

INSERVICE TESTING PROGRAM PLAN

Vermont Yankee Nuclear Power Station

Commercial Service Date: November 29, 1972

Revision 18

December, 1996

UNCONTROLLED COPY

FOR INFORMATION ONLY

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Revision Summary

Revision Number	Affected Pages	Summary
13	All	Third Ten-Year Interval Update.
14	5-14, 5-15	Revise valve listing for Diesel Generator Starting Air System to reflect changes made under PDCR 92-18, DCN 1. Minor revisions.
15	Cover, 1-1, 1-2, 2-5, 3-1, 3-2, 4-1 to 4-5, 4-10, 4-12, 4-14, 4-17, 4-19, 4-21 to 4-23, 4-25, 4-29, 5-1, 5-3 to 5-11, 5-13 to 5-20, 5-22 to 5-30, 5-32 to 5-34, 5-36 to 5-71, 5-74 to 5-84, 5-87, 5-88, 5-91 to 5-94, 5-98 to 5-98b, 5-100, 5-102, 5-105, 5-107, 5-113, 5-115, 5-117, 5-119, 5-122 to 5-124, 5-126	Revise to reflect Tech Spec Amendment No. 138, EDCR 92-404, EDCR 93-404, PDCR 92-016, PDCR 92-018, CARs 93-70 and 94-06, PRO 94-18, items identified during revisions to implementing procedures, current status of each Relief Request per USNRC SERs [References (s) and (u)], and minor revisions.
16	Cover, 4-3, 4-7 to 4-10, 4-30, 4-31, 5-5, 5-7 to 5-11, 5-17, 5-19, 5-20, 5-27, 5-34, 5-36, 5-38 to 5-41, 5-43, 5-52, 5-53, 5-56 to 5-59, 5-60, 5-68, 5-77, 5-83 to 5-84, 5-89 to 5-90, 5-104 to 5-112, 5-107, 5-113, 5-114, 5-118, 5-119, 5-122, 5-125	Revise to reflect changes made due to the responses to the USNRC Safety Evaluation Report issued on September 3, 1994, Alternate Cooling Water System additions, items identified during the implementation of the program, current status of each relief request and correction of typographical errors.
17	Cover, 5-9, 5-129 & 5-130	Revise to allow the use of the sampling disassembly technique for V70-43A and V70-43B in accordance with the guidance specified in USNRC Generic Letter 89-04, Staff Position 2.

Revision Summary

Revision Number	Affected Pages	Summary
18	All	General program revision committed to in LER 95-17 and BMO 95-07. Implemented changes due to IST program scope changes and IST program bases document upgrade. Implemented changes due to Appendix J Program upgrade. Implemented changes due to EDCR 93-405, PDCR 94-021, PDCR 94-022, EDCR 95-409, EDCR 96-410, EDCR 96-412, EDCR 96-416, PDCR 94-007 and Minor Mod. 96-34, 96-52. Revised program format as suggested by NUREG 1482.

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1.0 Introduction

1.1 Purpose

The Third-Interval Vermont Yankee Inservice Testing (IST) Program establishes testing requirements to assess the operational readiness of certain Safety Class 1, 2, and 3 pumps and valves which are required to:

- a) Shut down the reactor to the cold shutdown condition,
- b) Maintain the reactor in the cold shutdown condition, or
- c) Mitigate the consequences of an accident.

The Third-Interval IST Program is applicable for the interval from September 1, 1993 through and including August 31, 2003 [References (q) and (r)].

The Third-Interval IST Program is part of the Vermont Yankee Component Testing Program.

1.2 Discussion

The Third-Interval Vermont Yankee IST Program was developed in accordance with the requirements of the 1989 Edition of Section XI, Division 1, of the ASME Boiler and Pressure Vessel Code, "Rules for Inservice Inspection of Nuclear Power Plant Components," and 10 CFR 50.55a [Reference (b)]. The Third-Interval IST Program provides compliance with Vermont Yankee Technical Specifications 4.6.E.

In accordance with Articles IWP-1000 and IWV-1000 and Table IWA-1600-1 of the 1989 Edition of Section XI, Division 1, of the ASME Boiler and Pressure Vessel Code and 10 CFR 50.55a(b)(2)(viii), the pump and valve testing requirements were based on the ASME/ANSI OMa-1988 Addenda to ASME/ANSI OM-1987, "Operation and Maintenance of Nuclear Power Plants". The additional requirements described in 10 CFR 50.55a(b)(2)(vii) and the recommendations described in Generic Letter 89-04 and its supplements were also included as applicable. Request for use of the ASME/ANSI OMa-1988 Addenda to ASME/ANSI OM-1987, with the additional requirements, was submitted by Vermont Yankee and approved by the USNRC [References (e) and (f)].

All references to the "Code" made within this IST Program Plan will refer to the ASME/ANSI OMa-1988 Addenda to ASME/ANSI OM-1987 unless otherwise specified.

The IST Program Plan identifies the scope of components (pumps and valves) included in the Third-Interval IST Program, the testing requirements for those components, and justifications or relief requests to support the scope and testing requirements.

1.2 Discussion(cont.)

The IST Program Plan provides conformance with Article IWA-2420 of the 1989 Edition of Section XI, Division 1, of the ASME Boiler and Pressure Vessel Code and 10 CFR 50.55a(a)(3), (f)(5) and (f)(6).

The USNRC Safety Evaluations for the Third-Interval Vermont Yankee IST Program are provided in References Section.

2.0 Program Plan Description

The IST Program Plan is comprised of two independent subprogram plans - the Pump Inservice Testing Program Plan and the Valve Inservice Testing Program Plan.

Key features common to both Program Plans are: the Pump and Valve Listings that define the scope of the Third-Interval IST Program, Cold Shutdown and Refueling Outage Justifications, Relief Requests, and applicable Notes.

Administrative and implementing procedures, reference values, test results, and other records required to define and execute the Third-Interval IST Program are retained at Vermont Yankee.

2.1 Test Deferral Justifications

In accordance with Paragraphs 4.2.1.2 and 4.3.2.2 of Part 10 of the Code, certain valves are full stroke exercised during Cold Shutdown conditions when the valve cannot be exercised during Normal Operation. When the valve cannot be exercised during Cold Shutdown conditions, then the valve is full stroke exercised during Refueling Outages. The technical justification for exercising a valve during Cold Shutdowns or Refueling Outages, rather than during Normal Operations, is provided in a Cold Shutdown or Refueling Outage Justification.

Valves tested during Cold Shutdowns or Refueling Outages shall be scheduled and tested in accordance with Paragraphs 4.2.1.2 and 4.3.2.2 of Part 10 of the Code.

Cold Shutdown and Refueling Outage Justifications are numbered in a "XXJ-VNN, Revision Z" format, where:

XXJ: CSJ for Cold Shutdown Justifications,
ROJ for Refueling Outage Justifications.

V: for Valves.

NN: A unique sequential number, (e.g. CSJ-V03, Rev 0, would be the third Cold Shutdown Justification for Valves).

Z: Revision Status.

2.2 Relief Requests

Specific requests for relief are included in accordance with 10 CFR 50.55a(a)(3), (f)(5) and (f)(6). Where conformance with the requirements of the Code have been determined to be impracticable, alternate testing is proposed that would provide an acceptable level of quality and safety. Where conformance with the requirements of the Code would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety, alternate testing is proposed that would provide useful information to assess the operational readiness of the component tested.

The Relief Requests define the component(s) and test(s) involved, the basis for relief, the proposed alternate testing, and the status of the USNRC evaluation to the Relief Request.

If testing requirements are determined to be impracticable during the course of the interval, additional or modified Relief Requests will be submitted in accordance with 10 CFR 50.55a(f)(4)(iv).

Relief Requests are numbered in a "RR-YNN, Revision Z" format, where:

RR: for Relief Request.

Y: P for Pumps, V for Valves.

NN: A unique sequential number, (e.g. RR-V09, Rev 0, would be the ninth Relief Request for Valves).

Z: Revision Status.

2.3 Flow Diagrams

Table 2-1 provides a listing of those Flow Diagrams which depict the components, subsystems, and systems contained within the Third-Interval IST Program. Drawing number G-191155 explains the symbols and designations provided on the Flow Diagrams.

The Safety Classifications depicted on the Flow Diagrams are subject to the limitations stated in the Vermont Yankee Safety Classification Manual.

"For Information Only" copies of the Flow Diagrams shall be provided with each USNRC Submittal. The copies shall be current as of the date of the IST Program Plan submittal. Controlled copies of the Flow Diagrams are maintained at Vermont Yankee to ensure that all system additions and modifications are addressed in the Third-Interval IST Program.

Table 2-1

LIST OF INSERVICE TESTING FLOW DIAGRAMS
(sorted by flow diagram number)

Flow Diagram Number	System Name
G-191155	Piping and Instrument Symbols
G-191157 Sh 1	Condensate Feedwater and Air Evacuation
G-191159 Sh 1	Service Water System
G-191159 Sh 2	Service Water System
G-191159 Sh 3	RCW Cooling Water System
G-191159 Sh 5	Recirculation Pump Cooling Water
G-191160 Sh 3	Instrument Air System
G-191160 Sh 4	Instrument Air System
G-191160 Sh 7	Diesel Generator Starting Air System
G-191160 Sh 8	Instrument Air System
G-191162 Sh 2	Miscellaneous Systems - Fuel Oil
G-191165	Sampling System
G-191167	Nuclear Boiler
G-191168	Core Spray System
G-191169 Sh 1	High Pressure Coolant Injection System
G-191169 Sh 2	High Pressure Coolant Injection System
G-191170	Control Rod Drive Hydraulic System
G-191171	Standby Liquid Control System
G-191172	Residual Heat Removal System

Table 2-1

LIST OF INSERVICE TESTING FLOW DIAGRAMS
(sorted by flow diagram number)

Flow Diagram Number	System Name
G-191173 Sh 1	Fuel Pool Cooling & Cleanup System
G-191173 Sh 2	Fuel Pool Cooling & Cleanup System
G-191174 Sh 1	Reactor Core Isolation Cooling System
G-191174 Sh 2	Reactor Core Isolation Cooling System
G-191175 Sh 1	Primary Containment & Atmosphere Control
G-191177 Sh 1	Radwaste Systems
G-191178 Sh 1	Reactor Water Clean Up System
G-191237 Sh 2	HVAC - Turbine, Service & Control Room Building
G-191238	HVAC - Reactor Building
G-191267 Sh 1	Nuclear Boiler Vessel Instrumentation
G-191267 Sh 2	Nuclear Boiler Vessel Instrumentation
VY-E-75-002	Containment Atmosphere Dilution System
5920-271	Neutron Monitoring System

3.0 References

- a) License No. DPR-28 (Docket No. 50-271).
- b) United States Code of Federal Regulations, Title 10 Chapter 1, Part 50, Section 50.55a (57FR34666, dated August 6, 1992).
- c) ASME Boiler and Pressure Vessel Code, Section XI, Division 1, "Rules for Inservice Inspection of Nuclear Power Plant Components," 1989 Edition.
- d) ASME/ANSI Standard OMa-1988 Addenda to ASME/ANSI OM-1987, "Operation and Maintenance of Nuclear Power Plants".
- e) Letter, Mr. P.M. Sears, USNRC, to Mr. L.A. Tremblay, VYNPC, "Vermont Yankee Nuclear Power Station, Approval of the Use of ASME/ANSI Standard OMa-1988 With Clarification," NVY 92-161, dated September 2, 1992.
- f) Letter, Mr. J.P. Pelletier, VYNPC, to Document Control Desk, USNRC, "Vermont Yankee Nuclear Power Corporation Inservice Testing Program Update," BVY 92-98, dated August 13, 1992.
- g) Letter, Mr. J.G. Partlow, USNRC, to All Holders of Light Water Reactor Operating Licenses and Construction Permits, "Supplement to Minutes of the Public Meetings on Generic Letter 89-04", dated September 26, 1991.
- h) Letter, Mr. J.G. Partlow, USNRC, to All Holders of Light Water Reactor Operating Licenses and Construction Permits, "Minutes of the Public Meetings on Generic Letter 89-04", NVY 89-239, dated October 25, 1989.
- i) Letter, Mr. W.P. Murphy, VYNPC, to Document Control Desk, USNRC, "Response to USNRC Generic Letter 89-04: Guidance on Developing acceptable Inservice Testing Programs", BVY 89-90, dated October 3, 1989.
- j) Letter, Mr. S.A. Varga, USNRC, to All Holders of Light Water Reactor Operating Licenses and Construction Permits, "Guidance on Developing Acceptable Inservice Testing Programs (Generic Letter 89-04)", NVY 89-75, dated April 3, 1989.
- k) Letter, Mr. W.P. Murphy, VYNPC, to Dr. Thomas E. Murley, USNRC, "Response to USNRC Generic Letter 87-06: Periodic Verification of Leak-Tight Integrity of Pressure Isolation Valves", FVY 87-64, dated June 11, 1987.
- l) Letter, Mr. R.W. Reid, USNRC, to Mr. R.H. Groce, YAEC, "NRC Staff Guidance for Preparing Pump and Valve Testing Program Descriptions and Associated Relief Requests Pursuant to 10 CFR 50.55a(g)," dated January 10, 1978.

3.0 References(cont.)

- m) Letter, Mr. R.W. Reid, USNRC, to Mr. R.H. Groce, YAEC, "NRC Staff Guidance for Complying with Certain Provisions of 10 CFR 50.55a(g), 'Inservice Inspection Requirements'," dated November 17, 1976.
- n) Vermont Yankee Final Safety Analysis Report.
- o) Vermont Yankee Technical Specifications.
- p) Vermont Yankee Component Testing Program Plan.
- q) Letter, Mr. J.P. Pelletier, VYNPC, to Document Control Desk, USNRC, "Submittal of Vermont Yankee Nuclear Power Corporation Third-Interval Inservice Testing Program Plan and Safety Evaluation Responses," BVS 92-133, dated November 30, 1992.
- r) Letter, Mr. D.H. Dorman, USNRC, to Mr. J.P. Pelletier, VYNPC, "Relief from the ASME Section XI Requirement to Update (On a 120-Month Interval) the Inservice Inspection and Testing Programs at Vermont Yankee (TAC No. M85067)," NVS 93-031, dated April 6, 1993.
- s) Letter, Mr. D.H. Dorman, USNRC, to Mr. D.A. Reid, VYNPC, "Safety Evaluation of the Inservice Testing Program Relief Requests for Pumps and Valves, Vermont Yankee Nuclear Power Station (TAC No. M85067)," NVS 93-151, dated September 3, 1993.
- t) Letter, Mr. D.A. Reid, VYNPC, to Document Control Desk, USNRC, "Proposed Change No. 168 to the Vermont Yankee Technical Specifications - Auxiliary Electric Power System Technical Specifications and Associated Revision to the Vermont Yankee Inservice Testing Program," BVS 93-30, dated August 4, 1993.
- u) Letter, Mr. W.R. Butler, USNRC, to Mr. D.A. Reid, VYNPC, "Issuance of Amendment No. 138 to Facility Operating License No. DPR-28, Vermont Yankee Nuclear Power Station (TAC No. M87171)," NVS 94-45, dated March 22, 1994.
- v) Letter, Mr. D.H. Dorman, USNRC to Mr. D.A. Reid, "Safety Evaluation of the Inservice Test Program Relief Requests for Pumps and Valves, Vermont Yankee Nuclear Power Station (TAC No. M85067)".
- w) Letter, Mr. P.F. McKee, USNRC to Mr. D.A. Reid, "Safety Evaluation of Relief Requests and Action Item Responses for the Third Interval Pump and Valve Inservice Testing Program - Vermont Yankee Nuclear Power Station, (TAC No. M91450)," NVS 95-88, dated June 12, 1995.

3.0 References(cont.)

- x) Letter, Mr. P.F. McKee, USNRC to Mr. D.A. Reid, "Safety Evaluation of Relief Request RR-V12 for the Third Interval Pump and Valve Inservice Testing Program - Vermont Yankee Nuclear Power Station (TAC No. M92018)," NYY 95-100, dated July 27, 1995.
- y) USNRC NUREG 1482, dated April 1995, "Guidelines for Inservice Testing at Nuclear Power Plants".
- z) USNRC NUREG/CR-6396, dated February 1996, "Examples, Clarifications, and Guidance on Preparing Requests for Relief from Pump and Valve Inservice Testing Requirements".

4.0 Pump Inservice Testing Program

4.1 Scope

The Third-Interval Pump Inservice Testing (IST) Program establishes testing requirements to assess the operational readiness of those Safety Class 1, 2, and 3 centrifugal and positive displacement pumps, provided with a Safety Class Electrical power source, which are required to:

- a) Shut down the reactor to the cold shutdown condition,
- b) Maintain the reactor in the cold shutdown condition, or
- c) Mitigate the consequences of an accident.

Excluded from the above are:

- a) Drivers, except where the pump and driver form an integral unit and the pump bearings are in the driver;
- b) Pumps that are provided with a Safety Class Electrical power source solely for system design or operating convenience.

4.2 Pump Program Listing

Table 4-1, "Pump Listing" lists all pumps included in the Third-Interval Pump IST Program.

This Table identifies all pumps subject to inservice testing, the inservice test parameters, testing frequency, and any applicable relief requests and/or remarks. The column headings in Table 4-1 are listed and explained below:

Pump Number

The unique number that identifies the pump. The pump number corresponds to the Maintenance Planning and Control (MPAC) Database utilized at Vermont Yankee. Table 4-1 is sorted by Pump Number.

Nomenclature The common name for the pump.

Drawing

The Flow Diagram which depicts the pump. If the pump appears on multiple Flow Diagrams, then the primary Flow Diagram identifier is listed.

4.2 Pump Program Listing(cont.)

Dwg Coor

The coordinate location (e.g., D-05) on the Flow Diagram where the pump appears.

Safety Class

The safety classification of the pump, as determined in accordance with administrative procedure AP 0014, "Safety Class Determination Instructions," and the Vermont Yankee Safety Classification Manual.

Pump Type

The pump type:

CENT	for C entrifugal pumps.
VERT	for V ertical line shaft pumps.
PD-RECIP	for P ositive D isplacement R eciprocating pumps.
PD-ROT	for P ositive D isplacement R otary pumps.

