Valve Name:	**OTSG "A" MS RELIEF VALVE**													
MS-V-18C	302-011	H-9	2	C	10.0	RV	SA	A	C	O/C	RT	Y5			
	Valve Name:	**OTSG "B" MS RELIEF VALVE**													
MS-V-18D	302-011	H-9	2	C	10.0	RV	SA	A	C	O/C	RT	Y5			
	Valve Name:	**OTSG "B" MS RELIEF VALVE**													
MS-V-19A	302-011	G-9	2	C	10.0	RV	SA	A	C	O/C	RT	Y5			
	Valve Name:	**OTSG "A" MS RELIEF VALVE**													

MAIN STEAM (MS)

Valve Tag	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
MS-V-19B	302-011	G-9	2	C	10.0	RV	SA	A	C	O/C	RT	Y5			
	Valve Name:	**OTSG "A" MS RELIEF VALVE**													
MS-V-19C	302-011	H-9	2	C	10.0	RV	SA	A	C	O/C	RT	Y5			
	Valve Name:	**OTSG "B" MS RELIEF VALVE**													
MS-V-19D	302-011	H-9	2	C	10.0	RV	SA	A	C	O/C	RT	Y5			
	Valve Name:	**OTSG "B" MS RELIEF VALVE**													
MS-V-1A	302-011	G-10	2	B/C	24.0	SCK	MO	A	O	C	CC	RR		RJ-10	
											CO	M3			TP-01
											PI	Y2	VR-02		
											SC	RR		RJ-03	
	Valve Name:	**CONTAINMENT ISOLATION - OTSG "A" MS ISOL VALVE**													
MS-V-1B	302-011	G-10	2	B/C	24.0	SCK	MO	A	O	C	CC	RR		RJ-10	
											CO	M3			TP-01
											PI	Y2	VR-02		
											SC	RR		RJ-03	
	Valve Name:	**CONTAINMENT ISOLATION - OTSG "A" MS ISOL VALVE**													
MS-V-1C	302-011	G-10	2	B/C	24.0	SCK	MO	A	O	C	CC	RR		RJ-10	
											CO	M3			TP-01
											PI	Y2	VR-02		
											SC	RR		RJ-03	
	Valve Name:	**CONTAINMENT ISOLATION - OTSG "B" MS ISOL VALVE**													
MS-V-1D	302-011	H-10	2	B/C	24.0	SCK	MO	A	O	C	CC	RR		RJ-10	
											CO	M3			TP-01
											PI	Y2	VR-02		
											SC	RR		RJ-03	
	Valve Name:	**CONTAINMENT ISOLATION - OTSG "B" MS ISOL VALVE**													
MS-V-20A	302-011	G-9	2	C	10.0	RV	SA	A	C	O/C	RT	Y5			
	Valve Name:	**OTSG "A" MS RELIEF VALVE**													

MAIN STEAM (MS)

Valve Tag	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
MS-V-20B	302-011	G-9	2	C	10.0	RV	SA	A	C	O/C	RT	Y5			
	Valve Name:	**OTSG "A" MS RELIEF VALVE**													
MS-V-20C	302-011	H-9	2	C	10.0	RV	SA	A	C	O/C	RT	Y5			
	Valve Name:	**OTSG "B" MS RELIEF VALVE**													
MS-V-20D	302-011	H-9	2	C	10.0	RV	SA	A	C	O/C	RT	Y5			
	Valve Name:	**OTSG "B" MS RELIEF VALVE**													
MS-V-21A	302-011	G-9	2	C	6.0	RV	SA	A	C	O/C	RT	Y5			
	Valve Name:	**OTSG "A" MS RELIEF VALVE**													
MS-V-21B	302-011	H-9	2	C	6.0	RV	SA	A	C	O/C	RT	Y5			
	Valve Name:	**OTSG "B" MS RELIEF VALVE**													
MS-V-22A	302-011	F-5	3	C	4.0	RV	SA	A	C	O/C	RT	Y10			
	Valve Name:	**EMERGENCY FW PUMP EF-P1 STEAM SUPPLY RELIEF**													
MS-V-22B	302-011	F-5	3	C	4.0	RV	SA	A	C	O/C	RT	Y10			
	Valve Name:	**EMERGENCY FW PUMP EF-P1 STEAM SUPPLY RELIEF**													
MS-V-2A	302-011	F-4	2	B	12.0	GA	MO	A	O	O/C	PI	Y2	VR-02		
											SC	M3			TP-07
	Valve Name:	**OTSG "A" MS TO EF-P1 & TURBINE BYPASS VALVES**													
MS-V-2B	302-011	G-4	2	B	12.0	GA	MO	A	O	O/C	PI	Y2	VR-02		
											SC	M3			TP-07
	Valve Name:	**OTSG "B" TO EF-P1 & TURBINE BYPASS VALVES**													
MS-V-4A	302-011	F-4	3	B	6.0	PLG	AO	P	C	C	PI	M3			
	Valve Name:	**ATMOSPHERIC DUMP VALVE FOR OTSG "A"**													
MS-V-4B	302-011	G-3	3	B	6.0	PLG	AO	P	C	C	PI	M3			
	Valve Name:	**ATMOSPHERIC DUMP VALVE FOR OTSG "B"**													
MS-V-9A	302-011	F-3	3	C	6.0	CK	SA	A	SYS	O/C	CCD	CM			TP-02
											COD	CM			TP-02
	Valve Name:	**MAIN STEAM SUPPLY CHECK VALVE TO EF-U1**													

MAIN STEAM (MS)

Valve Tag	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
MS-V-9B	302-011	F-3	3	C	6.0	CK	SA	A	SYS	O/C	CCD	CM			TP-02
											COD	CM			TP-02

Valve Name: **MAIN STEAM SUPPLY CHECK VALVE TO EF-U1**

MAKEUP & PURIFICATION (MU)