Test Type

The Inservice Test Parameters to be determined and recorded during testing performed in accordance with Paragraph 5 of Part 6 of the Code. The abbreviations correspond to those provided in Table 2 of Part 6 of the Code:

N	for Speed, (if variable speed).
dP	for d ifferential P ressure, (for centrifugal and vertical line shaft pumps).
P	for discharge P ressure, (for positive displacement pumps).
Q	for Flow Rate.
Vv	for V ibration, velocity, peak.

Test Freq

The test frequency associated with each test type.

OC	for O nce P er O perating C ycle
Q	for Q uarterly
RO	for R eactor R efueling O utage

4.2 Pump Program Listing(cont.)

Relief Request

The Relief Request number associated with the subject pump and test type or test frequency, where applicable.

Remarks

Clarifying comments or other remarks related to the subject pump and test type or test frequency, where applicable.

Table 4-1 Pump Listing

Pump Number	Nomenclature	Drawing	Dwg Coor	Safety	Pump Type	Speed	Test Type	Test Freq	Relief Request	Remarks
P-10-1A	RHR (LPCI) Pump	G-191172	L-05	2	CENT	Fixed	dP	Q	n/a	
							Q	Q	n/a	
							Vv	Q	n/a	
P-10-1B	RHR (LPCI) Pump	G-191172	L-12	2	CENT	Fixed	dP	Q	n/a	
							Q	Q	n/a	
							Vv	Q	n/a	
P-10-1C	RHR (LPCI) Pump	G-191172	J-05	2	CENT	Fixed	dP	Q	n/a	
							Q	Q	n/a	
							Vv	Q	n/a	
P-10-1D	RHR (LPCI) Pump	G-191172	J-12	2	CENT	Fixed	dP	Q	n/a	
							Q	Q	n/a	
							Vv	Q	n/a	
P-19-2A	Standby Fuel Pool Cooling Pump	G-191173 Sh 2	G-12	3	CENT	Fixed	dP	Q	n/a	
							Q	Q	n/a	
							Vv	Q	n/a	
P-19-2B	Standby Fuel Pool Cooling Pump	G-191173 Sh 2	I-12	3	CENT	Fixed	dP	Q	n/a	
							Q	Q	n/a	
							Vv	Q	n/a	
P-213-1A	RCIC Gland Seal Condensate Pump	G-191174 Sh 2	K-13	3	PD-RECIP	Fixed	SKID	Q	n/a	
P-44-1A	HPCI (Booster) Pump	G-191169 Sh 2	G-10	2	CENT	Vari	dP	Q	RR-P02	
									RR-P03	
							N	Q	n/a	
							Q	Q	RR-P02	
							Vv	Q	RR-P04	

Table 4-1 Pump Listing

Pump Number	Nomenclature	Drawing	Dwg Coor	Safet y	Pump Type	Speed	Test Type	Test Freq	Relief Request	Remarks
P-44-1B	HPCI (High Pressure) Pump	G-191169 Sh 2	G-11	2	CENT	Vari	dP	Q	RR-P02 RR-P03	
							N	Q	n/a	
							Q	Q	RR-P02	
							Vv	Q	RR-P04	
P-45-1A	SLC Pump	G-191171	H-08	2	PD-RECIP	Fixed	P	Q	n/a	
							Q	Q	n/a	
							Vv	Q	n/a	
P-45-1B	SLC Pump	G-191171	J-08	2	PD-RECIP	Fixed	P	Q	n/a	
							Q	Q	n/a	
							Vv	Q	n/a	
P-46-1A	CS Pump	G-191168	J-11	2	CENT	Fixed	dP	Q	RR-P05	
							Q	Q	n/a	
							Vv	Q	n/a	
P-46-1B	CS Pump	G-191168	J-14	2	CENT	Fixed	dP	Q	RR-P05	
							Q	Q	n/a	
							Vv	Q	n/a	
P-47-1A	RCIC Pump	G-191174 Sh 2	F-08	2	CENT	Vari	dP	Q	RR-P06	
							N	Q	n/a	
							Q	Q	n/a	
							Vv	Q	n/a	
P-59-1A	RBCCW Pump	G-191159 Sh 3	A-07	3	CENT	Fixed	dP	Q	RR-P08	
							Q	Q	n/a	
							Vv	Q	n/a	
P-59-1B	RBCCW Pump	G-191159 Sh 3	B-07	3	CENT	Fixed	dP	Q	RR-P08	
							Q	Q	n/a	
							Vv	Q	n/a	

Table 4-1 Pump Listing

Pump Number	Nomenclature	Drawing	Dwg Coor	Safet y	Pump Type	Speed	Test Type	Test Freq	Relief Request	Remarks
P-92-1A	DFOT Pump	G-191162 Sh 2	E-05	3	PD-ROT	Fixed	P	Q	n/a	
							Q	Q	RR-P09	
							Q	OC	RR-P09	
							Vv	Q	n/a	
P-92-1B	DFOT Pump	G-191162 Sh 2	D-05	3	PD-ROT	Fixed	P	Q	n/a	
							Q	Q	RR-P09	
							Q	OC	RR-P09	
							Vv	Q	n/a	
P-92-2A	Diesel Generator DG-1-1A Engine Driven Fuel Oil Pump	G-191162 Sh 2	F-11	3	PD-ROT	Vari	SKID	Q	n/a	
P-92-2B	Diesel Generator DG-1-1B Engine Driven Fuel Oil Pump	G-191162 Sh 2	D-11	3	PD-ROT	Vari	SKID	Q	n/a	
SP-1	Control Room HiVAC Chilled Water Pump	G-191237 Sh 2	E-4	3	CENT	Fixed	dP	Q	n/a	
							Q	Q	n/a	
							Vv	Q	n/a	

4.3 Pump Notes

1. In accordance with the June 12, 1995 Safety Evaluation Report (Reference w) the following commitments were made relating to inservice testing of the Vermont Yankee Service Water Pumps (P7-1A through P7-1D):

Quarterly Testing (As-found for each pump)

1. Differential Pressure Measurement (for information only)
2. Full Spectrum Vibration Signatures (for information only)
3. Overall Vibration Measurements (compared to code limits)

Once Per Operating Cycle

1. One of the four service water pumps will be disassembled, inspected and refurbished as necessary. Additionally, in no case shall a service water pump exceed a period of 4 cycles of operation without being disassembled, inspected and refurbished as necessary.

Refueling Outage

1. Full code specified IST testing will be performed at a flow rate greater than or equal to design flow.
2. A head curve will be generated to provide information so that the performance of the pump can be compared to the degree possible with the as-found quarterly data and previous refueling outage head curve data.

The approval of relief request RR-P01 is not subject to the performance of shutoff head testing or motor amperage monitoring as originally proposed in RR-P01.

RELIEF REQUEST

Number: RR-P01, Revision 1 (Sheet 1 of 4)

SYSTEM: Service Water**COMPONENTS:**

Pump Number	Safety Class	Drawing Number	Dwg. Coord.
P7-1A	3	G-191159 Sh 1	C-02
P7-1B	3	G-191159 Sh 1	B-02
P7-1C	3	G-191159 Sh 1	K-02
P7-1D	3	G-191159 Sh 1	J-02

These pumps are the station Service Water pumps. They have the safety function to provide cooling water to systems and equipment required to operate under accident conditions and to provide an inexhaustible supply of water for standby coolant system operation.

EXAM OR TEST CATEGORY:

Flow Rate (Q).

CODE REQUIREMENT: Part 6

Para. 5.1 "Frequency of Inservice Tests"

"An inservice test shall be run on each pump, nominally every 3 months, except as provided in paras. 5.3, 5.4, and 5.5."

REQUEST FOR RELIEF:

Relief is requested on the basis that compliance with the Code requirements is impracticable and that the proposed alternatives would provide an acceptable level of quality and safety.

During normal operations, neither differential pressure nor flow rate can be fixed or directly measured. Pump vibration levels may also vary due to the inability to establish a repeatable reference condition.

RELIEF REQUEST

Number: RR-P01, Revision 1 (Sheet 2 of 4)

REQUEST FOR RELIEF (cont.):

The four Service Water pumps are vertical, two-stage, centrifugal-type pumps which are submerged in and take suction from the Connecticut River. They supply all the station Service Water System requirements. The station Service Water System is a dual header system using two parallel headers each containing two pumps. The two parallel headers supply both the turbine and reactor auxiliary equipment, including the Residual Heat Removal Service Water System. A header interconnection is provided downstream of the pumps. Normally, the valves in the interconnecting line are open, permitting any of the pumps to supply the cooling water to both headers and to balance system operation. In addition, a cross-tie is provided to the non-nuclear safety station Fire Protection System. The 12-inch cross-tie valve is normally closed, with a 1-inch cross-tie and a restricting orifice providing pressurization of the Fire Protection System header.

The Service Water System contains both automatic temperature and flow control valves used to independently regulate the cooling provided to the various turbine and reactor auxiliary equipment. Due to seasonal variations in Connecticut River water temperature and level and constantly changing heat loads, the system resistance and flow rate vary. The number of station Service Water pumps in operation is also varied dependent on system requirements. Due to these variations and the need to maintain proper cooling, it is considered impracticable to establish repeatable reference values during quarterly inservice testing.

As a result, it is impracticable to directly measure pump flow rate on a quarterly and cold shutdown frequency. Sufficient straight sections of piping are required to properly measure flow rate, through the use of either permanently or temporarily installed instrumentation, such as non-intrusive flow measurement devices.

The only sufficient straight sections of piping in each of the two parallel headers exist between the intake structure and the entrance to the reactor building. Use of this piping is considered impracticable because:

- a) These sections of the two parallel headers are buried piping.
- b) As discussed above, each parallel header is common to two pumps and is cross-connected to the other header. Thus, in order to measure flow rate for one pump, the parallel pump in the same header would have to be secured and the valves in the header interconnecting line closed. This would result in single pump operation for the portion of the station Service Water System supplied by the pump being tested.

RELIEF REQUEST

Number: RR-P01, Revision 1 (Sheet 3 of 4)

REQUEST FOR RELIEF (cont.):

- c) All four station Service Water pumps are required to be operating during power operations and cold shutdowns during approximately 7 months of the year to meet cooling load requirements.

Based on the above, significant redesign and modification of the station Service Water System would be required to obtain direct measurement of pump flow. Such redesign and modification would be costly and burdensome to Vermont Yankee.

A review of the historical test data for these pumps indicates that these pumps are highly reliable and have not been susceptible to frequent failures. Plant operating experience has shown that the performance of the Service Water pumps degrades slowly over an extended period due to normal system wear.

ALTERNATE METHOD:

On a quarterly basis, during plant operation and cold shutdowns an as-found test will be performed by measuring pump differential pressure and motor vibration and the data will be compared to the degree possible with test data taken during the refueling outage head curve data.

During each refueling outage, pump flow, differential pressure and vibration will be measured at a reference condition which will meet or exceed the required design conditions for the pump. A temporary flow test loop installed on the plant fire protection system will be utilized to directly measure pump flow. This will provide a mechanism to assess the hydraulic condition of the pump and to detect pump degradation against the code required limits. An additional reference condition will be established with the pump at a dead head condition where pump vibration and differential pressure can be measured for comparison in the event that maintenance is required to be performed between refueling outages.

Additionally, a head curve will be generated each refueling outage to provide information so that the performance of the pump can be compared to the degree possible with the as-found quarterly test data and previous refueling outage head curve data. Overall peak and full spectrum vibration measurements will also be taken at each of the points used to generate the head curve to provide additional operational information.

RELIEF REQUEST

Number: RR-P01, Revision 1 (Sheet 4 of 4)

ALTERNATE METHOD (cont.):

A review of the operating history of these pumps has shown that they are highly reliable and have not been susceptible to frequent failures. In order to provide additional assurance of proper pump operation and mechanical condition, an enhanced maintenance/monitoring program for these pumps will be established which will include the following:

1. Service water pump motor amperage will be monitored on a once per shift frequency during periods when the pumps are in operation.
2. Full spectrum vibration signatures of the accessible motor bearing points will be obtained and analyzed on a quarterly basis.
3. At least one service water pump will be partially disassembled, inspected and refurbished as required every operating cycle. Additionally, in no case shall a service water pump exceed a period of 4 cycles of operation without being partially disassembled, inspected and refurbished as required.

USNRC EVALUATION STATUS:

Provisional relief was granted in the September 1993 SER [Reference (s)] for Relief Request RR-P01, Revision 0. Approval of Revision 1 of Relief Request RR-P01, was granted in the June 1995 SER [Reference (w)]. Granting RR-P01 Rev.1 was not subject to monitoring pump motor amperage each shift or refueling outage shutoff head testing as specified in the relief request.

RELIEF REQUEST

Number: RR-P02, Revision 0 (Sheet 1 of 2)

SYSTEM: High Pressure Coolant Injection**COMPONENTS:**

Pump Number	Safety Class	Drawing Number	Dwg. Coord.
P44-1A	2	G-191169 Sh 2	G-11
P44-1B	2	G-191169 Sh 2	G-10

P44-1A and P44-1B are the High Pressure Coolant Injection (HPCI) main (high pressure) and booster (low pressure) pumps, respectively. They have the safety functions to operate in series to provide 1) adequate core cooling and reactor vessel depressurization following a small break loss of coolant accident, and 2) reactor pressure control during reactor shutdown and isolation.

EXAM OR TEST CATEGORY:

Differential Pressure (dP).

Flow Rate (Q).

CODE REQUIREMENT: Part 6

Para. 4.6.2.2 "Differential Pressure"

"When determining differential pressure across a pump, a differential pressure gauge or transmitter that provides direct measurement of pressure difference or the difference between the pressure at a point in the inlet pipe and the pressure at a point in the discharge pipe, may be used."

Para. 4.6.5 "Flow Rate Measurement"

"When measuring flow rate, use a rate or quantity meter installed in the pump test circuit. If a meter does not indicate the flow rate directly, the record shall include the method used to reduce the data."

REQUEST FOR RELIEF:

Relief is requested on the basis that the proposed alternatives would provide an acceptable level of quality and safety.

There is no means of measuring the differential pressure or the flow rate generated by each of these pumps individually. Installation of independent means of measurement for each pump is considered impracticable and would be costly and burdensome to Vermont Yankee.

RELIEF REQUEST

Number: RR-P02, Revision 0 (Sheet 2 of 2)

ALTERNATE METHOD:

Differential pressure and flow rate parameters will be measured across both HPCI pumps as an integral unit. Vibration monitoring will be performed for each pump individually. Both pumps will be inspected and repaired as necessary if any abnormal conditions in differential pressure or flow rate occur.

USNRC EVALUATION STATUS:

Relief was granted in the September 1993 SER [Reference (s)] for Relief Request RR-P02, Revision 0.

RELIEF REQUEST

Number: RR-P03, Revision 0 (Sheet 1 of 2)

SYSTEM: High Pressure Coolant Injection**COMPONENTS:**

Pump Number	Safety Class	Drawing Number	Dwg. Coord.
P44-1A	2	G-191169 Sh 2	G-11
P44-1B	2	G-191169 Sh 2	G-10

P44-1A and P44-1B are the High Pressure Coolant Injection (HPCI) main (high pressure) and booster (low pressure) pumps, respectively. They have the safety functions to operate in series to provide 1) adequate core cooling and reactor vessel depressurization following a small break loss of coolant accident, and 2) reactor pressure control during reactor shutdown and isolation.

EXAM OR TEST CATEGORY:

Differential Pressure (dP).

CODE REQUIREMENT: Part 6

Para. 4.6.1.2(a) "Range"

"The full-scale range of each analog instrument shall not be greater than three times the reference value."

Para. 4.6.2.2 "Differential Pressure"

"When determining differential pressure across a pump, a differential pressure gauge or transmitter that provides direct measurement of pressure difference or the difference between the pressure at a point in the inlet pipe and the pressure at a point in the discharge pipe, may be used."

REQUEST FOR RELIEF:

Relief is requested on the basis that the proposed alternatives would provide an acceptable level of quality and safety.

RELIEF REQUEST

Number: RR-P03, Revision 0 (Sheet 2 of 2)

REQUEST FOR RELIEF(cont.):

Differential pressure across the HPCI pumps is determined by the difference between pressure measurements taken at a point in the inlet pipe and at a point in the discharge pipe as allowed by Paragraph 4.6.2.2 of Part 6 of the Code. The installed HPCI pump inlet pressure indicators are designed to provide adequate inlet pressure indication during all expected operating and post accident conditions. The full scale range, 85 psig, is sufficient for a post accident condition when the suppression chamber is at the maximum pressure. This, however, exceeds the full-scale range limit of three times the suction pressure reference value as required by Paragraph 4.6.1.2(a) of Part 6 of the Code (Value = approximately 26 psig, Limit = 78 psig).

The suction pressure measurement is used to verify prescribed NPSH requirements and to determine pump differential pressure. The installed gauges are calibrated to within $\pm 1.17\%$ accuracy (FS), thus the maximum variation in measured suction pressure due to inaccuracy would be ± 0.99 psi. This is considered to be suitable for determining that adequate NPSH is available for HPCI pump operation.

Pump discharge pressure during testing is approximately 1170 psig, which results in a calculated differential pressure of approximately 1144 psig. The resulting inlet pressure inaccuracy of ± 0.99 psi represents an error in differential pressure measurement of $\pm 0.08\%$ ($0.99 \text{ psi} / 1144 \text{ psig} = 0.00086$). This is consistent with Table 1 of Part 6 of the Code, which requires that instrument accuracy for differential pressure be better than 2% of full-scale.

ALTERNATE METHOD:

Differential pressure will be measured using the existing station system installed inlet pressure indicators.

USNRC EVALUATION STATUS:

Relief was granted in the September 1993 SER [Reference (s)] for Relief Request RR-P03, Revision 0.