Valve Tag	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
MU-V-107A	302-661	H-2	1	C	2.5	CK	SA	A	C	O/C	CCD	CM			TP-02
											COD	CM			TP-02
											COF	CM			TP-02
	Valve Name:	**CONTAINMENT ISOLATION - HPI TO RC "A" SUPPLY CHECK**													
MU-V-107B	302-661	G-2	1	C	2.5	CK	SA	A	C	O/C	CCD	CM			TP-02
											COD	CM			TP-02
											COF	CM			TP-02
	Valve Name:	**CONTAINMENT ISOLATION - HPI TO RC "B" SUPPLY CHECK**													
MU-V-107C	302-661	D-2	1	C	2.5	CK	SA	A	C	O/C	CCD	CM			TP-02
											COD	CM			TP-02
											COF	CM			TP-02
	Valve Name:	**CONTAINMENT ISOLATION - HPI TO RC "C" SUPPLY CHECK**													
MU-V-107D	302-661	D-2	1	C	2.5	CK	SA	A	C	O/C	CCD	CM			TP-02
											COD	CM			TP-02
											COF	CM			TP-02
	Valve Name:	**CONTAINMENT ISOLATION - HPI TO RC "D" SUPPLY CHECK**													
MU-V-112	302-661	B-5	2	A/C	4.0	CK	SA	A	O	C	CC	RR		RJ-12	TP-06
											CO	CM			TP-01
											LTO	Y2	VR-01		
	Valve Name:	**MAKEUP TANK OUTLET CHECK VALVE**													
MU-V-116	302-661	F-3	1	A/C	1.5	CK	SA	A	O	C	CCL	CM			TP-02/06
											COF	CM			TP-01/02
											LTJ	AJ			
	Valve Name:	**CONTAINMENT ISOLATION - SEAL INJ SPRY/RC CHK**													
MU-V-14A	302-661	B-4	2	A/C	6.0	SCK	MO	A	C	O/C	CC	RR		RJ-13	TP-06
											CO	RR		RJ-13	
											LTO	Y2	VR-01		
											PI	Y2	VR-02		
											SO	M3			
	Valve Name:	**MU PUMP SUCTION FROM BWST STOP CHECK VALVE**													

MAKEUP & PURIFICATION (MU)

Valve Tag	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
MU-V-14B	302-661	B-2	2	A/C	6.0	SCK	MO	A	C	O/C	CC	RR		RJ-13	TP-06
											CO	RR		RJ-13	
											LTO	Y2	VR-01		
											PI	Y2	VR-02		
											SO	M3			
	Valve Name:	**MU PUMP SUCTION FROM BWST STOP CHECK VALVE**													
MU-V-16A	302-661	H-4	2	B	2.5	GL	MO	A	C	O	PI	Y2	VR-02		
											SO	M3			
	Valve Name:	**CONTAINMENT ISOLATION - HPI "A" CONTROL VALVE**													
MU-V-16B	302-661	G-4	2	B	2.5	GL	MO	A	C	O	PI	Y2	VR-02		
											SO	M3			
	Valve Name:	**CONTAINMENT ISOLATION - HPI "B" CONTROL VALVE**													
MU-V-16C	302-661	D-2	2	B	2.5	GL	MO	A	C	O	PI	Y2	VR-02		
											SO	M3			
	Valve Name:	**CONTAINMENT ISOLATION - HPI "C" CONTROL VALVE**													
MU-V-16D	302-661	D-2	2	B	2.5	GL	MO	A	C	O	PI	Y2	VR-02		
											SO	M3			
	Valve Name:	**CONTAINMENT ISOLATION - HPI "D" CONTROL VALVE**													
MU-V-18	302-661	G-4	2	A	2.5	GA	AO	A	O	C	FC	CS		CSJ-03	TP-03
											LTJ	AJ			
											PI	Y2	VR-02		
											SC	CS		CSJ-03	
											SP	M3			
	Valve Name:	**CONTAINMENT ISOLATION - CHARGE LINE ISOL VALVE**													
MU-V-193A	302-661	D-5	2	C	2.0	SCK	SA	A	SYS	O/C	CC	M3			
											CO	M3			
	Valve Name:	**MU-P1A RECIRC STOP CHECK VALVE**													

MAKEUP & PURIFICATION (MU)

Valve Tag	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
MU-V-193B	302-661	D-4	2	C	2.0	SCK	SA	A	SYS	O/C	CC	M3			
											CO	M3			
	Valve Name:	**MU-P1B RECIRC STOP CHECK VALVE**													
MU-V-193C	302-661	D-3	2	C	2.0	SCK	SA	A	SYS	O/C	CC	M3			
											CO	M3			
	Valve Name:	**MU-P1C RECIRC STOP CHECK VALVE**													
MU-V-20	302-661	F-3	2	A	4.0	GA	AO	A	O	C	FC	CS		CSJ-04	TP-03
											LTJ	AJ			
											PI	Y2	VR-02		
											SC	CS		CSJ-04	
	Valve Name:	**CONTAINMENT ISOLATION - RCP SEAL WATER ISOL VLV**													
MU-V-219	302-661	H-2	1	A/C	2.5	CK	SA	A	O	C	CCL	CM			TP-02/06
											COF	CM			TP-01/02
											LTJ	AJ			
	Valve Name:	**NORMAL MAKEUP LINE TO HPI LINE B CHECK**													
MU-V-220	302-661	G-2	1	C	2.5	CK	SA	A	C	O	CCD	CM			TP-01/02
											COD	CM			TP-02
	Valve Name:	**HPI LOOP "B" BACK FLOW FROM MAKEUP - CHECK VALVE**													
MU-V-238	302-660	F-5	2	C	0.25	RV	SA	A	C	O/C	LTJ	AJ			
											RT	Y10			TP-11
	Valve Name:	**RCS LETDOWN CONTAINMENT PENETRATION RELIEF**													
MU-V-25	302-660	C-3	2	A	4.0	GL	MO	A	O	C	LTJ	AJ			
											PI	Y2	VR-02		
											SC	CS		CSJ-05	
											SP	M3		CSJ-05	
	Valve Name:	**CONTAINMENT ISOLATION RCP SEAL RETURN ISOL VALVE**													