RELIEF REQUEST

Number: RR-P04, Revision 0 (Sheet 1 of 3)

SYSTEM: High Pressure Coolant Injection**COMPONENTS:**

Pump Number	Safety Class	Drawing Number	Dwg. Coord.
P44-1A	2	G-191169 Sh 2	G-11

P44-1A is the High Pressure Coolant Injection (HPCI) main (high pressure) pump. The main pump has the safety function to operate in series with the booster pump, P44-1B, to provide 1) adequate core cooling and reactor vessel depressurization following a small break loss of coolant accident, and 2) reactor pressure control during reactor shutdown and isolation.

EXAM OR TEST CATEGORY:

Vibration Velocity (Vv).

CODE REQUIREMENT: Part 6

Para. 5.2(d) "Test Procedure"

"Pressure, flow rate, and vibration (displacement or velocity) shall be determined and compared with corresponding reference values. All deviations from the reference values shall be compared with the limits given in Table 3 and corrective action taken as specified in para. 6.1."

REQUEST FOR RELIEF:

Relief is requested on the basis that the proposed alternatives would provide an acceptable level of quality and safety.

Past testing and analysis performed on the HPCI System by Vermont Yankee, the pump manufacturer, and by independent vibration consultants has revealed characteristic pump vibration levels which exceed the acceptance criteria stated in Table 3 of Part 6 of the Code. This testing and analysis meets the intent of Paragraph 4.3 and footnote 1 of Part 6 of the Code.

RELIEF REQUEST

Number: RR-P04, Revision 0 (Sheet 2 of 3)

REQUEST FOR RELIEF(cont.):

The root causes of the higher vibration levels have been determined to be:

- a) An acoustical resonance in the piping connecting the low pressure (LP) and high pressure (HP) pumps, and
- b) The presence of a structural resonance in the horizontal direction on the HP pump.

These resonance conditions are design related and have existed since initial pump installation. They have been documented over a number of years of operating experience.

An additional past contributor to the higher vibration levels was the excitation resulting from the blade pass frequency from the previously installed four vane impeller in the low pressure (LP) pump. In an effort to reduce/eliminate this effect, the four vane impeller was replaced with a five vane impeller during the 1989 refueling outage. This replacement significantly reduced vibration levels in both the LP and HP pumps. However, due to the resonance effects referenced above, the HP pump vibration levels remain higher than the acceptance criteria stated in Table 3 of Part 6 of the Code.

Although existing vibration levels in the HP pump are higher than standard acceptance criteria, they are acceptable and reflect the unique operating characteristics of the HPCI pump. It has been concluded that there are no major vibrational concerns that would prevent the HPCI pump from performing its intended function.

ALTERNATE METHOD:

To allow for practicable vibration monitoring of the HPCI HP pump, alternate vibration acceptance criteria are required. Full spectrum vibrational monitoring will be performed during each quarterly test and the following criteria will be used for the HP pump:

<u>Test Parameter</u>	<u>Acceptable Range</u>	<u>Alert Range</u>	<u>Required Action Range</u>
V_v	$\leq 2.5 V_r$ but not $> 0.675 \text{ in/sec.}$	$> 2.5 V_r$ to and including $6 V_r$ but not $> 0.70 \text{ in/sec.}$	$> 6 V_r$ or $> 0.70 \text{ in/sec.}$

In addition, the resonance peaks will be evaluated during each test and will have an Acceptable Range upper limit of $1.05 V_r$ and an Alert Range upper limit of $1.3 V_r$.

The standard acceptance criteria of Table 3 of Part 6 will be applied to the LP pump.

RELIEF REQUEST

Number: RR-P04, Revision 0 (Sheet 3 of 3)

USNRC EVALUATION STATUS:

Relief was granted in the September 1993 SER [Reference (s)] for Relief Request RR-P04, Revision 0.

RELIEF REQUEST

Number: RR-P05, Revision 0 (Sheet 1 of 2)

SYSTEM: Core SprayCOMPONENTS:

Pump Number	Safety Class	Drawing Number	Dwg. Coord.
P46-1A	2	G-191168	J-11
P46-1B	2	G-191168	J-14

P46-1A & B are the low pressure Core Spray pumps. They have the safety function to operate to provide adequate core cooling following a loss of coolant accident and reactor depressurization.

EXAM OR TEST CATEGORY:

Differential Pressure (dP).

CODE REQUIREMENT: Part 6

Para. 4.6.1.2(a) "Range"

"The full-scale range of each analog instrument shall not be greater than three times the reference value."

Para. 4.6.2.2 "Differential Pressure"

"When determining differential pressure across a pump, a differential pressure gauge or transmitter that provides direct measurement of pressure difference or the difference between the pressure at a point in the inlet pipe and the pressure at a point in the discharge pipe, may be used."

REQUEST FOR RELIEF:

Relief is requested on the basis that the proposed alternatives would provide an acceptable level of quality and safety.

Differential pressure across the Core Spray pumps is determined by the difference between pressure measurements taken at a point in the inlet pipe and at a point in the discharge pipe as allowed by Paragraph 4.6.2.2 of Part 6 of the Code. The installed Core Spray pump inlet pressure indicators are designed to provide adequate inlet pressure indication during all expected operating and post accident conditions. The full scale range, 60 psig, is sufficient for a post accident condition when the suppression chamber is at the maximum pressure. This, however, exceeds the full-scale range limit of three times the suction pressure reference value as required by Paragraph 4.6.1.2(a) of Part 6 of the Code (Value = approximately 7.5 psig, Limit = 22 psig).

RELIEF REQUEST

Number: RR-P05, Revision 0 (Sheet 2 of 2)

REQUEST FOR RELIEF:

The suction pressure measurement is used to verify prescribed NPSH requirements and to determine pump differential pressure. The installed gauges are calibrated to within $\pm 1.6\%$ accuracy (FS), thus the maximum variation in measured suction pressure due to inaccuracy would be ± 0.96 psi. This is considered to be suitable for determining that adequate NPSH is available for Core Spray pump operation.

Pump discharge pressure during testing is approximately 240 psig, which results in a calculated differential pressure of approximately 232.5 psig. The resulting inlet pressure inaccuracy of ± 0.96 psi represents an error in differential pressure measurement of $\pm 0.41\%$ ($0.96 \text{ psi} / 232.5 \text{ psig} = 0.0041$). This is consistent with Table 1 of Part 6 of the Code, which requires that instrument accuracy for differential pressure be better than 2% of full-scale.

ALTERNATE METHOD:

Differential pressure will be measured using the existing station system installed inlet pressure indicators.

USNRC EVALUATION STATUS:

Relief was granted in the September 1993 SER [Reference (s)] for Relief Request RR-P05, Revision 0.

RELIEF REQUEST

Number: RR-P06, Revision 0 (Sheet 1 of 2)

SYSTEM: Reactor Core Isolation Cooling**COMPONENTS:**

Pump Number	Safety Class	Drawing Number	Dwg. Coord.
P47-1A	2	G-191174 Sh 2	F-08

P47-1A is the Reactor Core Isolation Cooling (RCIC) pump. It has the safety function to operate to provide makeup water to the reactor vessel during shutdown and isolation in order to prevent the release of radioactive materials to the environs as a result of inadequate core cooling.

EXAM OR TEST CATEGORY:

Differential Pressure (dP).

CODE REQUIREMENT: Part 6

Para. 4.6.1.2(a) "Range"

"The full-scale range of each analog instrument shall not be greater than three times the reference value."

Para. 4.6.2.2 "Differential Pressure"

"When determining differential pressure across a pump, a differential pressure gauge or transmitter that provides direct measurement of pressure difference or the difference between the pressure at a point in the inlet pipe and the pressure at a point in the discharge pipe, may be used."

REQUEST FOR RELIEF:

Relief is requested on the basis that the proposed alternatives would provide an acceptable level of quality and safety.

Differential pressure across the RCIC pump is determined by the difference between pressure measurements taken at a point in the inlet pipe and at a point in the discharge pipe as allowed by Paragraph 4.6.2.2 of Part 6 of the Code. The installed RCIC pump inlet pressure indicators are designed to provide adequate inlet pressure indication during all expected operating and post accident conditions. The full scale range, 85 psig, is sufficient for a post accident condition when the suppression chamber is at the maximum pressure. This, however, exceeds the full-scale range limit of three times the suction pressure reference value as required by Paragraph 4.6.1.2(a) of Part 6 of the Code (Value = approximately 20 psig, Limit = 60 psig).

RELIEF REQUEST

Number: RR-P06, Revision 0 (Sheet 2 of 2)

REQUEST FOR RELIEF:

The suction pressure measurement is used to verify prescribed NPSH requirements and to determine pump differential pressure. The installed gauges are calibrated to within $\pm 1.17\%$ accuracy (FS), thus the maximum variation in measured suction pressure due to inaccuracy would be ± 0.99 psi. This is considered to be suitable for determining that adequate NPSH is available for RCIC pump operation.

Pump discharge pressure during testing is approximately 1130 psig, which results in a calculated differential pressure of approximately 1110 psig. The resulting inlet pressure inaccuracy of ± 0.99 psi represents an error in differential pressure measurement of $\pm 0.09\%$ ($0.99 \text{ psi}/1110 \text{ psid} = 0.00089$). This is consistent with Table 1 of Part 6 of the Code, which requires that instrument accuracy for differential pressure be better than 2% of full-scale.

ALTERNATE METHOD:

Differential pressure will be measured using the existing station system installed inlet pressure indicators.

USNRC EVALUATION STATUS:

Relief was granted in the September 1993 SER [Reference (s)] for Relief Request PR-P06, Revision 0.

RELIEF REQUEST

Number: RR-P07, Revision 0 (Sheet 1 of 1)

THIS RELIEF REQUEST WAS DELETED IN REVISION 15 OF THE IST PROGRAM.

This R.R. number is being maintained for traceability to the Third Interval IST Program Submittal SER's.

RELIEF REQUEST

Number: RR-P08, Revision 0 (Sheet 1 of 2)

SYSTEM: Reactor Building Closed Cooling Water**COMPONENTS:**

Pump Number	Safety Class	Drawing Number	Dwg. Coord.
P59-1A	3	G-191159 Sh 3	A-07
P59-1B	3	G-191159 Sh 3	B-07

These pumps are the Reactor Building Closed Cooling Water (RBCCW) pumps. They have a safety function to provide cooling water to the safety related cooling loads served by the RBCCW system.

EXAM OR TEST CATEGORY:

Differential Pressure (dP).

CODE REQUIREMENT: Part 6

Para. 4.6.1.2(a) "Range"

"The full-scale range of each analog instrument shall not be greater than three times the reference value."

Para. 4.6.2.2 "Differential Pressure"

"When determining differential pressure across a pump, a differential pressure gauge or transmitter that provides direct measurement of pressure difference or the difference between the pressure at a point in the inlet pipe and the pressure at a point in the discharge pipe, may be used."

REQUEST FOR RELIEF:

Relief is requested on the basis that the proposed alternatives would provide an acceptable level of quality and safety.

Differential pressure across the RBCCW pumps is determined by the difference between pressure measurements taken at a point in the inlet pipe and at a point in the discharge pipe as allowed by Paragraph 4.6.2.2 of Part 6 of the Code. The installed RBCCW pump inlet pressure indicators, with a full scale range of 30 psig, are designed to provide adequate inlet pressure indication during all expected operating and post accident conditions. This, however, exceeds the full-scale range limit of three times the suction pressure reference value as required by Paragraph 4.6.1.2(a) of Part 6 of the Code (Value = approximately 6.5 psig, Limit = 19 psig).

RELIEF REQUEST

Number: RR-P08, Revision 0 (Sheet 2 of 2)

REQUEST FOR RELIEF (cont.):

The suction pressure measurement is used to verify prescribed NPSH requirements and to determine pump differential pressure. The installed gauges are calibrated to within $\pm 0.4\%$ accuracy (FS), thus the maximum variation in measured suction pressure due to inaccuracy would be $\pm .12$ psi. This is considered to be suitable for determining that adequate NPSH is available for RBCCW pump operation.

Pump discharge pressure during testing is approximately 80 psig, which results in a calculated differential pressure of approximately 73.5 psig. The resulting inlet pressure inaccuracy of $\pm .12$ psi represents an error in differential pressure measurement of $\pm 0.16\%$ ($.12 \text{ psi} / 73.5 \text{ psig} = 0.0016$). This is consistent with Table 1 of Part 6 of the Code, which requires that instrument accuracy for differential pressure be better than 2% of full-scale.

ALTERNATE METHOD:

Differential pressure will be measured using the existing station system installed inlet pressure indicators.

USNRC EVALUATION STATUS:

Relief was granted in the September 1993 SER [Reference (s)] for Relief Request RR-P08, Revision 0.

RELIEF REQUEST

Number: RR-P09, Revision 0 (Sheet 1 of 4)

SYSTEM: Diesel Fuel Oil**COMPONENTS:**

Pump Number	Safety Class	Drawing Number	Dwg. Coord.
P92-1A	3	G-191162 Sh 3	E-05
P92-1B	3	G-191162 Sh 3	D-05

These pumps are the Diesel Fuel Oil Transfer pumps. They have a safety function to provide diesel fuel oil to the diesel oil day tank during Emergency Diesel Generator operations.

EXAM OR TEST CATEGORY:

Flow Rate (Q).

CODE REQUIREMENT: Part 6

Para. 4.6.5 "Flow Rate Measurement"

"When measuring flow rate, use a rate or quantity meter installed in the pump test circuit. If a meter does not indicate the flow rate directly, the record shall include the method used to reduce the data."

Para. 5.1 "Frequency of Inservice Tests"

"An inservice test shall be run on each pump, nominally every 3 months, except as provided in paras. 5.3, 5.4, and 5.5."

REQUEST FOR RELIEF:

Relief is requested on the basis that compliance with the Code requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety and that the proposed alternatives would provide an acceptable level of quality and safety.

During quarterly inservice testing, pump flow rate cannot be directly measured.

RELIEF REQUEST

Number: RR-P09, Revision 0 (Sheet 2 of 4)

REQUEST FOR RELIEF(cont.):

The Emergency Diesel Generator fuel oil supply system consists of two parallel trains, one for each diesel. Fuel oil is supplied directly to the diesel fuel block from the 800-gallon day tank. Makeup to each diesel day tank is accomplished automatically from the 75,000-gallon storage tank by operation of the respective Diesel Fuel Oil Transfer pump. The diesel day tank is sized for three (3) hours of continuous full load operation, based on a diesel fuel oil consumption rate of approximately 3.4 gpm. The Diesel Fuel Oil Transfer pumps are positive displacement pumps with a design capacity of approximately 8.7 gpm.

It is considered impracticable to directly measure pump flow rate on a quarterly basis. There is no flow rate instrumentation installed in the Fuel Oil Transfer system. Sufficient straight sections of piping are required to properly measure flow rate, through the use of either permanently or temporarily installed instrumentation, such as non-intrusive flow measurement devices. The only sufficient straight sections of piping exist in the buried sections of the supply headers. Installation of flow rate instrumentation or a pump test loop would require significant system redesign and modification, which would be costly and burdensome to Vermont Yankee.

Diesel Fuel Oil Transfer pump flow rate can be determined indirectly by measuring the level change in the diesel day tank versus the pump operating time required to make that change. However, in order to allow for evaluation of the test results against the acceptance criteria of Table 3 of Part 6 of the Code, the test must be performed with the respective Emergency Diesel Generator secured. This eliminates the unknown variability of the diesel fuel oil consumption rate.

In addition, in order to provide measurement accuracy comparable with Table 1 of Part 6 of the Code, the automatic pump start feature on low diesel day tank level must be disabled and the diesel day tank volume reduced prior to the test through operation of the respective Emergency Diesel Generator.

Disabling the automatic start feature of the Diesel Fuel Oil Transfer pump on low diesel day tank level lessens the ability of the Emergency Diesel Generator to operate automatically without operator assistance, reduces the availability of an engineered safety system, and requires entry into a Vermont Yankee Technical Specifications Limiting Condition of Operation, with the required alternate testing requirements.

RELIEF REQUEST

Number: RR-P09, Revision 0 (Sheet 3 of 4)

ALTERNATE METHOD:

During quarterly inservice testing of each Diesel Fuel Oil Transfer pump, it will be verified that the pump is capable of supplying fuel oil to the respective diesel day tank at a flow rate greater than that required by the operating Emergency Diesel Generator. This is verified by an increase in diesel day tank level during the diesel surveillance testing. In addition, full spectrum vibrational monitoring and measurement of pump discharge pressure will be performed with the results evaluated against the acceptance criteria of Table 3 of Part 6 of the Code.

Once each operating cycle the flow rate of each Diesel Fuel Oil Transfer pump will be determined indirectly by measuring the level change in the diesel day tank versus the pump operating time required to make that change. This will be performed with the respective Emergency Diesel Generator secured, the automatic pump start feature on low diesel day tank level disabled, and the diesel day tank volume reduced prior to the test through operation of the respective Emergency Diesel Generator. This testing will provide measurement accuracy comparable with Table 1 of Part 6 of the Code and the results will be evaluated against the acceptance criteria of Table 3 of Part 6 of the Code. As with the quarterly testing, full spectrum vibrational monitoring and measurement of pump discharge pressure will be performed with the results evaluated against the acceptance criteria of Table 3 of Part 6 of the Code.

Such testing is considered commensurate with the pump type and service and provides an acceptable level of quality and safety, based on the following:

RELIEF REQUEST

Number: RR-P09, Revision 0 (Sheet 4 of 4)

ALTERNATE METHOD (cont.):

- a) A review of the pump design flow rate versus the diesel fuel oil consumption rate indicates an excess capacity of approximately 60 percent. As such, operational readiness of the pumps is still assured with up to 60 percent degradation, provided that pump bearing vibration is not excessive. Assurance of acceptable pump bearing vibration levels is provided through the full spectrum vibrational monitoring.
- b) A review of Vermont Yankee maintenance records and industry experience, as documented in NPRDS, indicates that the pumps are highly reliable and that the above testing methods are acceptable for assessing pump operational readiness and determining potential degradation.

At Vermont Yankee, four (4) failures have occurred in twenty (20) years of plant operations. Of these failures, three (3) were related to electrical components and one (1) was related to high bearing vibrations. In addition, minor shaft seal leakage has been noted and corrected.