MAKEUP & PURIFICATION (MU)

Valve Tag	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
MU-V-26	302-660	C-4	2	A	4.0	GA	AO	A	O	C	FC	CS		CSJ-05	TP-03
											FO	CS		CSJ-05	
											LTJ	AJ			
											PI	Y2	VR-02		
											SC	CS		CSJ-05	
											SP	M3		CSJ-05	
	Valve Name:	**CONTAINMENT ISOLATION RCP SEAL RETURN LETDOWN ISOL**													
MU-V-2A	302-660	G-4	1	A	2.5	GL	MO	A	O	C	LTJ	AJ			
											PI	Y2	VR-02		
											SC	CS		CSJ-06	
											SP	M3		CSJ-06	
	Valve Name:	**CONTAINMENT ISOLATION - LETDOWN CLR "A" OUTLET VLV**													
MU-V-2B	302-660	F-4	1	A	2.5	GL	MO	A	O	C	LTJ	AJ			
											PI	Y2	VR-02		
											SC	CS		CSJ-06	
											SP	M3		CSJ-06	
	Valve Name:	**CONTAINMENT ISOLATION - LETDOWN CLR "B" OUTLET VLV**													
MU-V-3	302-660	G-5	2	A	2.5	GA	AO	A	O	C	FC	CS		CSJ-06	TP-03
											LTJ	AJ			
											PI	Y2	VR-02		
											SC	CS		CSJ-06	
											SP	M3		CSJ-06	
	Valve Name:	**CONTAINMENT ISOLATION - LETDOWN COOLER ISOL VALVE**													
MU-V-36	302-661	D-6	2	A	2.0	GA	MO	A	O	O/C	LTO	Y2			
											PI	Y2	VR-02		
											SC	M3			
											SO	M3			
	Valve Name:	**MU PUMPS RECIRC ISOLATION VALVE**													

MAKEUP & PURIFICATION (MU)

Valve Tag	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
MU-V-37	302-661	D-7	3	A	2.0	GA	MO	A	O	O/C	LTO	Y2			
											PI	Y2	VR-02		
											SC	M3			
											SO	M3			
	Valve Name:	**MU PUMPS RECIRC ISOL VALVE**													
MU-V-73A	302-661	C-5	2	C	3.0	CK	SA	A	SYS	O/C	CC	M3			
											CO	RR		RJ-15	
	Valve Name:	**MU-P1A DISCHARGE CHECK VALVE**													
MU-V-73B	302-661	C-4	2	C	3.0	CK	SA	A	SYS	O/C	CC	M3			
											CO	RR		RJ-15	
	Valve Name:	**MU-P1B DISCHARGE CHECK VALVE**													
MU-V-73C	302-661	C-3	2	C	3.0	CK	SA	A	SYS	O/C	CC	M3			
											CO	RR		RJ-15	
	Valve Name:	**MU-P1C DISCHARGE CHECK VALVE**													
MU-V-78	302-661	E-7	2	A	2.5	GL	M	P	LC	C	LTO	Y2			
	Valve Name:	**MU TANK AND PUMPS BYPASS FOR RCS FILL ISOLATION**													
MU-V-79	302-661	E-6	2	A/C	2.5	CK	SA	A	C	C	CC	RR		RJ-09	
											CO	RR		RJ-09	TP-01
											LTO	Y2			
	Valve Name:	**MU TANK AND PUMPS BYPASS FOR RCS FILL CHECK VALVE**													
MU-V-86A	302-661	D-1	1	C	2.5	CK	SA	A	C	O	CCD	CM			TP-01/02
											COD	CM			TP-02
	Valve Name:	**LOOP "D" RCS HPI INLET CHECK VALVE**													
MU-V-86B	302-661	D-1	1	C	2.5	CK	SA	A	C	O	CCD	CM			TP-01/02
											COD	CM			TP-02
	Valve Name:	**LOOP "C" RCS HPI INLET CHECK VALVE**													
MU-V-94	302-661	G-1	1	C	2.5	CK	SA	A	SYS	O	CCD	CM			TP-01/02
											COD	CM			TP-02
	Valve Name:	**LOOP "B" RCS HPI INLET CHECK VALVE**													

MAKEUP & PURIFICATION (MU)

Valve Tag	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
MU-V-95	302-661	H-1	1	C	2.5	CK	SA	A	C	O	CCD	CM			TP-01/02
											COD	CM			TP-02

Valve Name: **LOOP "A" RCS HPI INLET CHECK VALVE**

NUCLEAR PLANT NITROGEN SUPPLY (NI)

Valve Tag	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
NI-V-26	302-720	D-9	2	A	1.0	GL	M	P	LC	C	LTJ	AJ			
	Valve Name:	**CONTAINMENT ISOLATION - 650# N2 SUPPLY TO RB**													
NI-V-27	302-720	D-9	2	A	1.0	GL	M	P	LC	C	LTJ	AJ			
	Valve Name:	**CONTAINMENT ISOLATION - 650# N2 SUPPLY TO RB**													

NUCLEAR SERVICES RIVER WATER (NR)

Valve Tag	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
NR-V-19	302-202	E-5	3	B	24.0	BTF	MO	A	C	O	PI	RR			
											SO	Y2		RJ-26	
	Valve Name:	**NR SYSTEM OUTLET TO SCREEN WASH HEADER**													
NR-V-1A	302-202	C-10	3	B	16.0	BTF	MO	A	O/C	O	PI	Y2	VR-02		
											SO	M3			
	Valve Name:	**NUC RIVER PUMP "A" DISCH VALVE**													
NR-V-1B	302-202	C-9	3	B	16.0	BTF	MO	A	O/C	O	PI	Y2	VR-02		
											SO	M3			
	Valve Name:	**NUC RIVER PUMP "B" DISCH VALVE**													
NR-V-1C	302-202	C-9	3	B	16.0	BTF	MO	A	O/C	O	PI	Y2	VR-02		
											SO	M3			
	Valve Name:	**NR-P1C DISCH VALVE**													
NR-V-2	302-202	C-9	3	A	30.0	BTF	MO	P	C	C	LTO	Y2	VR-01		
											PI	Y2	VR-02		
	Valve Name:	**NR TO SR HEADER ISOLATION VALVE**													
NR-V-20A	302-202	B-10	3	C	16.0	CK	SA	A	SYS	O/C	CC	M3			
											CO	M3			
	Valve Name:	**NR-P1A DISCHARGE CHECK VALVE**													
NR-V-20B	302-202	B-9	3	C	16.0	CK	SA	A	SYS	O/C	CC	M3			
											CO	M3			
	Valve Name:	**NR-P1B DISCHARGE CHECK VALVE**													
NR-V-20C	302-202	B-9	3	C	16.0	CK	SA	A	SYS	O/C	CC	M3			
											CO	M3			
	Valve Name:	**NR-P1C DISCHARGE CHECK VALVE**													
NR-V-21A	302-202	G-8	3	C	0.5	RV	SA	A	C	O/C	RT	Y10			TP-11
	Valve Name:	**INTERMEDIATE SERVICE COOLER IC-C-1A RELIEF**													
NR-V-21B	302-202	F-8	3	C	0.5	RV	SA	A	C	O/C	RT	Y10			TP-11
	Valve Name:	**INTERMEDIATE SERVICE COOLER IC-C-1B RELIEF**													

NUCLEAR SERVICES RIVER WATER (NR)

Valve Tag	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
NR-V-22A	302-202	B-10	3	C	2.0	CK	SA	A	C	O/C	CC	M3			
											CO	M3			TP-13
	Valve Name:	**NR-P1A VACUUM BREAKER (Check Valve)**													
NR-V-22B	302-202	B-10	3	C	2.0	CK	SA	A	C	O/C	CC	M3			
											CO	M3			TP-13
	Valve Name:	**NR-P1B VACUUM BREAKER (Check Valve)**													
NR-V-22C	302-202	B-9	3	C	2.0	CK	SA	A	C	O/C	CC	M3			
											CO	M3			TP-13
	Valve Name:	**NR-P1C VACUUM BREAKER (Check Valve)**													
NR-V-25A	302-202	H-10	3	C	1.5	RV	SA	A	C	O/C	RT	Y10			TP-11
	Valve Name:	**NUCLEAR SERVICES HX NS-C-1A TUBE SIDE RELIEF**													
NR-V-25B	302-202	G-10	3	C	1.5	RV	SA	A	C	O/C	RT	Y10			TP-11
	Valve Name:	**NUCLEAR SERVICES HX NS-C-1B TUBE SIDE RELIEF**													
NR-V-25C	302-202	G-10	3	C	1.5	RV	SA	A	C	O/C	RT	Y10			TP-11
	Valve Name:	**NUCLEAR SERVICES HX NS-C-1C TUBE SIDE RELIEF**													
NR-V-25D	302-202	F-10	3	C	1.5	RV	SA	A	C	O/C	RT	Y10			TP-11
	Valve Name:	**NUCLEAR SERVICES HX NS-C-1D TUBE SIDE RELIEF**													
NR-V-4A	302-202	E-10	3	A	30.0	BTF	MO	A	C	C	LTO	Y2	VR-01		
											PI	Y2	VR-02		
											SC	M3			
	Valve Name:	**DEICING MAKEUP VALVE "A"**													
NR-V-4B	302-202	E-10	3	A	30.0	BTF	MO	A	C	C	LTO	Y2	VR-01		
											PI	Y2	VR-02		
											SC	M3			
	Valve Name:	**DEICING MAKEUP VALVE "B"**													
NR-V-6	302-202	E-8	3	A	30.0	BTF	MO	P	C	C	LTO	Y2	VR-01		
											PI	Y2	VR-02		
	Valve Name:	**HX VAULT CROSS CONNECT BETWEEN NR & SR**													

NUCLEAR SERVICES CLOSED COOLING WATER (NS)

Valve Tag	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
NS-V-10A	302-610	G-3	3	C	12.0	CK	SA	A	SYS	O/C	CC	M3			
											CO	M3			
	Valve Name:	**NUC SVCS PUMP "A" DISCHARGE CHECK VALVE**													
NS-V-10B	302-610	G-3	3	C	12.0	CK	SA	A	SYS	O/C	CC	M3			
											CO	M3			
	Valve Name:	**NS-P1B DISCHARGE CHECK VALVE**													
NS-V-10C	302-610	G-2	3	C	12.0	CK	SA	A	SYS	O/C	CC	M3			
											CO	M3			
	Valve Name:	**NS-P1C DISCHARGE CHECK VALVE**													
NS-V-11	302-610	D-9	2	A/C	8.0	CK	SA	A	O	C	CCL	CM			TP-02/06
											COF	CM			TP-01/02
											LTJ	AJ			
	Valve Name:	**RCP MOTOR COOLER SUPPLY VALVE**													
NS-V-15	302-610	D-8	2	A	8.0	GA	MO	A	O	C	LTJ	AJ			
											PI	Y2	VR-02		
											SC	CS		CSJ-07	
											SP	M3		CSJ-07	
	Valve Name:	**RC MOTOR COOLER RETURN VALVE**													
NS-V-205	302-610	H-6	3	C	2.0	CK	SA	A	SYS	C	CC	M3			
											CO	M3			TP-01
	Valve Name:	**NSCCW SURGE TANK DEMIN WATER SUPPLY CHECK VALVE**													
NS-V-211	302-610	A-8	2	A/C	0.25	RV	SA	A	C	O/C	LTJ	AJ			
											RT	Y10			TP-11
	Valve Name:	**RB RETURN HEADER PENETRATION RELIEF**													
NS-V-35	302-610	A-9	3	A	8.0	GA	MO	A	O	C	LTJ	AJ			
											PI	Y2	VR-02		
											SC	CS		CSJ-08	
											SP	M3		CSJ-08	
	Valve Name:	**RC MOTOR COOLER RETURN VALVE**													