The industry experience is consistent with Vermont Yankee. For similar pumps in similar applications, fifteen (15) failures have been reported via NPRDS. Of these failures, nine (9) were related to excessive seal leakage, four (4) were related to electrical components and two (2) were related to high bearing vibrations.

Each of the above failure modes is adequately monitored during the quarterly inservice testing through visual inspection of the pump seals, proper starting and operation of the pump upon low diesel day tank level, and full spectrum vibrational monitoring.

USNRC EVALUATION STATUS:

Relief was granted in the September 1993 SER [Reference (s)] for Relief Request RR-P09, Revision 0.

RELIEF REQUEST

Number: RR-P10, Revision 1 (Sheet 1 of 1)

THIS RELIEF REQUEST WAS DELETED IN REVISION 18 OF THE IST PROGRAM.

This RR number is being maintained for traceability to the Third Interval IST Program Submittal SER's.

5.0 Valve Inservice Testing Program

5.1 Scope

The Third-Interval Valve Inservice Testing (IST) Program establishes testing requirements to assess the operational readiness of certain Safety Class 1, 2, and 3 valves and pressure relief devices, including their actuating and position indicating systems.

The active or passive Safety Class 1, 2, and 3 valves included are those which are required to perform a specific function in:

- a) Shutting down the reactor to the cold shutdown condition,
- b) Maintaining the reactor in the cold shutdown condition, or
- c) Mitigating the consequences of an accident.

The Safety Class 1, 2, and 3 pressure relief devices included are those for protecting systems or portion of systems which perform a required function in:

- a) Shutting down the reactor to the cold shutdown condition,
- b) Maintaining the reactor in the cold shutdown condition, or
- c) Mitigating the consequences of an accident.

The following are excluded from the above, provided that they are not required to perform a specific function as specified above:

- a) Valves used only for operating convenience such as vent, drain, instrument, and test valves;
- b) Valves used only for system control, such as pressure regulating valves;
- c) Valves used only for system or component maintenance.

External control and protection systems responsible for sensing plant conditions and providing signals for valve operation are also excluded from the above.

5.2 Valve Program Listing

Table 5-1, "Valve Listing" lists all valves and pressure relief devices included in the Third-Interval Valve IST Program.

This Table identifies all valves and pressure relief devices subject to inservice testing, the inservice test requirements, testing frequency, and any applicable relief requests and/or remarks. Table 5-1 is sorted by Drawing. The column headings in Table 5-1 are listed and explained below:

Drawing

The Flow Diagram which depicts the valve or pressure relief device. If the valve or pressure relief device appears on multiple Flow Diagrams, then the primary Flow Diagram identifier is listed.

Drawing Title

The title of the Flow Diagram.

Valve Number

The unique number that identifies the valve or pressure relief device. The valve number corresponds to the MPAC Database utilized at Vermont Yankee.

Nomenclature

The common name for the valve or pressure relief device.

Dwg Coord

The coordinate location (e.g., D-05) on the Flow Diagram where the valve or pressure relief device appears.

Safety Class

The safety class of the valve or pressure relief device as it appears on the Flow Diagram.

The safety classification of the valve or pressure relief device shown on the Flow Diagrams were determined in accordance with the Vermont Yankee Safety Classification Manual.

5.2 Valve Program Listing (cont.)**OM Cat**

The valve category as defined by Paragraph 1.4 of Part 10 of the Code. All categories are identified for those valves which have more than one applicable category (i.e. A/C for category C valves that also have leakage requirements).

- A:** Valves for which seat leakage is limited to a specific maximum amount in the closed position for fulfillment of their required function(s).
- B:** Valves for which seat leakage in the closed position is inconsequential for fulfillment of their required function(s).
- C:** Valves which are self-actuating in response to some system characteristic, such as pressure (relief valves) or flow direction (check valves) for fulfillment of their required function(s).
- D:** Valves which are actuated by an energy source capable of only one operation, such as rupture disks or explosively actuated valves.

Active/Passive

The valve classification as defined by Paragraph 1.1 of Part 10 of the Code.

Act Those valves which are required to change obturator position to accomplish their required function.

Pass Those valves which maintain obturator position and are not required to change obturator position to accomplish their required function.

Size (Inch)

The nominal pipe size of the valve, in inches.

Body

The valve body style designator where:

3-WAY	for 3-Way Valves
BL	for Ball Valves
BTF	for Butterfly Valves
CK	for simple Check Valves
EFC	for Excess Flow Check Valves
GA	for Gate Valves
GL	for Globe Valves
GSC	for Globe Stop Check Valves
RD	for Rupture Discs
RV	for Relief Valves
SQUIB	for explosively actuated valves
SRV	for Safety/Relief Valves

Actuator

The type of actuator provided with the valve body where:

AO	for Air Operated
EXP	for Explosive Charge
HO	for Hydraulically Operated
MAN	for Manually Operated
MO-AC	for Motor Operated, AC powered motor
MO-DC	for Motor Operated, DC powered motor
SA	for Self Actuated (i.e. Relief Valves, etc.)
SO	for Solenoid Operated

Normal Position

This field details the valve's position during normal plant operation (if the subject system is required to be in a standby condition during normal power operation, the valve's normal position is the position of the valve when the system is in it's standby condition), where:

C	for Closed
LC	for Locked Closed
O	for Open
LO	for Locked Open
O/KL	for Open, Key Locked
O/C	for Open or Closed (dependent on system demand)
T	for Throttled

Safety Position

The position a valve or pressure-relief device is required to function in shutting down the reactor to the cold shutdown condition, maintaining the reactor in the cold shutdown condition, or mitigating the consequences of an accident.

- C** for Closed function
- O** for Open function
- O/C** for both Open or Closed functions

Test Type (and Stroke Direction)

The test type is an abbreviation of the type of test required to be performed and the stroke direction in which the test is performed.

- LJ** OM Category A Valves, which are containment isolation valves tested in accordance with the requirements of OM-10 subsection 4.2.2.2 and 10 CFR 50 Appendix J. Analysis of leakage rate and corrective action is in accordance with OM-10 subsection 4.2.2.3 (e) and (f).
- LT** OM Category A Valves, which perform a function to limit leakage to a specific amount and are tested in accordance with the requirements of OM-10 subsection 4.2.2.3.
- LEF** Category A Excess Flow Check Valves, which perform a function to limit leakage to a specific amount and are tested in accordance with the requirements of OM-10 subsection 4.2.2.3. Satisfactory completion of excess flow check valve leakage testing also satisfies both the open and close valve exercise requirements of OM-10 subsection 4.3.2.2.
- STC** Active Category A and B Power-Operated Valves, which are full-stroked tested in the closed direction and the stroke times are measured and evaluated in accordance with Paragraph 4.2.1 of Part 10 of the Code.
- STO** Active Category A and B Power-Operated Valves, which are full-stroked tested in the open direction and the stroke times are measured and evaluated in accordance with Paragraph 4.2.1 of Part 10 of the Code.
- SC** Active Category A and B Non-Power-Operated Valves and Category C Check Valves, which are full-stroked tested in the closed direction in accordance with Paragraphs 4.2.1 and 4.3.2 of Part 10 of the Code.
- SO** Active Category A and B Non-Power-Operated Valves and Category C Check Valves, which are full-stroked tested in the open direction in accordance with Paragraphs 4.2.1 and 4.3.2 of Part 10 of the Code.

Test Type(cont.)

- PSC** Active Category A and B Valves and Category C Check Valves, which are partial-stroked tested in the closed direction in accordance with Paragraphs 4.2.1 and 4.3.2 of Part 10 of the Code.
- PSO** Active Category A and B Valves and Category C Check Valves, which are partial-stroked tested in the open direction in accordance with Paragraphs 4.2.1 and 4.3.2 of Part 10 of the Code.
- PIT** Valves with remote position indicators are verified in accordance with Paragraph 4.1 of Part 10 of the Code.
- FST** Active Category A and B Valves with fail-safe actuators, which are tested in accordance with Paragraph 4.2.1.6 of Part 10 of the Code.
- ET** OM Category D Explosively Actuated Valves, which are tested in accordance with Paragraph 4.4.1 of Part 10 of the Code.
- RD** OM Category D Rupture Discs, which are replaced in accordance with Paragraph 4.4.2 of Part 10 of the Code.
- CD** OM Category C Check Valves, which are disassembled in accordance with paragraph 4.3.2.4(c) of Part 10 of the Code.
- SP** OM Category C Relief and Safety Relief Valves are tested in accordance with Paragraph 4.3.1 of Part 10 of the Code.
- SKID** Active Category A, B and C skid-mounted components or component subassemblies in which testing of the major component is an acceptable means for verifying the operational readiness of the skid-mounted and component subassemblies in accordance with NUREG 1482, Paragraph 3.4.
- N/A** For passive valves with no testing required.

Test Freq

The test performance frequency associated with each test type will be specified where:

1M for every 1 Month
6M for every 6 Months
1Y for every 1 Year
2Y for every 2 Years
5Y for every 5 Years
10Y for every 10 Years
CS for Cold Shutdown
OC for Once Per Operating Cycle
Q for Quarterly
RO for Reactor Refueling Outage
N/A for Not Applicable

CSJ/ROJ/RR

The Cold Shutdown Justification/Refuel Outage Justification or Relief Request number associated with the subject valve or pressure relief device and test type or test frequency, where applicable.

Remarks

When appropriate, clarifying comments or other remarks will be included for the affected valve, pressure relief device, test type or test frequency.

Table 5-1 Valve Listing

Drawing : 5920-271

Drawing Title: Neutron Monitoring System

Valve Number	Nomenclature	Dwg Coor	Safet y	OM Cat	Act / Pass	Size (inch)	Body	Act	Norm Pos	Safety Pos	Fail Pos	Test Type	Test Freq	CSJ/ROJ RR	Remarks
BV-7-1	Neutron Monitoring System TIP Tube Ball Valve	C-07	2	A	Act	.375	BL	SO	C	C	FC	FST	Q	n/a	Note 6
												LJ	2Y	n/a	
												PIT	2Y	n/a	
												STC	Q	n/a	
BV-7-2	Neutron Monitoring System TIP Tube Ball Valve	C-07	2	A	Act	.375	BL	SO	C	C	FC	FST	Q	n/a	Note 6
												LJ	2Y	n/a	
												PIT	2Y	n/a	
												STC	Q	n/a	
BV-7-3	Neutron Monitoring System Tip Tube Ball Valve	C-07	2	A	Act	.375	BL	SO	C	C	FC	FST	Q	n/a	Note 6
												LJ	2Y	n/a	
												PIT	2Y	n/a	
												STC	Q	n/a	
S-7-1	Neutron Monitoring System Tip Tube Shear Valve	C-07	2	D	Act	.375	SQUIB	EXP	O	C	n/a	ET	RO	n/a	
S-7-2	Neutron Monitoring System Tip Tube Shear Valve	C-07	2	D	Act	.375	SQUIB	EXP	O	C	n/a	ET	RO	n/a	
S-7-3	Neutron Monitoring System Tip Tube Shear Valve	C-07	2	D	Act	.375	SQUIB	EXP	O	C	n/a	ET	RO	n/a	
V7-1	Neutron Monitoring System Tip Purge Iso. Check Valve	C-08	2	A/C	Act	.5	CK	SA	O/C	C	n/a	LJ	2Y	n/a	
												SC	RO	ROJ-V11	
V7-2	Neutron Monitoring System Tip Purge Iso. Check Valve	D-08	2	A/C	Act	.5	CK	SA	O/C	C	n/a	LJ	2Y	n/a	
												SC	RO	ROJ-V11	

Table 5-1 Valve Listing

Drawing : G-191159 Sh 1

Drawing Title: Service Water System

Valve Number	Nomenclature	Dwg Coor	Safety	OM Cat	Act / Pass	Size (inch)	Body	Act	Norm Pos	Safety Pos	Fail Pos	Test Type	Test Freq	CSJ/ROJ RR	Remarks
FCV-104-17A	SW Supply to Screen Wash Flow Control Valve	D-04	3	B	Act	4	GA	HO	C	C	FC	FST STC	Q Q	n/a n/a	Note 8
FCV-104-17B	SW Supply to Screen Wash Flow Control Valve	E-04	3	B	Act	4	GA	HO	C	C	FC	FST STC	Q Q	n/a n/a	Note 8
FCV-104-17C	SW Supply to Screen Wash Flow Control Valve	F-04	3	B	Act	4	GA	HO	C	C	FC	FST STC	Q Q	n/a n/a	Note 8
FCV-104-17D	SW Supply to Screen Wash Flow Control Valve	F-04	3	B	Act	3	GA	HO	C	C	FC	FST STC	Q Q	n/a n/a	Note 8
FCV-104-17E	SW Supply to Screen Wash Flow Control Valve	G-04	3	B	Act	3	GA	HO	C	C	FC	FST STC	Q Q	n/a n/a	Note 8
PCV-104-69A	RHR SW PCV for SW to A- EDG and RRU's 5,7	J-13	3	B	Act	8	GL	AO	C	O	FO	FST STO	Q Q	n/a n/a	Note 8
PCV-104-69B	RHR PCV for SW to B- EDG AND RRU's 6,8	B-13	3	B	Act	8	GL	AO	C	O	FO	FST STO	Q Q	n/a n/a	Note 8
SE-70-4A	RHR SW Pump Motor Cooling Coil Supply Valve	K-10	3	B	Act	1	GA	SO	C	O	FO	FST STO	Q Q	n/a n/a	
SE-70-4B	RHR SW Pump Motor Cooling Coil Supply Valve	K-10	3	B	Act	1	GA	SO	C	O	FO	FST STO	Q Q	n/a n/a	
SE-70-4C	RHR SW Pump Motor Cooling Coil Supply Valve	K-10	3	B	Act	1	GA	SO	C	O	FO	FST STO	Q Q	n/a n/a	
SE-70-4D	RHR SW Pump Motor Cooling Coil Supply Valve	K-10	3	B	Act	1	GA	SO	C	O	FO	FST STO	Q Q	n/a n/a	
SP-70-3A	A Service Water Strainer Backwash Valve	H-05	3	B	Act	2	BL	AO	C	C	FC	FST STC	Q Q	n/a n/a	Note 8
SP-70-3B	B Service Water Strainer Backwash Valve	C-05	3	B	Act	2	BL	AO	C	C	FC	FST STC	Q Q	n/a n/a	Note 8
SR-70-13A	RHR SW Pump Motor Cooling Relief Valve	L-09	3	C	Act	.75	RV	SA	C	O/C	n/a	SP	10Y	n/a	

Table 5-1 Valve Listing

Drawing : G-191159 Sh 1

Drawing Title: Service Water System

Valve Number	Nomenclature	Dwg Coor	Safet y	OM Cat	Act / Pass	Size (inch)	Bedy	Act	Norm Pos	Safety Pos	Fail Pos	Test Type	Test Freq	CSJ/ROJ RR	Remarks
SR-70-13B	RHR SW Pump Motor Cooling Relief Valve	L-09	3	C	Act	.75	RV	SA	C	O/C	n/a	SP	10Y	n/a	
SR-70-13C	RHR SW Pump Motor Cooling Relief Valve	L-09	3	C	Act	.75	RV	SA	C	O/C	n/a	SP	10Y	n/a	
SR-70-13D	RHR SW Pump Motor Cooling Relief Valve	L-09	3	C	Act	.75	RV	SA	C	O/C	n/a	SP	10Y	n/a	
SR-70-2A	SW Relief Valve	I-08	3	C	Act	1	RV	SA	C	O/C	n/a	SP	10Y	n/a	
SR-70-2B	SW Relief Valve	C-08	3	C	Act	1	RV	SA	C	O/C	n/a	SP	10Y	n/a	
V70-130A	CW Pump Cooling SW Supply	C-05	3	B	Act	3	GA	MAN	O	C	n/a	SC	Q	n/a	Note 8
V70-130B	CW Pump Cooling SW Supply	I-05	3	B	Act	3	GA	MAN	O	C	n/a	SC	Q	n/a	Note 8
V70-13A	SW Supply to the A Header Isolation	J-07	3	B	Act	24	GA	MAN	O	O/C	n/a	SC	RO	ROJ-V16	Note 8
V70-13B	SW Supply to the B Header Isolation	B-07	3	B	Act	24	GA	MAN	O	O/C	n/a	SC	RO	ROJ-V16	Note 8
V70-15A	SW Supply to the A RBCCW Heat Exchanger	J-08	3	B	Act	12	GA	MAN	O	C	n/a	SC	RO	ROJ-V17	Note 8
V70-15B	SW Supply to the B RBCCW Heat Exchanger	B-08	3	B	Act	12	GA	MAN	O	C	n/a	SC	RO	ROJ-V17	Note 8
V70-16B	Alternate Cooling to SW Supply	C-09	3	B	Act	24	GA	MAN	C	O/C	n/a	SO	RO	ROJ-V21	Note 8
V70-184	Alt Cooling Water Line Vent	C-09	3	B	Act	1	GA	MAN	C	O/C	n/a	SC SO	RO RO	ROJ-V21 ROJ-V21	Note 8
V70-187A	Gland Seal Supply to SW Pumps A and B	J-06	3	B	Act	1.25	GA	MAN	O	C	n/a	SC	RO	ROJ-V18	Note 8
V70-187B	Gland Seal Supply to SW Pumps C and D	B-06	3	B	Act	1.25	GA	MAN	O	C	n/a	SC	RO	ROJ-V18	Note 8

Table 5-1 Valve Listing

Drawing : G-191159 Sh 1

Drawing Title: Service Water System

Valve Number	Nomenclature	Dwg Coor	Safety	OM Cat	Act / Pass	Size (inch)	Body	Act	Norm Pos	Safety Pos	Fail Pos	Test Type	Test Freq	CSJ/ROJ RR	Remarks
V70-19A	SW Supply Header Crossconnect Valve	H-09	3	B	Act	24	GA	MO-AC	O	O/C	FAI	PIT STC STO	2Y Q Q	n/a n/a n/a	
V70-19B	SW Supply Header Crossconnect Valve	C-09	3	B	Act	24	GA	MO-AC	O	O/C	FAI	PIT STC STO	2Y Q Q	n/a n/a n/a	
V70-1A	Service Water Pump Discharge Check Valve	C-02	3	C	Act	14	CK	SA	O/C	O/C	n/a	PSO SC SO	Q RO RO	ROJ-V14 ROJ-V14 ROJ-V14	Note 10
V70-1B	Service Water Pump Discharge Check Valve	B-02	3	C	Act	14	CK	SA	O/C	O/C	n/a	PSO SC SO	Q RO RO	ROJ-V14 ROJ-V14 ROJ-V14	Note 10
V70-1C	Service Water Pump Discharge Check Valve	K-02	3	C	Act	14	CK	SA	O/C	O/C	n/a	PSO SC SO	Q RO RO	ROJ-V14 ROJ-V14 ROJ-V14	Note 10
V70-1D	Service Water Pump Discharge Check Valve	J-02	3	C	Act	14	CK	SA	O/C	O/C	n/a	PSO SC SO	Q RO RO	ROJ-V14 ROJ-V14 ROJ-V14	Note 10
V70-20	SW Supply Valve to Turbine Building Cooling Loads	H-11	3	B	Act	20	GA	MO-AC	O	C	FAI	PIT STC	2Y Q	n/a n/a	
V70-24B	Alternate Cooling Supply to RBCCW	C-12	3	B	Act	2.5	GA	MAN	C	O	n/a	SO	Q	n/a	Note 22. Valve also appears on G-191159 Sh 3
V70-27	SW to Fire Water Pressurizing Line	D-02	3	B	Act	1.5	GL	MAN	LO	C	n/a	SC	Q	n/a	Note 8
V70-281A	SW System Vacuum Breaker Check Valve	J-09	3	C	Act	2	CK	SA	C	O/C	n/a	SC SO SP	RO RO 10Y	ROJ-V28 ROJ-V28 n/a	

Table 5-1 Valve Listing

Drawing : G-191159 Sh 1

Drawing Title: Service Water System

Valve Number	Nomenclature	Dwg Coor	Safety	OM Cat	Act / Pass	Size (inch)	Body	Act	Norm Pos	Safety Pos	Fail Pos	Test Type	Test Freq	CSJ/ROJ RR	Remarks
V70-281B	SW System Vacuum Breaker Check Valve	B-09	3	C	Act	2	CK	SA	C	O/C	n/a	SC SO SP	RO RO 10Y	ROJ-V28 ROJ-V28 n/a	
V70-281C	SW System Vacuum Breaker Check Valve	J-09	3	C	Act	2	CK	SA	C	O/C	n/a	SC SO SP	RO RO 10Y	ROJ-V28 ROJ-V28 n/a	
V70-281D	SW System Vacuum Breaker Check Valve	C-09	3	C	Act	2	CK	SA	C	O/C	n/a	SC SO SP	RO RO 10Y	ROJ-V28 ROJ-V28 n/a	
V70-29	Alternate Cooling to SW Supply	D-13	3	B	Act	3	GA	MAN	C	O	n/a	SO	Q	n/a	Note 22. Valve also appears on G-191159 Sh 3
V70-29A	Alternate Cooling to SW Supply	D-13	3	B	Act	3	GA	MAN	C	O	n/a	SO	Q	n/a	Note 22. Valve also appears on G-191159 Sh 3
V70-2A	SW Pump Discharge Isolation Valve	C-03	3	B	Act	14	GA	MAN	O	O/C	n/a	SC	RO	ROJ-V16	Note 8
V70-2B	SW Pump Discharge Isolation Valve	B-03	3	B	Act	14	GA	MAN	O	O/C	n/a	SC	RO	ROJ-V16	Note 8
V70-2C	SW Pump Discharge Isolation Valve	J-03	3	B	Act	14	GA	MAN	O	O/C	n/a	SC	RO	ROJ-V16	Note 8
V70-2D	SW Pump Discharge Isolation Valve	J-03	3	B	Act	14	GA	MAN	O	O/C	n/a	SC	RO	ROJ-V16	Note 8
V70-32B	Alternate Cooling Supply to RBCCW	C-12	3	B	Act	2.5	GA	MAN	C	O	n/a	SO	Q	n/a	Note 22. Valve also appears on G-191159 Sh 3
V70-36A	Alternate Cooling Supply to RBCCW	C-13	3	B	Act	3	GA	MAN	C	O	n/a	SO	Q	n/a	Note 22. Valve also appears on G-191159 Sh 3
V70-36B	Alternate Cooling Supply to RBCCW	C-13	3	B	Act	3	GA	MAN	C	O	n/a	SO	Q	n/a	Note 22. Valve also appears on G-191159 Sh 3
V70-38A	RHRSW Pump Discharge Check Valve	K-12	3	C	Act	12	CK	SA	C	O/C	n/a	SC SO	Q Q	n/a n/a	

Table 5-1 Valve Listing

Drawing : G-191159 Sh 1

Drawing Title: Service Water System

Valve Number	Nomenclature	Dwg Coor	Safety	OM Cat	Act / Pass	Size (inch)	Body	Act	Norm Pos	Safety Pos	Fail Pos	Test Type	Test Freq	CSJ/ROJ RR	Remarks
V70-38B	RHRSW Pump Discharge Check Valve	B-12	3	C	Act	12	CK	SA	C	O/C	n/a	SC SO	Q Q	n/a n/a	
V70-40A	RHRSW Pump Discharge Check Valve	K-12	3	C	Act	12	CK	SA	C	O/C	n/a	SC SO	Q Q	n/a n/a	
V70-40B	RHRSW Pump Discharge Check Valve	A-12	3	C	Act	12	CK	SA	C	O/C	n/a	SC SO	Q Q	n/a n/a	
V70-42A	RHRSW Alternate Cooling to SW Supply	K-13	3	B	Act	8	GA	MAN	C	O	n/a	SO	Q	n/a	Note 8
V70-42B	RHRSW Alternate Cooling to SW Supply	B-13	3	B	Act	8	GA	MAN	C	O	n/a	SO	Q	n/a	Note 8
V70-43A	SW Discharge Loop Header Check Valve	J-12	3	C	Act	8	CK	SA	O	O/C	n/a	CD PSO	RO Q	RR-V12 n/a	
V70-43B	SW Discharge Loop Header Check Valve	B-12	3	C	Act	8	CK	SA	O	O/C	n/a	CD PSO	RO Q	RR-V12 n/a	
V70-504	Alternate Cooling to SW Supply	D-12	3	B	Pass	2	GA	MAN	C	C	n/a	n/a	n/a	n/a	
V70-511B	SW System Vacuum Breaker Check Valve	H-12	3	C	Act	2	CK	SA	C	O/C	n/a	SC SO SP	RO RO 10Y	ROJ-V28 ROJ-V28 n/a	
V70-511C	SW System Vacuum Breaker Check Valve	H-12	3	C	Act	2	CK	SA	C	O/C	n/a	SC SO SP	RO RO 10Y	ROJ-V28 ROJ-V28 n/a	
V70-5A	SW X-connection to Fire System	J-03	3	B	Pass	20	GA	MAN	O	O	n/a	n/a	n/a	n/a	
V70-5B	SW X-connection to Fire System	C-03	3	B	Pass	20	GA	MAN	O	O	n/a	n/a	n/a	n/a	
V70-6	SW Screen Wash Alternate Cooling/Isolation Valve	F-03	3	B	Act	8	GA	MAN	O	C	n/a	SC	Q	n/a	Note 8

Table 5-1 Valve Listing

Drawing : G-191159 Sh 2

Drawing Title: Service Water System

Valve Number	Nomenclature	Dwg Coor	Safety	OM Cat	Act / Pass	Size (inch)	Body	Act	Norm Pos	Safety Pos	Fail Pos	Test Type	Test Freq	CSJ/ROJ RR	Remarks
FCV-104-28A	Diesel Generator A Cooling Water Inlet	H-05	3	B	Act	8	GL	AO	C	O	FO	SKID	Q	n/a	Note 12
FCV-104-28B	Diesel Generator B Cooling Water Inlet	D-05	3	B	Act	8	GL	AO	C	O	FO	SKID	Q	n/a	Note 12
PCV-104-73A	Diesel Generator A Service Water Pump Discharge	J-04	3	B	Act	8	GL	AO	O	O	FO	SKID	Q	n/a	Note 12
PCV-104-73B	Diesel Generator B Service Water Pump Discharge	B-04	3	B	Act	8	GL	AO	O	O	FO	SKID	Q	n/a	Note 12
SB-70-1	SW To Main Condensor Discharge Block Valve	D-09	NNS	B	Act	24	BTF	MAN	O/C	O/C	n/a	SC SO	CS CS	CSJ-V16 CSJ-V16	Note 8
SR-70-16A	Diesel Generator Jacket Wtr Cooler Safety Relief Valve	I-06	3	C	Act	1	RV	SA	C	O/C	n/a	SP	10Y	n/a	
SR-70-16B	Diesel Generator Jacket Wtr Cooler Safety Relief Valve	C-05	3	C	Act	1	RV	SA	C	O/C	n/a	SP	10Y	n/a	
V10-89A *	RHR HX Service Water Outlet Valve	H-01	*	*	*	*	*	*	*	*	*	*	*	*	* See G-191172 for valve info and test requirements
V10-89B *	RHR HX Service Water Outlet Valve	E-01	*	*	*	*	*	*	*	*	*	*	*	*	* See G-191172 for valve info and test requirements
V70-11	SW Discharge to Cooling Tower Basin Isolation Valve	D-07	3	B	Act	14	GA	MAN	O/C	O/C	n/a	SC SO	CS CS	CSJ-V16 CSJ-V16	Note 8
V70-16A	Alt. Cln Deep Basin to RHRSW Pump Suct. Iso. Valve	D-07	3	B	Act	24	GA	MAN	C	O/C	n/a	SO	RO	ROJ-V21	Note 8
V70-17	Alternate Cooling to SW Supply	D-06	3	B	Act	20	GA	MAN	O/C	O	n/a	SO	CS	CSJ-V16	Note 8
V70-17A	#1 West Cln Tower SW Distribution Tray Valve	D-07	3	B	Pass	6	GL	MAN	T	O	n/a	SC SO	RO RO	n/a n/a	Notes 9 and 22

Table 5-1 Valve Listing

Drawing : G-191159 Sh 2

Drawing Title: Service Water System

Valve Number	Nomenclature	Dwg Coor	Safety	OM Cat	Act / Pass	Size (inch)	Body	Act	Norm Pos	Safety Pos	Fail Pos	Test Type	Test Freq	CSJ/ROJ RR	Remarks
V70-17B	#1 West Cing Tower SW Distribution Tray Valve	D-07	3	B	Pass	6	GL	MAN	T	O	n/a	SC SO	RO RO	n/a n/a	Notes 9 and 22
V70-17C	#1 West Cing Tower SW Distribution Tray Valve	D-07	3	B	Pass	6	GL	MAN	T	O	n/a	SC SO	RO RO	n/a n/a	Notes 9 and 22
V70-17D	#1 West Cing Tower SW Distribution Tray Valve	D-07	3	B	Pass	6	GL	MAN	T	O	n/a	SC SO	RO RO	n/a n/a	Notes 9 and 22
V70-18	SW Discharge Header Isolation Valve	E-07	3	B	Act	20	GA	MAN	O	O/C	n/a	SC	CS	CSJ-V16	Note 8
V70-203	SW Supply to RRU-9 Isolation Valve	B-03	3	B	Act	1.25	GA	MAN	C	C	n/a	SC	Q	n/a	Note 8
V70-206	SW to RRU's 17A and 17B, Isolation Valve	J-03	3	B	Act	2.5	GA	MAN	O	C	n/a	SC	Q	n/a	Note 8
V70-252B	SW System Vacuum Breaker Check Valve	G-05	3	C	Act	2	CK	SA	C	O/C	n/a	SC SO SP	RO RO 10Y	ROJ-V28 ROJ-V28 n/a	
V70-252C	SW System Vacuum Breaker Check Valve	G-05	3	C	Act	2	CK	SA	C	O/C	n/a	SC SC SP	RO RO 10Y	ROJ-V28 ROJ-V28 n/a	
V70-414	SW to Rad Monitor from SW Discharge to Deep Basin	D-08	NNS	B	Act	.75	GA	MAN	O/C	C	n/a	SC	Q	n/a	Note 8

Table 5-1 Valve Listing

Drawing : G-191159 Sh 3

Drawing Title: RCW Cooling Water System

Valve Number	Nomenclature	Dwg Coor	Safety	OM Cat	Act / Pass	Size (inch)	Body	Act	Norm Pos	Safety Pos	Fail Pos	Test Type	Test Freq	CSJ/ROJ RR	Remarks
RV-70-117A	RBCCW Drywell Piping Thermal Relief Valve	M-10	2	C	Act	.75	RV	SA	LC	O/C	n/a	SP	10Y	n/a	
SR-70-1A	SW Relief Valve	B-04	3	C	Act	1	RV	SA	C	O/C	n/a	SP	10Y	n/a	
SR-70-1B	SW Relief Valve	C-04	3	C	Act	1	RV	SA	C	O/C	n/a	SP	10Y	n/a	
SR-70-6A	SW Relief Valve	J-05	3	C	Act	1	RV	SA	C	O/C	n/a	SP	10Y	n/a	
SR-70-6B	SW Relief Valve	I-05	3	C	Act	1	RV	SA	C	O/C	n/a	SP	10Y	n/a	
V70-106	Rad Waste Building Inlet	P-02	3	B	Act	2	GA	MAN	O	C	n/a	SC	Q	n/a	Note 8
V70-107	Rad Waste Building Outlet	P-05	3	B	Act	2	GL	MAN	O	C	n/a	SC	Q	n/a	Note 8
V70-113	Primary Containment RCW Supply Isolation Valve	K-08	2	A/C	Act	8	CK	SA	O	C	n/a	LJ SC	2Y RO	n/a ROJ-V24	
V70-113D	Test Connection for Penetration X-23	L-08	2	B	Pass	.75	GA	MAN	LC	C	n/a	n/a	n/a	n/a	
V70-117	Primary Containment RBCCW Return Valve	L-12	2	A	Act	8	GA	MO-AC	O	C	FAI	LJ PIT STC	2Y 2Y CS	n/a n/a CSJ-V01	
V70-117D	Test Connection for Penetration X-24	M-12	2	B	Pass	.75	GA	MAN	LC	C	n/a	n/a	n/a	n/a	
V70-24A	RBCCW cooling to CRD and B/D RHR Pumps	N-02	3	B	Act	2.5	GA	MAN	O	O/C	n/a	SC	Q	n/a	Note 8
V70-24B *	Alternate Cooling Supply to RBCCW	O-03	*	*	*	*	*	*	*	*	*	*	*	*	* See G-191159 Sh 1 for valve info and test requirements
V70-28	RBCCW cooling to CRD and RHR Pumps	O-10	3	B	Pass	3	GA	MAN	C	C	n/a	n/a	n/a	n/a	Note 8
V70-28A	RBCCW cooling to CRD and RHR Pumps	O-10	3	B	Act	3	GA	MAN	O	O/C	n/a	SC	Q	n/a	Note 8

Table 5-1 Valve Listing

Drawing : G-191159 Sh 3

Drawing Title: RCW Cooling Water System

Valve Number	Nomenclature	Dwg Coor	Safet y	OM Cat	Act / Pass	Size (inch)	Body	Act	Norm Pos	Safety Pos	Fail Pos	Test Type	Test Freq	CSJ/ROJ RR	Remarks
V70-29 *	Alternate Cooling Return from RBCCW	Q-10	*	*	*	*	*	*	*	*	*	*	*	*	* See G-191159 Sh 1 for valve info and test requirements
V70-29A *	Alternate Cooling Return from RBCCW	P-10	*	*	*	*	*	*	*	*	*	*	*	*	* See G-191159 Sh 1 for valve info and test requirements
V70-32A	RBCCW cooling to Radwaste and A/C RHR Pumps	P-02	3	B	Act	2.5	GA	MAN	O	O/C	n/a	SC	Q	n/a	Note 8
V70-32B *	Alternate Cooling Supply to RBCCW	P-03	*	*	*	*	*	*	*	*	*	*	*	*	* See G-191159 Sh 1 for valve info and test requirements
V70-36A *	Alternate Cooling Supply to RBCCW	O-02	*	*	*	*	*	*	*	*	*	*	*	*	* See G-191159 Sh 1 for valve info and test requirements
V70-36B *	Alternate Cooling Supply to RBCCW	P-02	*	*	*	*	*	*	*	*	*	*	*	*	* See G-191159 Sh 1 for valve info and test requirements
V70-95A	RBCCW Pump Discharge Check Valve	A-07	3	C	Act	12	CK	SA	O/C	O/C	n/a	SC SO	Q Q	n/a n/a	
V70-95B	RBCCW Pump Discharge Check Valve	B-07	3	C	Act	12	CK	SA	O/C	O/C	n/a	SC SO	Q Q	n/a n/a	

Table 5-1 Valve Listing

Drawing : G-191159 Sh 5

Drawing Title: Recirculation Pump Cooling Water

Valve Number	Nomenclature	Dwg Coor	Safety	OM Cat	Act / Pass	Size (inch)	Body	Act	Norm Pos	Safety Pos	Fail Pos	Test Type	Test Freq	CSJ/ROJ RR	Remarks
SL-2-2-7A	Recirculation Pump Inst Excess Flow Check Valve	G-02	2	A/C	Act	1	EFC	SA	O	O/C	n/a	LEF	RO	ROJ-V01	
SL-2-2-7B	Recirculation Pump Inst Excess Flow Check Valve	G-02	2	A/C	Act	1	EFC	SA	O	O/C	n/a	LEF	RO	ROJ-V 1	
SL-2-2-8A	Recirculation Pump Inst Excess Flow Check Valve	G-02	2	A/C	Act	1	EFC	SA	O	O/C	n/a	LEF	RO	ROJ-V01	
SL-2-2-8B	Recirculation Pump Inst Excess Flow Check Valve	G-02	2	A/C	Act	1	EFC	SA	O	O/C	n/a	LEF	RO	ROJ-V01	