NUCLEAR SERVICES CLOSED COOLING WATER (NS)

Valve Tag	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
NS-V-36A	302-610	F-8	2	C	0.5	RV	SA	A	C	O/C	RT	Y10			TP-11
	Valve Name:	**RB FAN MOTOR COOLER 1A RELIEF**													
NS-V-36B	302-610	F-7	2	C	0.5	RV	SA	A	C	O/C	RT	Y10			TP-11
	Valve Name:	**RB FAN MOTOR COOLER 1B RELIEF**													
NS-V-36C	302-610	F-7	2	C	0.5	RV	SA	A	C	O/C	RT	Y10			TP-11
	Valve Name:	**RB FAN MOTOR COOLER 1C RELIEF**													
NS-V-4	302-610	A-8	3	A	8.0	GA	MO	A	O	C	LTJ	AJ			
											PI	Y2	VR-02		
											SC	CS		CSJ-08	
											SP	M3		CSJ-08	
	Valve Name:	**RCP MOTOR COOLER RETURN VALVE**													
NS-V-44A	302-645	B-6	3	C	0.5	RV	SA	A	C	O/C	RT	Y10			TP-11
	Valve Name:	**MU-P-1A MOTOR AND BEARING COOLING WATER RELIEF**													
NS-V-44B	302-610	D-4	3	C	0.5	RV	SA	A	C	O/C	RT	Y10			TP-11
	Valve Name:	**MU-P-1B MOTOR AND BEARING COOLING WATER RELIEF**													
NS-V-44C	302-645	B-7	3	C	0.5	RV	SA	A	C	O/C	RT	Y10			TP-11
	Valve Name:	**MU-P-1C MOTOR AND BEARING COOLING WATER RELIEF**													
NS-V-46A	302-610	F-6	3	C	1.0	RV	SA	A	C	O/C	RT	Y10			TP-11
	Valve Name:	**CONTROL BLDG AC HEAT EXCHANGER AH-C-4A RELIEF**													
NS-V-46B	302-610	F-6	3	C	1.0	RV	SA	A	C	O/C	RT	Y10			TP-11
	Valve Name:	**CONTROL BLDG AC HEAT EXCHANGER AH-C-4B RELIEF**													
NS-V-47	302-610	H-7	3	C	2.0	RV	SA	A	C	O/C	RT	Y10			
	Valve Name:	**NS SURGE TANK NS-T-1 RELIEF**													
NS-V-48A	302-610	G-2	3	C	1.0	RV	SA	A	C	O/C	RT	Y10			TP-11
	Valve Name:	**NS & DC PUMP AREA COOLER AH-E-15A RELIEF**													
NS-V-48B	302-610	G-1	3	C	1.0	RV	SA	A	C	O/C	RT	Y10			TP-11
	Valve Name:	**NS & DC PUMP AREA COOLER AH-E-15B RELIEF**													

NUCLEAR SERVICES CLOSED COOLING WATER (NS)

Valve Tag	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
NS-V-49A	302-610	F-9	3	C	1.0	RV	SA	A	C	O/C	RT	Y10			TP-11
	Valve Name:	**EFW PUMP AND IA COMPR ROOM COOLER AH-E-24A RELIEF**													
NS-V-49B	302-610	F-8	3	C	1.0	RV	SA	A	C	O/C	RT	Y10			TP-11
	Valve Name:	**EFW PUMP AND IA COMPR ROOM COOLER AH-E-24B RELIEF**													
NS-V-52A	302-610	E-8	2	B	1.0	GA	AO	P	O	O	PI	Y2	VR-02		
	Valve Name:	**CONTAINMENT ISOLATION - AH-E1A MOTOR COOLER SUPPLY**													
NS-V-52B	302-610	E-7	2	B	1.0	GA	AO	P	O	O	PI	Y2	VR-02		
	Valve Name:	**CONTAINMENT ISOLATION - AH-E1B MTR COOLER SUPPLY**													
NS-V-52C	302-610	E-7	2	B	1.0	GA	AO	P	O	O	PI	Y2	VR-02		
	Valve Name:	**CONTAINMENT ISOLATION - AH-E1C MTR COOLER SUPPLY**													
NS-V-53A	302-610	F-8	2	B	1.0	GA	AO	P	O	O	PI	Y2	VR-02		
	Valve Name:	**CONTAINMENT ISOLATION - AH-E1A MTR COOLER RETURN**													
NS-V-53B	302-610	F-7	2	B	1.0	GA	AO	P	O	O	PI	Y2	VR-02		
	Valve Name:	**CONTAINMENT ISOLATION - AH-E1B MTR COOLER RETURN**													
NS-V-53C	302-610	F-7	2	B	1.0	GA	AO	P	O	O	PI	Y2	VR-02		
	Valve Name:	**CONTAINMENT ISOLATION - AH-E1C MTR COOLER RETURN**													
NS-V-55A	302-610	F-9	3	B	3.0	GL	AO	N/A	T	N/A	FO	M3			TP-03
											SO	M3			
	Valve Name:	**EFW PUMP ROOMS & IA COMPRESSOR FLOW CONTROL VLV**													
NS-V-55B	302-610	F-8	3	B	3.0	GL	AO	N/A	T	N/A	FO	M3			TP-03
											SO	M3			
	Valve Name:	**EFW PUMP ROOMS & IA COMPRESSOR FLOW CONTROL VLV**													
NS-V-56A	302-610	G-2	3	B	2.0	GL	AO	A	T	O	FO	M3			TP-03
											SO	M3			
	Valve Name:	**NS-P1 & DC-P1 PUMP AREA VENT EQ FLOW CONTROL VLV**													