Table 5-1 Valve Listing

Drawing : G-191160 Sh 3

Drawing Title: Instrument Air System

Valve Number	Nomenclature	Dwg Coor	Safety	OM Cat	Act / Pass	Size (inch)	Body	Act	Norm Pos	Safety Pos	Fail Pos	Test Type	Test Freq	CSJ/ROJ RR	Remarks
V72-151	Compressor Suction Test Connection	E-17	2	B	Pass	1	GL	MAN	LC	C	n/a	n/a	n/a	n/a	
V72-152	Drain/Test Connection	L-18	2	B	Pass	.75	GA	MAN	LC	C	n/a	n/a	n/a	n/a	
V72-152C	Drain/Test Connection	L-18	2	B	Pass	.75	GA	MAN	LC	C	n/a	n/a	n/a	n/a	
V72-153A	Check Valve Test Connection	L-15	2	B	Pass	.75	GA	MAN	LC	C	n/a	n/a	n/a	n/a	
V72-28A	Isolation to Outboard MSIVs	L-15	NNS	B	Act	1	GL	MAN	O	C	n/a	SC	CS	CSJ-V17	
V72-28B	Isolation to Outboard MSIVs	L-16	NNS	B	Act	1	GL	MAN	O	C	n/a	SC	CS	CSJ-V17	
V72-28D	Isolation to Outboard MSIVs	K-16	NNS	B	Act	1	GL	MAN	O	C	n/a	SO	CS	CSJ-V17	
V72-28E	Isolation to Outboard MSIVs	K-16	NNS	B	Act	1	GL	MAN	O	C	n/a	SO	CS	CSJ-V17	
V72-38A	PCAC Compressor Inlet Containment Isolation Valve	E-17	2	A	Act	2	GL	AO	O	C	FC	FST LJ PIT STC	Q 2Y 2Y Q	n/a n/a n/a n/a	
V72-38B	PCAC Compressor Inlet Containment Isolation Valve	F-17	2	A	Act	2	GL	AO	O	C	FC	FST LJ PIT STC	Q 2Y 2Y Q	n/a n/a n/a n/a	
V72-89B	Drywell Instrument Air Supply Check Valve	K-14	2	A/C	Act	2	CK	SA	O	C	n/a	LJ SC	2Y RO	n/a ROJ-V22	
V72-89C	Drywell Instrument Air Supply Check Valve	K-15	2	A/C	Act	2	CK	SA	O	C	n/a	LJ SC	2Y RO	n/a ROJ-V22	

Table 5-1 Valve Listing

Drawing : G-191160 Sh 7

Drawing Title: Diesel Generator Starting Air System

Valve Number	Nomenclature	Dwg Coor	Safety	OM Cat	Act / Pass	Size (inch)	Body	Act	Norm Pos	Safety Pos	Fail Pos	Test Type	Test Freq	CSJ/ROJ RR	Remarks
AS-24-1A	DG Starting Air Engine Inlet Valve	B-16	3	B	Act	1.5	GL	SO	C	O	FC	PSO	6M	RR-V03	
												PSO	1M	RR-V03	
												STO	OC	RR-V03	
AS-24-1B	DG Starting Air Engine Inlet Valve	B-03	3	B	Act	1.5	GL	SO	C	O	FC	PSO	6M	RR-V03	
												PSO	1M	RR-V03	
												STO	OC	RR-V03	
AS-24-2A	DG Starting Air Engine Inlet Valve	B-17	3	B	Act	1.5	GL	SO	C	O	FC	PSO	6M	RR-V03	
												PSO	1M	RR-V03	
												STO	OC	RR-V03	
AS-24-2B	DG Starting Air Engine Inlet Valve	B-03	3	B	Act	1.5	GL	SO	C	O	FC	PSO	6M	RR-V03	
												PSO	1M	RR-V03	
												STO	OC	RR-V03	
AV-24-1A	DG Starting Air Engine Inlet Vent Valve	B-17	3	B	Act	1.875	GA	SO	O	C	FO	SC	1M	RR-V03	
												STC	6M	RR-V03	
AV-24-1B	DG Starting Air Engine Inlet Vent Valve	B-03	3	B	Act	1.875	GA	SO	O	C	FO	SC	1M	RR-V03	
												STC	6M	RR-V03	
SR-72-6A	DG Starting Air Receiver Relief Valve	E-15	3	C	Act	.75	RV	SA	C	O/C	n/a	SP	10Y	n/a	
SR-72-6B	DG Starting Air Receiver Relief Valve	E-13	3	C	Act	.75	RV	SA	C	O/C	n/a	SP	10Y	n/a	
SR-72-6C	DG Starting Air Receiver Relief Valve	E-07	3	C	Act	.75	RV	SA	C	O/C	n/a	SP	10Y	n/a	
SR-72-6D	DG Starting Air Receiver Relief Valve	E-05	3	C	Act	.75	RV	SA	C	O/C	n/a	SP	10Y	n/a	
SR-72-7A	DG Starting Air Compressor Relief Valve	H-12	3	C	Act	.75	RV	SA	C	O/C	n/a	SP	10Y	n/a	
SR-72-7B	DG Starting Air Compressor Relief Valve	H-08	3	C	Act	.75	RV	SA	C	O/C	n/a	SP	10Y	n/a	

Table 5-1 Valve Listing

Drawing : G-191160 Sh 7

Drawing Title: Diesel Generator Starting Air System

Valve Number	Nomenclature	Dwg Coor	Safety	OM Cat	Act / Pass	Size (inch)	Body	Act	Norm Pos	Safety Pos	Fail Pos	Test Type	Test Freq	CSJ/ROJ RR	Remarks
V72-76A	DG Starting Air Compressor Discharge Check Valve	H-12	3	C	Act	.75	CK	SA	C	O	n/a	PSO SO	Q RO	ROJ-V30 ROJ-V30	
V72-76B	DG Starting Air Compressor Discharge Check Valve	H-08	3	C	Act	.75	CK	SA	C	O	n/a	PSO SO	Q RO	ROJ-V30 ROJ-V30	
V72-82AX	Service Air to DG Starting Air Cross Connect Valve	D-14	3	B	Pass	2	GA	MAN	LC	C	n/a	n/a	n/a	n/a	
V72-82BX	Service Air to DG Starting Air Cross Connect Valve	D-06	3	B	Pass	2	GA	MAN	LC	C	n/a	n/a	n/a	n/a	

Table 5-1 Valve Listing

Drawing: G-191160 Sh 8

Drawing Title: Instrument Air System

Valve Number	Nomenclature	Dwg Coor	Safety	OM Cat	Act / Pass	Size (inch)	Body	Act	Norm Pos	Safety Pos	Fail Pos	Test Type	Test Freq	CSJ/ROJ RR	Remarks
SE-105-2A	N2 Supply 3-Way Vent Valve	C-06	3	B	Pass	.75	3-WAY	SO	O	O	FO	n/a	n/a	n/a	
SE-105-2B	N2 Supply 3-Way Vent Valve	C-12	3	B	Pass	.75	3-WAY	SO	O	O	FO	n/a	n/a	n/a	
SR-72-10A	N2 Supply Relief Valve	C-05	3	C	Act	.75	RV	SA	C	O/C	n/a	SP	10Y	n/a	
SR-72-10B	N2 Supply Relief Valve	C-04	3	C	Act	.75	RV	SA	C	O/C	n/a	SP	10Y	n/a	
SR-72-9A	N2 Supply Relief Valve	F-05	3	C	Act	.75	RV	SA	C	O/C	n/a	SP	10Y	n/a	
SR-72-9B	N2 Supply Relief Valve	F-04	3	C	Act	.75	RV	SA	C	O/C	n/a	SP	10Y	n/a	
V72-609	Instrument Air to Reactor Building Railroad Airlock	E-04	3	A/C	Act	.375	CK	SA	O	C	n/a	LT SC	2Y Q	n/a n/a	
V72-610	Instrument Air to Reactor Building Railroad Airlock	E-04	3	A/C	Act	.375	CK	SA	O	C	n/a	LT SC	2Y Q	n/a n/a	

Table 5-1 Valve Listing

Drawing : G-191162 Sh 2

Drawing Title: Fuel Oil - Miscellaneous Systems

Valve Number	Nomenclature	Dwg Coor	Safety	OM Cat	Act / Pass	Size (inch)	Body	Act	Norm Pos	Safety Pos	Fail Pos	Test Type	Test Freq	CSJ/ROJ RR	Remarks
LCV-108-2A	Diesel Oil Day Tank Level Control Valve	E-08	3	B	Act	1.5	GA	AO	C	O/C	FC	FST STC STO	Q Q Q	n/a n/a n/a	
LCV-108-2B	Diesel Oil Day Tank Level Control Valve	C-08	3	B	Act	1.5	GA	AO	C	O/C	FC	FST STC STO	Q Q Q	n/a n/a n/a	
SR-78-3A	Diesel Fuel Oil Transfer Pump Discharge Relief Valve	E-06	3	C	Act	.75	RV	SA	C	O/C	n/a	SP	10Y	n/a	
SR-78-3B	Diesel Fuel Oil Transfer Pump Discharge Relief Valve	D-06	3	C	Act	.75	RV	SA	C	O/C	n/a	SP	10Y	n/a	
V78-10A	LCV-3 Inlet FO Storage Building FO Pump Room	E-07	3	B	Pass	1.5	GA	MAN	LC	C	n/a	n/a	n/a	n/a	
V78-11	LCV-3 Bypass FO Storage Building FO Pump Room	F-07	3	B	Pass	1.5	GA	MAN	C	C	n/a	n/a	n/a	n/a	
V78-2	Fuel Oil Storage Tank Fill Line Check Valve	E-02	3	C	Act	4	CK	SA	C	C	n/a	CD	RO	n/a	
V78-28A	Diesel Fuel Oil Transfer Pump Discharge Check Valve	E-06	3	C	Act	1.25	CK	SA	C	O/C	n/a	SC SO	Q Q	n/a n/a	
V78-28B	Diesel Fuel Oil Transfer Pump Discharge Check Valve	D-06	3	C	Act	1.25	CK	SA	C	O/C	n/a	SC SO	Q Q	n/a n/a	
V78-41A	D/G Hand Priming Pump Discharge Check	G-11	3	C	Act		CK	SA	C	C	n/a	SKID	1M	n/a	Note 12
V78-41B	D/G Hand Priming Pump Discharge Check	E-11	3	C	Act		CK	SA	C	C	n/a	SKID	1M	n/a	Note 12
V78-42A	D/G Engine Driven Fuel Pump Discharge Check	G-12	3	C	Act		CK	SA	C	O/C	n/a	SKID	1M	n/a	Note 12

Table 5-1 Valve Listing

Drawing : G-191162 Sh 2

Drawing Title: Fuel Oil - Miscellaneous Systems

Valve Number	Nomenclature	Dwg Coor	Safety	OM Cat	Act / Pass	Size (inch)	Body	Act	Norm Pos	Safety Pos	Fail Pos	Test Type	Test Freq	CSJ/ROJ RR	Remarks
V78-42B	D/G Engine Driven Fuel Pump Discharge Check	D-12	3	C	Act		CK	SA	C	O/C	n/a	SKID	1M	n/a	Note 12
V78-9	Fuel Oil Transfer Pump Recirc.	E-06	3	B	Pass	2	GA	MAN	LC	C	n/a	n/a	n/a	n/a	

Table 5-1 Valve Listing

Drawing : G-191165

Drawing Title: Sampling System

Valve Number	Nomenclature	Dwg Coor	Safet y	OM Cat	Act / Pass	Size (inch)	Body	Act	Norm Pos	Safety Pos	Fail Pos	Test Type	Test Freq	CSJ/ROJ RR	Remarks
FCV-10-160 *	RHR Return Line Process Sampling Valve	G-16	*	*	*	*	*	*	*	*	*	*	*	*	* See G-191172 for valve info and test requirements
FSO-109-75A-1 *	CAD Sample Torus Inboard Isolation Valve	D-17	*	*	*	*	*	*	*	*	*	*	*	*	* See VY-E-75-002 for valve info and test requirements
FSO-109-75A-2 *	CAD Sample Torus Outboard Isolation Valve	D-17	*	*	*	*	*	*	*	*	*	*	*	*	* See VY-E-75-002 for valve info and test requirements
FSO-109-75A-3 *	CAD Sample Torus Inboard Isolation Valve	D-17	*	*	*	*	*	*	*	*	*	*	*	*	* See VY-E-75-002 for valve info and test requirements
FSO-109-75A-4 *	CAD Sample Torus Outboard Isolation Valve	D-17	*	*	*	*	*	*	*	*	*	*	*	*	* See VY-E-75-002 for valve info and test requirements
FSO-109-75B-1 *	CAD Sample Lower Drywell Inboard Isolation Valve	D-16	*	*	*	*	*	*	*	*	*	*	*	*	* See VY-E-75-002 for valve info and test requirements
FSO-109-75B-2 *	CAD Sample Lower Drywell Outboard Isolation Valve	D-16	*	*	*	*	*	*	*	*	*	*	*	*	* See VY-E-75-002 for valve info and test requirements
FSO-109-75C-1 *	CAD Sample Mid Drywell Inboard Isolation Valve	C-15	*	*	*	*	*	*	*	*	*	*	*	*	* See VY-E-75-002 for valve info and test requirements
FSO-109-75C-2 *	CAD Sample Mid Drywell Outboard Isolation Valve	C-15	*	*	*	*	*	*	*	*	*	*	*	*	* See VY-E-75-002 for valve info and test requirements
FSO-109-75D-1 *	CAD Sample Upper Drywell Inboard Isolation Valve	B-15	*	*	*	*	*	*	*	*	*	*	*	*	* See VY-E-75-002 for valve info and test requirements

Table 5-1 Valve Listing

Drawing : G-191165

Drawing Title: Sampling System

Valve Number	Nomenclature	Dwg Coor	Safet y	OM Cat	Act / Pass	Size (inch)	Body	Act	Norm Pos	Safety Pos	Fail Pos	Test Type	Test Freq	CSJ/ROJ RR	Remarks
FSO-109-75D-2 *	CAD Sample Upper Drywell Outboard Isolation Valve	B-15	*	*	*	*	*	*	*	*	*	*	*	*	* See VY-E-75-002 for valve info and test requirements
FSO-109-76A *	CAD CAM Return Containment Isolation Valve	F-19	*	*	*	*	*	*	*	*	*	*	*	*	* See VY-E-75-002 for valve info and test requirements
FSO-109-76B *	CAD CAM Return Containment Isolation Valve	G-19	*	*	*	*	*	*	*	*	*	*	*	*	* See VY-E-75-002 for valve info and test requirements
PAS-101	Post Accident Sampling System Jet Pump Sample Valve	V-14	2	A	Pass	.375	GL	AO	C	C	FC	LJ	2Y	n/a	Note 13
PAS-102	Post Accident Sampling System Jet Pump Sample Valve	K-16	2	A	Pass	.375	GL	AO	C	C	FC	LJ	2Y	n/a	Note 13
PAS-103	Post Accident Sampling System Jet Pump Sample Valve	L-14	2	A	Pass	.375	GL	AO	C	C	FC	LJ	2Y	n/a	Note 13
PAS-104	Post Accident Sampling System Jet Pump Sample Valve	K-16	2	A	Pass	.375	GL	AO	C	C	FC	LJ	2Y	n/a	Note 13
PAS-106	Post Accident Sampling System Purge Valve	L-16	2	A	Pass	.375	GL	AO	C	C	FC	LT	2Y	n/a	Note 13 Valve also appears on G-191169 Sh 1
PAS-108C	Post Accident Sampling System Jet Pump Sample Check Vlv	K-15	2	A/C	Pass	.375	CK	SA	C	C	FC	LJ	2Y	n/a	Note 13
PAS-109C	Post Accident Sampling System Jet Pump Sample Check Vlv	L-15	2	A/C	Pass	.375	CK	SA	C	C	FC	LJ	2Y	n/a	Note 13
PAS-114	Drain Valve Isolation	L-15	2	B	Pass	.375	GL	MAN	LC	C	n/a	n/a	n/a	n/a	

Table 5-1 Valve Listing

Drawing: G-191165

Drawing Title: Sampling System

Valve Number	Nomenclature	Dwg Coor	Safety	OM Cat	Act / Pass	Size (inch)	Body	Act	Norm Pos	Safety Pos	Fail Pos	Test Type	Test Freq	CSJ/ROJ RR	Remarks
PAS-115	Drain Line Isolation	L-15	2	B	Pass	.375	GL	MAN	LC	C	n/a	n/a	n/a	n/a	
PAS-117	Jet Pump 1 Sample Line Test Connection	I-13	2	B	Pass	.375	GL	MAN	LC	C	n/a	n/a	n/a	n/a	
PAS-118	Jet Pump 1 Sample Line Test Connection	I-13	2	B	Pass	.375	GL	MAN	LC	C	n/a	n/a	n/a	n/a	
PAS-120	Jet Pump 2 Sample Line Test Connection	I-12	2	B	Pass	.375	GL	MAN	LC	C	n/a	n/a	n/a	n/a	
PAS-121	Jet Pump 2 Sample Line Test Connection	I-12	2	B	Pass	.375	GL	MAN	LC	C	n/a	n/a	n/a	n/a	
SL-2-3-21B	Nuclear Boiler Vessel Inst Excess Flow Check Valve	C-13	1	A/C	Act	1	EFC	SA	O	O/C	n/a	LEF	RO	ROJ-V01	
SL-2-3-21D	Nuclear Boiler Vessel Inst Excess Flow Check Valve	C-13	1	A/C	Act	1	EFC	SA	O	O/C	n/a	LEF	RO	ROJ-V01	
VG-23 *	CAD Rad Monitor Supply Containment Isolation Valve	G-16	*	*	*	*	*	*	*	*	*	*	*	*	* See VY-E-75-002 for valve info and test requirements
VG-26 *	CAD Rad Monitor Supply Containment Isolation Valve	G-15	*	*	*	*	*	*	*	*	*	*	*	*	* See VY-E-75-002 for valve info and test requirements