NUCLEAR SERVICES CLOSED COOLING WATER (NS)

Valve Tag	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
NS-V-56B	302-610	F-1	3	B	2.0	GL	AO	A	T	O	FO	M3			TP-03
											SO	M3			
	Valve Name:	**NS-P1 & DC-P1 PUMP AREA VENT EQ FLOW CONTROL VLV**													
NS-V-85	302-610	E-9	3	A	0.5	GL	M	A	O	C	SC	Y2			TP-08
	Valve Name:	**NS-FI-76 Rotometer Outlet Isolation**													
NS-V-96A	302-610	G-10	3	C	0.75	RV	SA	A	C	O/C	RT	Y10			
	Valve Name:	**NUCLEAR SERVICES HX NS-C-1A SHELL SIDE RELIEF**													
NS-V-96B	302-610	G-9	3	C	0.75	RV	SA	A	C	O/C	RT	Y10			
	Valve Name:	**NUCLEAR SERVICES HX NS-C-1B SHELL SIDE RELIEF**													
NS-V-96C	302-610	G-9	3	C	0.75	RV	SA	A	C	O/C	RT	Y10			
	Valve Name:	**NUCLEAR SERVICES HX NS-C-1C SHELL SIDE RELIEF**													
NS-V-96D	302-610	G-8	3	C	0.75	RV	SA	A	C	O/C	RT	Y10			
	Valve Name:	**NUCLEAR SERVICES HX NS-C-1D SHELL SIDE RELIEF**													

PENETRATION PRESSURIZATION SYSTEM (PP)

Valve Tag	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
PP-V-210	302-706	E-8	2	A	1.0	GL	M	P	C	C	LTJ	AJ			
	Valve Name:	**CONTAINMENT INTEGRITY BACKUP SUPPLY AH-V1A/B**													
PP-V-211	302-706	G-10	2	A	1.0	GL	M	P	C	C	LTJ	AJ			
	Valve Name:	**CONTAINMENT INTEGRITY - BACKUP SUPPLY TO AH-V1C/D**													
PP-V-212	302-706	F-7	2	A	2.0	GL	M	P	C	C	LTJ	AJ			
	Valve Name:	**CONTAINMENT INTEGRITY - PP-T1B SUPPLY TO AH-V1A/B**													
PP-V-213	302-706	G-9	2	A	2.0	GL	M	P	C	C	LTJ	AJ			
	Valve Name:	**CONTAINMENT INTEGRITY - PP-T1A SUPPLY TO AH-V1C/D**													

REACTOR BUILDING EMERGENCY COOLING WATER (RB)

Valve Tag	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
RB-V-2A	302-611	F-8	2	A	8.0	GA	MO	A	O	C	LTJ	AJ			
											PI	Y2	VR-02		
											SC	CS		CSJ-09	
											SP	M3		CSJ-09	
	Valve Name:	**CONTAINMENT ISOLATION - RB NORMAL AIR COOL SUP VLV**													
RB-V-7	302-611	F-8	2	A	8.0	GA	MO	A	O	C	LTJ	AJ			
											PI	Y2	VR-02		
											SC	CS		CSJ-09	
											SP	M3		CSJ-09	
	Valve Name:	**CONTAINMENT ISOLATION - RB NORMAL COOL RETURN ISOL**													

REACTOR COOLANT (RC)

Valve Tag	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
RC-RV-001A	302-650	G-6	1	C	2.5	RV	SA	A	C	O/C	RT	Y5			
	Valve Name:	**PRESSURIZER CODE SAFETY VALVE**													
RC-RV-001B	302-650	G-6	1	C	2.5	RV	SA	A	C	O/C	RT	Y5			
	Valve Name:	**PRESSURIZER CODE SAFETY VALVE**													
RC-RV-002	302-650	G-6	1	B/C	4.0	RV	SO	A	C	O/C	FC	RR		RJ-19	TP-03
											PI	Y2	VR-02		
											RT	Y5			
											SC	RR		RJ-19	
											SO	RR		RJ-19	
	Valve Name:	**PZR PILOT OPERATED RELIEF VALVE (PORV)**													
RC-V-2	302-650	G-6	1	B	2.5	GA	MO	A	O	O/C	PI	Y2	VR-02		
											SC	M3		RJ-17	TP-07
	Valve Name:	**PORV (RC-RV2) ISOLATION VALVE**													
RC-V-28	302-650	G-8	1	B	1.0	GL	MO	A	C	C	PI	Y2	VR-02		
											SC	CS		CSJ-11	
	Valve Name:	**PZR VENT TO RCDT ISOLATION VALVE**													
RC-V-4	302-650	G-6	1	B	1.5	GL	MO	A	C	C	PI	Y2	VR-02		
	Valve Name:	**DECAY HEAT PRESSURIZER SPRAY LINE ISOLATION VALVE**													
RC-V-40A	302-650	E-8	1	B	0.5	GL	SO	A	C	C	FC	CS		CSJ-12	TP-03
											PI	Y2	VR-02		
											SC	CS		CSJ-12	
											SO	CS			
	Valve Name:	**"A" HOT LEG HIGH POINT VENT TO RCDT AND ATMOSPHERE**													
RC-V-40B	302-650	E-2	1	B	0.5	GL	SO	A	C	C	FC	CS		CSJ-12	TP-03
											PI	Y2	VR-02		
											SC	CS		CSJ-12	
											SO	CS		CSJ-12	
	Valve Name:	**"B" HOT LEG VENT TO RCDT AND ATMOSPHERE**													

REACTOR COOLANT (RC)

Valve Tag	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
RC-V-41A	302-650	E-8	1	B	0.5	GL	SO	A	C	C	FC	CS		CSJ-12	TP-03
											PI	Y2	VR-02		
											SC	CS		CSJ-12	
											SO	CS		CSJ-12	
	Valve Name:	**"A" HOT LEG VENT TO RCDT AND ATMOSPHERE**													
RC-V-41B	302-650	E-2	1	B	0.5	GL	SO	A	C	C	FC	CS		CSJ-12	TP-03
											PI	Y2	VR-02		
											SC	CS		CSJ-12	
											SO	CS		CSJ-12	
	Valve Name:	**"B" HOT LEG VENT TO RCDT AND ATMOSPHERE**													
RC-V-42	302-650	G-4	1	B	0.5	GL	SO	A	C	C	FC	CS		CSJ-13	TP-03
											PI	Y2	VR-02		
											SC	CS		CSJ-13	
	Valve Name:	**REACTOR VESSEL VENT TO REACTOR BLDG ATMOSPHERE**													
RC-V-43	302-650	G-4	1	B	0.5	GL	SO	A	C	C	FC	CS		CSJ-13	TP-03
											PI	Y2	VR-02		
											SC	CS		CSJ-13	
											SO	CS		CSJ-13	
	Valve Name:	**REACTOR VESSEL VENT TO REACTOR BLDG ATMOSPHERE**													
RC-V-44	302-650	G-7	1	B	1.0	GL	SO	A	C	C	FC	CS		CSJ-11	TP-03
											PI	Y2	VR-02		
											SC	CS		CSJ-11	
											SO	CS			
	Valve Name:	**PRESSURIZER HIGH POINT VENT ISOLATION VALVE**													

REACTOR BUILDING EMERGENCY COOLING WATER (RR)

Valve Tag	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
RR-V-10A	302-611	E-3	3	B	2.0	GA	AO	A	O	O/C	FC	M3			TP-03
											PI	Y2	VR-02		
											SC	M3			
											SO	M3			
	Valve Name:	**RR-P1A RECIRCULATION MINIMUM FLOW BYPASS VALVE**													
RR-V-10B	302-611	E-2	3	B	2.0	GA	AO	A	O	O/C	FC	M3			TP-03
											PI	Y2	VR-02		
											SC	M3			
											SO	M3			
	Valve Name:	**RR-P1B RECIRCULATION MINIMUM FLOW BYPASS VALVE**													
RR-V-11A	302-611	F-4	2	C	0.5	RV	SA	A	C	O/C	RT	Y10			
	Valve Name:	**RBEC COIL "A" RELIEF**													
RR-V-11B	302-611	E-4	2	C	0.5	RV	SA	A	C	O/C	RT	Y10			
	Valve Name:	**RBEC COIL "B" RELIEF**													
RR-V-11C	302-611	D-4	2	C	0.5	RV	SA	A	C	O/C	RT	Y10			
	Valve Name:	**RBEC COIL "C" RELIEF**													
RR-V-12A	302-611	D-3	3	C	2.0	CK	SA	A	C	O/C	CC	M3			
											CO	M3			TP-13
	Valve Name:	**RIVER WATER PUMP "A" VACUUM BREAKER (Check Valve)**													
RR-V-12B	302-611	D-2	3	C	2.0	CK	SA	A	C	O/C	CC	M3			
											CO	M3			TP-13
	Valve Name:	**RIVER WATER PUMP "B" VACUUM BREAKER (Check Valve)**													
RR-V-1A	302-611	E-2	3	B	16.0	BTF	MO	A	C	O	PI	Y2	VR-02		
											SO	M3			
	Valve Name:	**RR-P1A DISCHARGE VALVE**													
RR-V-1B	302-611	E-2	3	B	16.0	BTF	MO	A	C	O	PI	Y2	VR-02		
											SO	M3			
	Valve Name:	**RR-P1B DISCHARGE VALVE**													

REACTOR BUILDING EMERGENCY COOLING WATER (RR)

Valve Tag	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
RR-V-3A	302-611	H-4	2	B	12.0	GA	MO	A	O	O/C	PI	Y2	VR-02		
											SC	M3			
											SO	M3			
	Valve Name:	**CONTAINMENT ISOLATION - RBEC COIL "A" INLET VALVE**													
RR-V-3B	302-611	G-4	2	B	12.0	GA	MO	A	O	O/C	PI	Y2	VR-02		
											SC	M3			
											SO	M3			
	Valve Name:	**CONTAINMENT ISOLATION - RBEC COIL "B" INLET VALVE**													
RR-V-3C	302-611	F-4	2	B	12.0	GA	MO	A	O	O/C	PI	Y2	VR-02		
											SC	M3			
											SO	M3			
	Valve Name:	**CONTAINMENT ISOLATION - RBEC COIL "C" INLET VALVE**													
RR-V-4A	302-611	E-3	2	B	12.0	GA	MO	A	C	O/C	PI	Y2	VR-02		
											SC	M3			
											SO	M3			
	Valve Name:	**CONTAINMENT ISOLATION - RBEC COIL "1A" OUTLET VLV**													
RR-V-4B	302-611	E-3	2	B	12.0	GA	MO	A	C	O/C	PI	Y2	VR-02		
											SC	M3			
											SO	M3			
	Valve Name:	**CONTAINMENT ISOLATION - RBEC COIL "1B" OUTLET VLV**													
RR-V-4C	302-611	D-3	2	B	12.0	GA	MO	A	C	O/C	PI	Y2	VR-02		
											SC	M3			
											SO	M3			
	Valve Name:	**CONTAINMENT ISOLATION - RBEC COIL "1C" OUTLET VLV**													
RR-V-4D	302-611	D-3	2	B	12.0	GA	MO	A	C	O/C	PI	Y2	VR-02		
											SC	M3			
											SO	M3			
	Valve Name:	**CONTAINMENT ISOLATION - RBEC COIL "1C" OUTLET VLV**													