Table 5-1 Valve Listing

Drawing : G-191167

Drawing Title: Nuclear Boiler

Valve Number	Nomenclature	Dwg Coor	Safety	OM Cat	Act / Pass	Size (inch)	Body	Act	Norm Pos	Safety Pos	Fail Pos	Test Type	Test Freq	CSJ/ROJ RR	Remarks
FCV-2-17	Rx Vessel Head Steam Space Vent Flow Control Valve	B-06	2	B	Pass	1	GL	AO	C	C	FC	PIT	2Y	n/a	Note 14
FCV-2-18	Rx Vessel Head Steam Space Vent Flow Control Valve	B-05	1	B	Pass	1	GL	AO	C	C	FC	PIT	2Y	n/a	Note 14
FCV-2-20	Rx Vessel Head Seal Leakage Flow Control Valve	C-06	1	B	Pass	1	GL	AO	O	O	FO	PIT	2Y	n/a	Note 14
FCV-2-21	Rx Vessel Head Seal Leakage Flow Control Valve	C-05	2	B	Pass	1	GL	AO	C	C	FC	PIT	2Y	n/a	Note 14
FCV-2-39	Rx Recirc Sample Line Flow Control/Isolation Valve	L-04	2	A	Act	.75	GL	AO	C	C	FC	FST LJ STC	Q 2Y Q	n/a n/a n/a	Note 20
FCV-2-40	Rx Recirc Sample Line Flow Control/Isolation Valve	L-03	2	A	Act	.75	GL	AO	C	C	FC	FST LJ STC	Q 2Y Q	n/a n/a n/a	Note 20
RV-2-71A	Nuclear Boiler Safety/Relief Valve	D-08	1	C	Act	6X10	SRV	SA	C	O/C	n/a	SP	5Y	ROJ-V02	Note 7
RV-2-71B	Nuclear Boiler Safety/Relief Valve	G-08	1	C	Act	6X10	SRV	SA	C	O/C	n/a	SP	5Y	ROJ-V02	Note 7
RV-2-71C	Nuclear Boiler Safety/Relief Valve	G-08	1	C	Act	6X10	SRV	SA	C	O/C	n/a	SP	5Y	ROJ-V02	Note 7
RV-2-71D	Nuclear Boiler Safety/Relief Valve	H-08	1	C	Act	6X10	SRV	SA	C	O/C	n/a	SP	5Y	ROJ-V02	Note 7
SL-2-23	NB Flow Limiting Valve	C-03	2	C	Pass	1	EFC	SA	O	O	n/a	n/a	n/a	n/a	
SL-2-301A	NB Flow Limiting Valve	E-04	2	C	Pass	1	EFC	SA	O	O	n/a	n/a	n/a	n/a	
SL-2-301B	NB Flow Limiting Valve	D-04	2	C	Pass	1	EFC	SA	O	O	n/a	n/a	n/a	n/a	

Table 5-1 Valve Listing

Drawing : G-191167

Drawing Title: Nuclear Boiler

Valve Number	Nomenclature	Dwg Coor	Safety	OM Cat	Act / Pass	Size (inch)	Body	Act	Norm Pos	Safety Pos	Fail Pos	Test Type	Test Freq	CSJ/ROJ RR	Remarks
SL-2-301E	NB Flow Limiting Valve	E-04	2	C	Pass	1	EFC	SA	O	O	n/a	n/a	n/a	n/a	
SL-2-301F	NB Flow Limiting Valve	D-04	2	C	Pass	1	EFC	SA	O	O	n/a	n/a	n/a	n/a	
SL-2-305A	Nuclear Boiler Vessel Inst Excess Flow Check Valve	M-02	2	A/C	Act	1	EFC	SA	O	O/C	n/a	LEF	RO	ROJ-V01	
SL-2-305B	Nuclear Boiler Vessel Inst Excess Flow Check Valve	M-02	2	A/C	Act	1	EFC	SA	O	O/C	n/a	LEF	RO	ROJ-V01	
SL-2-62A	Nuclear Boiler Vessel Inst Excess Flow Check Valve	I-13	2	A/C	Act	1	EFC	SA	O	C	n/a	LEF	RO	ROJ-V01	
SL-2-62B	Nuclear Boiler Vessel Inst Excess Flow Check Valve	I-13	2	A/C	Act	1	EFC	SA	O	C	n/a	LEF	RO	ROJ-V01	
SL-2-62C	Nuclear Boiler Vessel Inst Excess Flow Check Valve	J-13	2	A/C	Act	1	EFC	SA	O	C	n/a	LEF	RO	ROJ-V01	
SL-2-62D	Nuclear Boiler Vessel Inst Excess Flow Check Valve	J-13	2	A/C	Act	1	EFC	SA	O	C	n/a	LEF	RO	ROJ-V01	
SL-2-64A	Nuclear Boiler Vessel Inst Excess Flow Check Valve	K-13	2	A/C	Act	1	EFC	SA	O	O/C	n/a	LEF	RO	ROJ-V01	
SL-2-64B	Nuclear Boiler Vessel Inst Excess Flow Check Valve	K-13	2	A/C	Act	1	EFC	SA	O	O/C	n/a	LEF	RO	ROJ-V01	
SL-2-64C	Nuclear Boiler Vessel Inst Excess Flow Check Valve	K-13	2	A/C	Act	1	EFC	SA	O	O/C	n/a	LEF	RO	ROJ-V01	
SL-2-64D	Nuclear Boiler Vessel Inst Excess Flow Check Valve	L-13	2	A/C	Act	1	EFC	SA	O	O/C	n/a	LEF	RO	ROJ-V01	
SL-2-73A	Nuclear Boiler Vessel Inst Excess Flow Check Valve	F-12	2	A/C	Act	1	EFC	SA	O	O/C	n/a	LEF	RO	ROJ-V01	
SL-2-73B	Nuclear Boiler Vessel Inst Excess Flow Check Valve	F-12	2	A/C	Act	1	EFC	SA	O	O/C	n/a	LEF	RO	ROJ-V01	
SL-2-73C	Nuclear Boiler Vessel Inst Excess Flow Check Valve	G-12	2	A/C	Act	1	EFC	SA	O	O/C	n/a	LEF	RO	ROJ-V01	

Table 5-1 Valve Listing

Drawing : G-191167

Drawing Title: Nuclear Boiler

Valve Number	Nomenclature	Dwg Coor	Safety	OM Cat	Act / Pass	Size (inch)	Body	Act	Norm Pos	Safety Pos	Fail Pos	Test Type	Test Freq	CSJ/ROJ RR	Remarks
SL-2-73D	Nuclear Boiler Vessel Inst Excess Flow Check Valve	G-12	2	A/C	Act	1	EFC	SA	O	O/C	n/a	LEF	RO	ROJ-V01	
SL-2-73E	Nuclear Boiler Vessel Inst Excess Flow Check Valve	G-12	2	A/C	Act	1	EFC	SA	O	O/C	n/a	LEF	RO	ROJ-V01	
SL-2-73F	Nuclear Boiler Vessel Inst Excess Flow Check Valve	G-12	2	A/C	Act	1	EFC	SA	O	O/C		LEF	RO	ROJ-V01	
SL-2-73G	Nuclear Boiler Vessel Inst Excess Flow Check Valve	H-12	2	A/C	Act	1	EFC	SA	O	O/C	n/a	LEF	RO	ROJ-V01	
SL-2-73H	Nuclear Boiler Vessel Inst Excess Flow Check Valve	H-12	2	A/C	Act	1	EFC	SA	O	O/C	n/a	LEF	RO	ROJ-V01	
SR-2-14A	SRV Exhaust Line Vacuum Breaker	M-12	NNS	C	Act	3	CK	SA	C	C	n/a	SC	RO	ROJ-V27	
SR-2-14B	SRV Exhaust Line Vacuum Breaker	M-12	NNS	C	Act	3	CK	SA	C	C	n/a	SC	RO	ROJ-V27	
SR-2-14C	SRV Exhaust Line Vacuum Breaker	M-12	NNS	C	Act	3	CK	SA	C	O	n/a	SC	RO	ROJ-V27	
SR-2-14D	SRV Exhaust Line Vacuum Breaker	M-12	NNS	C	Act	3	CK	SA	C	C	n/a	SC	RO	ROJ-V27	
SR-2-14E	SRV Discharge Line Vacuum Relief Valve	L-12	3	C	Act	10	CK	SA	C	O/C	n/a	SP	10Y	n/a	
SR-2-14F	SRV Discharge Line Vacuum Relief Valve	L-12	3	C	Act	10	CK	SA	C	O/C	n/a	SP	10Y	n/a	
SR-2-14G	SRV Discharge Line Vacuum Relief Valve	L-12	3	C	Act	10	CK	SA	C	O/C	n/a	SP	10Y	n/a	
SR-2-14H	SRV Discharge Line Vacuum Relief Valve	L-12	3	C	Act	10	CK	SA	C	O/C	n/a	SP	10Y	n/a	
SR-2-14I	SRV Discharge Line Vacuum Relief Valve	L-12	3	C	Act	10	CK	SA	C	O/C	n/a	SP	10Y	n/a	
SR-2-14J	SRV Discharge Line Vacuum Relief Valve	L-12	3	C	Act	10	CK	SA	C	O/C	n/a	SP	10Y	n/a	

Table 5-1 Valve Listing

Drawing : G-191167

Drawing Title: Nuclear Boiler

Valve Number	Nomenclature	Dwg Coor	Safet y	OM Cat	Act / Pass	Size (inch)	Body	Act	Norm Pos	Safety Pos	Fail Pos	Test Type	Test Freq	CSJ/ROJ RR	Remarks
SR-2-14K	SRV Discharge Line Vacuum Relief Valve	L-12	3	C	Act	10	CK	SA	C	O/C	n/a	SP	10Y	n/a	
SR-2-14L	SRV Discharge Line Vacuum Relief Valve	L-12	3	C	Act	10	CK	SA	C	O/C	n/a	SP	10Y	n/a	
SV-2-70A	Nuclear Boiler Safety/Relief Valve	D-08	1	C	Act	6X8	SRV	SA	C	O/C	n/a	SP	5Y		
SV-2-70B	Nuclear Boiler Safety/Relief Valve	H-08	1	C	Act	6X8	SRV	SA	C	O/C	n/a	SP	5Y	n/a	
V2-27A	Reactor Feedwater Injection Line Check Valve	F-03	1	A/C	Act	16	CK	SA	O	O/C	n/a	LJ SC SO	2Y RO Q	n/a ROJ-V03 ROJ-V03	
V2-27B	Reactor Feedwater Injection Line Check Valve	H-02	2	C	Act	16	CK	SA	O	C	n/a	SC	RO	ROJ-V03	
V2-28A	Reactor Feedwater Injection Line Check Valve	F-05	1	A/C	Act	16	CK	SA	O	O/C	n/a	LJ SC SO	2Y RO Q	n/a ROJ-V03 ROJ-V03	
V2-28B	Reactor Feedwater Injection Line Check Valve	H-05	1	A/C	Act	16	CK	SA	O	O/C	n/a	LJ SC SO	2Y RO Q	n/a ROJ-V03 ROJ-V03	
V2-300G	NBS Globe Valve	E-04	2	B	Pass	1.00	GL	MAN	C	C	n/a	n/a	n/a	n/a	
V2-300H	NBS Globe Valve	E-04	2	B	Pass	1.00	GL	MAN	C	C	n/a	n/a	n/a	n/a	
V2-37A	MSRV Actuator Nitrogen Supply Check Valve	B-08	2	A/C	Act	1	CK	SA	O/C	C	n/a	LT SC	2Y RO	n/a ROJ-V04	
V2-37B	MSRV Actuator Nitrogen Supply Check Valve	G-09	2	A/C	Act	1	CK	SA	O/C	C	n/a	LT SC	2Y RO	n/a ROJ-V04	
V2-37C	MSRV Actuator Nitrogen Supply Check Valve	G-09	2	A/C	Act	1	CK	SA	O/C	C	n/a	LT SC	2Y RO	n/a ROJ-V04	

Table 5-1 Valve Listing

Drawing : G-191167

Drawing Title: Nuclear Boiler

Valve Number	Nomenclature	Dwg Coor	Safety	OM Cat	Act / Pass	Size (inch)	Body	Act	Norm Pos	Safety Pos	Fail Pos	Test Type	Test Freq	CSJ/ROJ RR	Remarks
V2-37D	MSRV Actuator Nitrogen Supply Check Valve	H-09	2	A/C	Act	1	CK	SA	O/C	C	n/a	LT SC	2Y RO	n/a ROJ-V04	
V2-39AA	Penetration X-41 Thermal Relief Valve	L-04	2	A/C	Act	.5	CK	SA	C	O/C	n/a	LJ SC SO	2Y RO RO	n/a ROJ-V29 ROJ-V29	
V2-41	Recirc Sample Test Line Test Connection	M-03	2	B	Pass	.75	GL	MAN	LC	C	n/a	n/a	n/a	n/a	
V2-53A	Rx Recirculation Pump Discharge Isolation Valve	L-09	1	B	Act	28	GA	MO-AC	O	C	FAI	PIT STC	2Y CS	n/a CSJ-V04	
V2-53B	Rx Recirculation Pump Discharge Isolation Valve	L-09	1	B	Act	28	GA	MO-AC	O	C	FAI	PIT STC	2Y CS	n/a CSJ-V04	
V2-54A	Rx Recirculation Pump Discharge Bypass Valve	L-09	1	B	Act	4	GA	MO-AC	O	C	FAI	PIT STC	2Y CS	n/a CSJ-V04	
V2-54B	Rx Recirculation Pump Discharge Bypass Valve	L-09	1	B	Act	4	GA	MO-AC	O	C	FAI	PIT STC	2Y CS	n/a CSJ-V04	
V2-74	Main Steam Line Drain Containment Isolation Valve	E-10	1	A	Act	3	GA	MO-AC	C	C	FAI	LJ PIT STC	2Y 2Y Q	n/a n/a n/a	
V2-74A	Penetration X-8 Thermal Relief Valve	D-10	2	A/C	Act	.5	CK	SA	C	O/C	n/a	LJ SC SO	2Y RO RO	n/a ROJ-V29 ROJ-V29	
V2-75	Test Connection Between Valves V2-74 and 77	F-12	2	B	Pass	.75	GL	MAN	LC	C	n/a	n/a	n/a	n/a	
V2-77	Main Steam Line Drain Containment Isolation Valve	E-13	1	A	Act	3	GA	MO-DC	C	C	FAI	LJ PIT STC	2Y 2Y Q	n/a n/a n/a	

Table 5-1 Valve Listing

Drawing : G-191167

Drawing Title: Nuclear Boiler

Valve Number	Nomenclature	Dwg Coor	Safety	OM Cat	Act / Pass	Size (inch)	Body	Act	Norm Pos	Safety Pos	Fail Pos	Test Type	Test Freq	CSJ/ROJ RR	Remarks
V2-80A	Main Steam Isolation Valve	D-10	1	A	Act	18	GL	AO	O	C	FC	FST LJ PIT STC	Q 2Y 2Y Q	n/a n/a n/a n/a	Note 1
V2-80B	Main Steam Isolation Valve	G-12	1	A	Act	18	GL	AO	O	C	FC	FST LJ PIT STC	Q 2Y 2Y Q	n/a n/a n/a n/a	Note 1
V2-80C	Main Steam Isolation Valve	G-12	1	A	Act	18	GL	AO	O	C	FC	FST LJ PIT STC	Q 2Y 2Y Q	n/a n/a n/a n/a	Note 1
V2-80D	Main Steam Isolation Valve	H-12	1	A	Act	18	GL	AO	O	C	FC	FST LJ PIT STC	Q 2Y 2Y Q	n/a n/a n/a n/a	Note 1
V2-82A	MSIV Actuator Nitrogen Supply Check Valve	B-10	2	A/C	Act	1	CK	SA	O/C	C	n/a	LT SC	2Y RO	n/a ROJ-V05	
V2-82B	MSIV Actuator Nitrogen Supply Check Valve	B-10	2	A/C	Act	1	CK	SA	O/C	C	n/a	LT SC	2Y RO	n/a ROJ-V05	
V2-82C	MSIV Actuator Nitrogen Supply Check Valve	B-10	2	A/C	Act	1	CK	SA	O/C	C	n/a	LT SC	2Y RO	n/a ROJ-V05	
V2-82D	MSIV Actuator Nitrogen Supply Check Valve	B-10	2	A/C	Act	1	CK	SA	O/C	C	n/a	LT SC	2Y RO	n/a ROJ-V05	
V2-83A	Steam Line A Test Connection	D-12	2	B	Pass	.75	GL	MAN	LC	C	n/a	n/a	n/a	n/a	
V2-83B	Steam Line B Test Connection	G-12	2	B	Pass	.75	GL	MAN	LC	C	n/a	n/a	n/a	n/a	

Table 5-1 Valve Listing

Drawing : G-191167

Drawing Title: Nuclear Boiler

Valve Number	Nomenclature	Dwg Coor	Safety	OM Cat	Act / Pass	Size (inch)	Body	Act	Norm Pos	Safety Pos	Fail Pos	Test Type	Test Freq	CSJ/ROJ RR	Remarks
V2-83C	Steam Line C Test Connection	H-12	2	B	Pass	.75	GL	MAN	LC	C	n/a	n/a	n/a	/a	
V2-83D	Steam Line D Test Connection	I-12	2	B	Pass	.75	GL	MAN	LC	C	n/a	n/a	n/a	n/a	
V2-86A	Main Steam Isolation Valve	D-13	1	A	Act	18	GL	AO	O	C	FC	FST LJ PIT STC	Q 2Y 2Y Q	n/a n/a n/a n/a	Note 1
V2-86B	Main Steam Isolation Valve	G-12	1	A	Act	18	GL	AO	O	C	FC	FST LJ PIT STC	Q 2Y 2Y Q	n/a n/a n/a n/a	Note 1
V2-86C	Main Steam Isolation Valve	G-12	1	A	Act	18	GL	AO	O	C	FC	FST LJ PIT STC	Q 2Y 2Y Q	n/a n/a n/a n/a	Note 1
V2-86D	Main Steam Isolation Valve	H-12	1	A	Act	18	GL	AO	O	C	FC	FST LJ PIT STC	Q 2Y 2Y Q	n/a n/a n/a n/a	Note 1
V2-87A	MSIV Actuator Air Supply Check Valve	B-13	2	A/C	Act	1	CK	SA	O/C	C	n/a	LT SC	2Y RO	n/a ROJ-V05	
V2-87B	MSIV Actuator Air Supply Check Valve	B-13	2	A/C	Act	1	CK	SA	O/C	C	n/a	LT SC	2Y RO	n/a ROJ-V05	
V2-87C	MSIV Actuator Air Supply Check Valve	B-13	2	A/C	Act	1	CK	SA	O/C	C	n/a	LT SC	2Y RO	n/a ROJ-V05	
V2-87D	MSIV Actuator Air Supply Check Valve	B-13	2	A/C	Act	1	CK	SA	O/C	C	n/a	LT SC	2Y RO	n/a ROJ-V05	