REACTOR BUILDING EMERGENCY COOLING WATER (RR)

Valve Tag	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
RR-V-5	302-611	B-3	3	B	10.0	BTF	MO	A	C	O	PI	Y2	VR-02		
											SO	M3			
	Valve Name:	**RR-V6 RB COOLING COIL DISCHARGE BYPASS VALVE**													
RR-V-6	302-611	B-3	3	B	10.0	BTF	DIA	A	T	O	FO	M3			TP-03
											SO	M3			
	Valve Name:	**RB EMERG COOLING COIL BACK PRESSURE REGULATOR**													
RR-V-7A	302-611	D-2	3	C	16.0	CK	SA	A	C	O	CC	RR		RJ-18	TP-01
											CO	RR		RJ-18	
	Valve Name:	**RB EMERG COOL PUMP "A" DISCHARGE CHECK VALVE**													
RR-V-7B	302-611	D-2	3	C	16.0	CK	SA	A	C	O	CC	RR		RJ-18	TP-01
											CO	RR		RJ-18	
	Valve Name:	**RB EMERG COOL PUMP "B" DISCHARGE CHECK VALVE**													
RR-V-8A	302-611	F-2	3	C	20.0	CK	SA	A	C	O/C	CC	M3			
											CO	RR		RJ-14	
	Valve Name:	**RIVER WATER TO RB COOL UNITS CHECK VALVE**													
RR-V-8B	302-611	F-2	3	C	20.0	CK	SA	A	C	O/C	CC	M3			
											CO	RR		RJ-14	
	Valve Name:	**RIVER WATER TO RB COOL UNITS CHECK VALVE**													
RR-V-9A	302-611	E-4	3	C	12.0	CK	SA	A	C	O	CCF	RR		RJ-11	TP-01
											CO	RR		RJ-11	
	Valve Name:	**CONTAINMENT ISOLATION - AH-E1A EMERG COOL OUTLET**													
RR-V-9B	302-611	E-4	3	C	12.0	CK	SA	A	C	O	CCF	RR		RJ-11	TP-01
											CO	RR		RJ-11	
	Valve Name:	**CONTAINMENT ISOLATION - AH-E1B EMERG COOL OUTLET**													
RR-V-9C	302-611	D-4	3	C	12.0	CK	SA	A	C	O	CCF	RR		RJ-11	TP-01
											CO	RR		RJ-11	
	Valve Name:	**CONTAINMENT ISOLATION - AH-E1C EMERG COOL OUTLET**													

STATION SERVICE AIR (SA)

Valve Tag	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
SA-V-2	302-271	E-1	2	A	2.0	GL	M	P	LC	C	LTJ	AJ			
	Valve Name:	**CONTAINMENT ISOLATION - SERVICE AIR TURB BLDG**													
SA-V-3	302-271	E-1	2	A	2.0	GL	M	P	LC	C	LTJ	AJ			
	Valve Name:	**CONTAINMENT ISOLATION - RB 1ST FL SVC AIR ISOL**													

SPENT FUEL COOLING (SF)

Valve Tag	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
SF-V-22	302-630	E-7	2	A	8.0	GA	M	P	LC	C	LTJ	AJ			
	Valve Name:	**FUEL TRANSFER CANAL FILL & DRAIN LINE VALVE**													
SF-V-23	302-630	E-7	2	A	8.0	GA	M	P	LC	C	LTJ	AJ			
	Valve Name:	**FUEL TRANSFER CANAL FILL & DRAIN LINE VALVE**													

GASEOUS WASTE DISPOSAL (WDG)

Valve Tag	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
WDG-V-3	302-694	G-6	2	A	2.0	GL	MO	A	O	C	LTJ	AJ			
											PI	Y2	VR-02		
											SC	M3			
	Valve Name:	**CONTAINMENT ISOLATION - RB VENT HEADER VALVE**													
WDG-V-4	302-694	G-5	2	A	2.0	GA	SO	A	O	C	FC	M3			TP-03
											LTJ	AJ			
											PI	Y2	VR-02		
											SC	M3			
	Valve Name:	**CONTAINMENT ISOLATION - RB VENT HEADER VALVE**													

LIQUID RADWASTE DISPOSAL (WDL)

Valve Tag	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
WDL-V-303	302-690	F-8	2	A	3.0	GA	MO	A	C	C	LTJ	AJ			
											PI	Y2	VR-02		
											SC	M3			
	Valve Name:	**CONTAINMENT ISOLATION - RC DRAIN PUMP DISCH VALVE**													
WDL-V-304	302-690	E-8	2	A	3.0	GA	AO	A	C	C	FC	M3			TP-03
											LTJ	AJ			
											PI	Y2	VR-02		
											SC	M3			
	Valve Name:	**CONTAINMENT ISOLATION - RC DRAIN PUMP DISCH ISOL**													
WDL-V-534	302-196	A-7	2	A	6.0	GA	AO	A	C	C	FC	M3			TP-03
											LTJ	AJ			
											PI	Y2	VR-02		
											SC	M3			
	Valve Name:	**CONTAINMENT ISOLATION - RB SUMP DRAIN TO AUX BLDG**													
WDL-V-535	302-196	A-7	2	A	6.0	GA	AO	A	C	C	FC	M3			TP-03
											LTJ	AJ			
											PI	Y2	VR-02		
											SC	M3			
	Valve Name:	**CONTAINMENT ISOLATION - RB SUMP DRAIN TO AUX BLDG**													
WDL-V-727	302-690	F-8	2	A/C	0.25	RV	SA	A	C	O/C	LTJ	AJ			
											RT	Y10			TP-11
	Valve Name:	**CONTAINMENT PENETRATION NO. 331 RELIEF**													