Table 5-1 Valve Listing

Drawing : G-191167

Drawing Title: Nuclear Boiler

Valve Number	Nomenclature	Dwg Coor	Safet y	OM Cat	Act / Pass	Size (inch)	Body	Act	Norm Pos	Safety Pos	Fail Pos	Test Type	Test Freq	CSJ/ROJ RR	Remarks
V2-94A	Feed Water Line A Test Connection	F-04	2	B	Pass	.75	GL	MAN	LC	C	n/a	n/a	n/a	n/a	
V2-94B	Feed Water B Test Connection	H-04	2	B	Pass	.75	GL	MAN	LC	C	n/a	n/a	n/a	n/a	
V2-96A	Reactor Feedwater Injection Line Check Valve	H-03	1	A/C	Act	16	CK	SA	O	O/C	n/a	LJ SC SO	2Y RO Q	n/a ROJ-V03 ROJ-V03	
V2-96B	Reactor Feedwater Injection Line Check Valve	F-03	2	C	Act	16	CK	SA	O	C	n/a	SC	RO	ROJ-V03	
V2-98A	NBS Globe Valve	N-03	2	B	Pass	1.00	GL	MAN	C	C	n/a	n/a	n/a	n/a	
V2-98B	NBS Globe Valve	N-12	2	B	Pass	1.00	GL	MAN	C	C	n/a	n/a	n/a	n/a	

Table 5-1 Valve Listing

Drawing : G-191168

Drawing Title: Core Spray System

Valve Number	Nomenclature	Dwg Coor	Safety	OM Cat	Act / Fass	Size (inch)	Body	Act	Norm Pos	Safety Pos	Fail Pos	Test Type	Test Freq	CSJ/ROJ RR	Remarks
SL-14-31A	Core Spray Inst Excess Flow Check Valve	F-07	2	A/C	Act	1	EFC	SA	O	O/C	n/a	LEF	RO	ROJ-V01	
SL-14-31B	Core Spray Inst Excess Flow Check Valve	E-07	2	A/C	Act	1	EFC	SA	O	O/C	n/a	LEF	RO	ROJ-V01	
SR-14-20A	Core Spray Pump Discharge Relief Valve	F-11	2	C	Act	1.5	RV	SA	C	O/C	n/a	SP	10Y	n/a	
SR-14-20B	Core Spray Pump Discharge Relief Valve	D-12	2	C	Act	1.5	RV	SA	C	O/C	n/a	SP	10Y	n/a	
V14-10A	Core Spray Pump Discharge Check Valve	I-11	2	C	Act	10	CK	SA	C	O/C	n/a	SC SO	Q Q	n/a n/a	
V14-10B	Core Spray Pump Discharge Check Valve	I-14	2	C	Act	10	CK	SA	C	O/C	n/a	SC SO	Q Q	n/a n/a	
V14-11A	Core Spray Injection Valve	G-09	2	B	Act	8	GA	MO-AC	O	O	FAI	PIT STO	2Y Q	n/a n/a	
V14-11B	Core Spray Injection Valve	C-09	2	B	Act	8	GA	MO-AC	O	O	FAI	PIT STO	2Y Q	n/a n/a	
V14-12A	Core Spray Injection Isolation Valve	G-08	1	A	Act	8	GA	MO-AC	C	O/C	FAI	LJ LT PIT STC STO	2Y 2Y 2Y Q Q	n/a n/a n/a n/a n/a	Note 21
V14-12B	Core Spray Injection Isolation Valve	C-08	1	A	Act	8	GA	MO-AC	C	O/C	FAI	LJ LT PIT STC STO	2Y 2Y 2Y Q Q	n/a n/a n/a n/a n/a	Note 21
V14-13A	Core Spray Injection Check Valve	F-06	1	A/C	Act	8	CK	SA	C	O/C	n/a	LT SC SO	2Y Q CS	n/a n/a CSJ-V05	Note 21

Table 5-1 Valve Listing

Drawing : G-191168

Drawing Title: Core Spray System

Valve Number	Nomenclature	Dwg Coor	Safet y	OM Cat	Act / Pass	Size (inch)	Body	Act	Norm Pos	Safety Pos	Fail Pos	Test Type	Test Freq	CSJ/ROJ RR	Remarks
V14-13B	Core Spray Injection Check Valve	D-06	1	A/C	Act	8	CK	SA	C	O/C	n/a	LT SC SO	2Y Q CS	n/a n/a CSJ-V05	Note 21
V14-14A	Core Spray Injection Line Valve	F-05	1	B	Pass	8	GA	MAN	LO	O	n/a	PIT	2Y	n/a	Note 14
V14-14B	Core Spray Injection Line Valve	E-05	1	B	Pass	8	GA	MAN	LO	O	n/a	PIT	2Y	n/a	Note 14
V14-16A	Core Spray to RHR System Isolation Valve	L-11	2	B	Pass	4	GA	MAN	C	C	n/a	n/a	n/a	n/a	
V14-16B	Core Spray to RHR System Isolation Valve	M-11	2	B	Pass	4	GA	MAN	C	C	n/a	n/a	n/a	n/a	
V14-22A	Condensate Transfer Flush Check Valve	I-09	2	C	Act	2	CK	SA	C	C	n/a	SC	Q	n/a	Note 11
V14-22B	Condensate Transfer Flush Check Valve	B-10	2	C	Act	2	CK	SA	C	C	n/a	SC	Q	n/a	Note 11
V14-23A	Condensate Transfer Flush Check Valve	I-09	2	C	Act	2	CK	SA	C	C	n/a	SC	Q	n/a	Note 11
V14-23B	Condensate Transfer Flush Check Valve	B-09	2	C	Act	2	CK	SA	C	C	n/a	SC	Q	n/a	Note 11
V14-26A	Core Spray Pump Test Line Isolation Valve	F-10	2	B	Act	8	GL	MO-AC	C	C	FAI	PIT STC	2Y Q	n/a n/a	
V14-26B	Core Spray Pump Test Line Isolation Valve	E-10	2	B	Act	8	GL	MO-AC	C	C	FAI	PIT STC	2Y Q	n/a n/a	
V14-30A	Core Spray Injection Check Valve Bypass Valve	F-07	2	A	Pass	.75	GA	MAN	C	C	n/a	LT	2Y	n/a	Note 21
V14-30B	Core Spray Injection Check Valve Bypass Valve	D-07	2	A	Pass	.75	GA	MAN	C	C	n/a	LT	2Y	n/a	Note 21

Table 5-1 Valve Listing

Drawing : G-191168

Drawing Title: Core Spray System

Valve Number	Nomenclature	Dwg Coor	Safety	OM Cat	Act / Pass	Size (inch)	Body	Act	Norm Pos	Safety Pos	Fail Pos	Test Type	Test Freq	CSJ/ROJ RR	Remarks
V14-33A	Core Spray Discharge Pressurization Line Check Valve	H-11	2	C	Act	1	CK	SA	O/C	C	n/a	SC	Q	n/a	Note 11
V14-33B	Core Spray Discharge Pressurization Line Check Valve	H-15	2	C	Act	1	CK	SA	O/C	C	n/a	SC	Q	n/a	Note 11
V14-5A	Core Spray Pump Minimum Flow Valve	H-12	2	B	Act	3	GA	MO-AC	O	O/C	FAI	PIT STC STO	2Y Q Q	n/a n/a n/a	
V14-5B	Core Spray Pump Minimum Flow Valve	H-13	2	B	Act	3	GA	MO-AC	O	O/C	FAI	PIT STC STO	2Y Q Q	n/a n/a n/a	
V14-6A	Test Connection	K-04	2	B	Pass	.75	GL	MAN	LC	C	n/a	n/a	n/a	n/a	
V14-6B	Test Connection	L-04	2	B	Pass	.75	GL	MAN	LC	C	n/a	n/a	n/a	n/a	
V14-7A	Core Spray Pump Suction Valve	K-11	2	B	Act	12	GA	MO-AC	O/KL	O/C	FAI	PIT STC	2Y Q	n/a n/a	
V14-7B	Core Spray Pump Suction Valve	L-11	2	B	Act	12	GA	MO-AC	O/KL	O/C	FAI	PIT STC	2Y Q	n/a n/a	
V14-843A	Test Connection	H-07	2	B	Pass	.75	GA	MAN	LC	C	n/a	n/a	n/a	n/a	
V14-843B	Test Connection	C-07	2	B	Pass	.75	GL	MAN	LC	C	n/a	n/a	n/a	n/a	
V14-8A	Core Spray Supply From CST Isolation Valve	K-12	2	B	Pass	12	GA	MAN	LC	C	n/a	n/a	n/a	n/a	
V14-8B	Core Spray Supply From CST Isolation Valve	L-14	2	B	Pass	12	GA	MAN	LC	C	n/a	n/a	n/a	n/a	

Table 5-1 Valve Listing

Drawing : G-191169 Sh 1

Drawing Title: High Pressure Coolant Injection System

Valve Number	Nomenclature	Dwg Coor	Safety	OM Cat	Act / Pass	Size (inch)	Body	Act	Norm Pos	Safety Pos	Fail Pos	Test Type	Test Freq	CSJ/ROJ RR	Remarks
FCV-23-42	HPCI Steam Line Drain Pot Isolation valve	K-13	NNS	B	Act	1	GL	AO	O	O/C	FC	FST	Q	n/a	
												PIT	2Y	n/a	
												STC	Q	n/a	
												STO	Q	n/a	
FCV-23-43	HPCI Steam Line Drain Pot Isolation valve	K-14	NNS	B	Act	1	GL	AO	O	O/C	FC	FST	Q	n/a	
												PIT	2Y	n/a	
												STC	Q	n/a	
												STO	Q	n/a	
LCV-23-53	Mn Stm Drain Trap Bypass & Strainer Blowoff Trap Bypass	H-14	2	B	Act	1	GL	AO	C	O	FC	FST	Q	n/a	
												PIT	2Y	n/a	
												STC	Q	n/a	
												STO	Q	n/a	
PAS-106*	Post Accident Sampling System Purge Valve	J-05	*	*	*	*	*	*	*	*	*	*	*	*	* See G-191165 for valve info and test requirements
S-23-6	HPCI Turbine Exhaust Line Rupture Disc	I-06	2	D	Act	16	RD	SA	C	O/C	n/a	RD	5Y	n/a	
S-23-7	HPCI Turbine Exhaust Line Rupture Disc	H-06	NNS	D	Act	16	RD	SA	C	O/C	n/a	RD	5Y	n/a	
SL-23-37A	Nuclear Boiler Vessel Inst Excess Flow Check Valve	F-05	2	A/C	Act	.75	EFC	SA	O	O/C	n/a	LEF	RO	ROJ-V01	
SL-23-37B	Nuclear Boiler Vessel Inst Excess Flow Check Valve	F-05	2	A/C	Act	.75	EFC	SA	O	O/C	FC	LEF	RO	ROJ-V01	
SL-23-37C	Nuclear Boiler Vessel Inst Excess Flow Check Valve	F-05	2	A/C	Act	.75	EFC	SA	O	O/C	FC	LEF	RO	ROJ-V01	
SL-23-37D	Nuclear Boiler Vessel Inst Excess Flow Check Valve	F-05	2	A/C	Act	.75	EFC	SA	O	O/C	FC	LEF	RO	ROJ-V01	
SSC-23-12	HPCI Turbine Exhaust Stop Check Valve	I-03	2	C	Act	20	GSC	SA	C	O	n/a	SO	Q	n/a	
SSC-23-13	HPCI Turbine Exhaust Drain Stop Check Valve	J-04	2	C	Act	2	GSC	SA	C	O	n/a	CD	RO	n/a	
												PSO	Q	n/a	

Table 5-1 Valve Listing

Drawing : G-191169 Sh 1

Drawing Title: High Pressure Coolant Injection System

Valve Number	Nomenclature	Dwg Coor	Safety	OM Cat	Act / Pass	Size (inch)	Body	Act	Norm Pos	Safety Pos	Fail Pos	Test Type	Test Freq	CSJ/ROJ RR	Remarks
V23-14	HPCI Steam Supply Valve	F-13	2	B	Act	10	GA	MO-DC	C	O	FAI	PIT STO	2Y Q	n/a n/a	
V23-15	HPCI Steam Supply Inboard Containment Isolation Valve	D-04	1	A	Act	10	GA	MO-AC	O	O/C	FAI	LJ PIT STC STO	2Y 2Y Q Q	n/a n/a n/a n/a	
V23-153A	HPCI Torus Supply Line Drain Valve	L-03	2	B	Pass	.75	GL	MAN	LC	C	n/a	n/a	n/a	n/a	
V23-16	HPCI Steam Supply Inboard Containment Isolation Valve	D-05	1	A	Act	10	GA	MO-DC	O	O/C	FAI	LJ PIT STC STO	2Y 2Y Q Q	n/a n/a n/a n/a	
V23-160A	HPCI Steam Supply Drain Valve	E-05	2	A	Pass	1.75	GL	MAN	LC	C	n/a	LJ	2Y	n/a	
V23-17	HPCI Pump Suction Valve from Condensate Storage Tank	D-11	2	B	Act	14	GA	MO-DC	O	O/C	FAI	PIT STC STO	2Y Q Q	n/a n/a n/a	
V23-18	HPCI Pump Discharge to Feedwater Check Valve	G-05	2	C	Act	14	CK	SA	C	O/C	n/a	SC SO	CS CS	CSJ-V06 CSJ-V06	
V23-19	HPCI Discharge to Feedwater Isolation Valve	G-06	2	B	Act	14	GA	MO-DC	C	O	FAI	PIT STO	2Y Q	n/a n/a	
V23-20	HPCI Pump Discharge Valve	G-08	2	B	Act	14	GA	MO-DC	O	O	FAI	PIT STO	2Y Q	n/a n/a	
V23-20B	Pressurizing and Vent Valves HPCI to RX Keep Fill	G-07	2	C	Act	1	CK	SA	C	C	n/a	SC	Q	n/a	Note 11
V23-21	HPCI Pump Test Return Valve to Condensate Storage Tank	E-07	2	B	Act	10	GL	MO-DC	C	C	FAI	PIT STC	2Y Q	n/a n/a	

Table 5-1 Valve Listing

Drawing : G-191169 Sh 1

Drawing Title: High Pressure Coolant Injection System

Valve Number	Nomenclature	Dwg Coor	Safety	OM Cat	Act / Pass	Size (inch)	Body	Act	Norm Pos	Safety Pos	Fail Pos	Test Type	Test Freq	CSJ/ROJ RR	Remarks
V23-25	HPCI Pump Minimum Recirc Valve	F-09	2	B	Act	4	GL	MO-DC	C	O/C	FAI	PIT STC STO	2Y Q Q	n/a n/a n/a	
V23-26B	HPCI Exhaust Drain to Torus Test Connection Valve	J-04	2	B	Pass	.75	GL	MAN	LC	C	n/a	n/a n/a	n/a n/a	n/a n/a	
V23-27A	HPCI Test Connection	E-04	2	B	Pass	.75	GL	MAN	LC	C	n/a	n/a n/a	n/a n/a	n/a n/a	
V23-32	HPCI Pump Suction Check Valve from Cond. Storage Tank	E-11	2	C	Act	14	CK	SA	O/C	O/C	n/a	SC SO	Q Q	n/a n/a	Note 11
V23-56	HPCI Turbine Exhaust Drain Check Valve	J-05	2	C	Act	2	CK	SA	O/C	C	n/a	CD LT PSO SC	RO 2Y Q RO	n/a n/a n/a ROJ-V25	
V23-57	HPCI Torus Suction Containment Isol. Valve - Outbd	F-10	2	B	Act	16	GA	MO-DC	C	O/C	FAI	PIT STC STO	2Y Q Q	n/a n/a n/a	
V23-58	HPCI Torus Suction Containment Isolation Valve	L-04	2	B	Act	16	GA	MO-DC	C	O/C	FAI	PIT STC STO	2Y Q Q	n/a n/a n/a	
V23-59A	HPCI Torus Supply Test Connection Valve	L-05	2	B	Pass	.75	GL	MAN	C	C	n/a	n/a n/a	n/a n/a	n/a n/a	
V23-61	HPCI Torus Suction Check Valve	L-06	2	C	Act	16	CK	SA	C	O	n/a	CD	RO	n/a	
V23-62	HPCI Pump Minimum Recirc Check Valve	J-10	2	C	Act	4	CK	SA	C	O/C	n/a	CD PSO	RO Q	n/a n/a	
V23-63A	HPCI Test Connection on Torus Exhaust	I-03	2	B	Pass	.75	GL	MAN	LC	C	n/a	n/a n/a	n/a n/a	n/a n/a	

Table 5-1 Valve Listing

Drawing : G-191169 Sh 1

Drawing Title: High Pressure Coolant Injection System

Valve Number	Nomenclature	Dwg Coor	Safet y	OM Cat	Act / Pass	Size (inch)	Body	Act	Norm Pos	Safety Pos	Fail Pos	Test Type	Test Freq	CSJ/ROJ RR	Remarks
V23-65	HPCI Turbine Exhaust Check Valve	I-03	2	C	Act	20	CK	SA	C	O/C	n/a	SC SO	RO Q	ROJ-V25 n/a	Note 2
V23-842	HPCI Gland Seal Exhauster Return Stop Check Valve	I-02	2	C	Act	1	GSC	SA	C	O	n/a	CD PSO	RO Q	n/a n/a	
V23-843	HPCI Gland Seal Exhauster Return Check Valve	I-03	2	C	Act	1	CK	SA	C	O/C	n/a	CD PSO	RO Q	n/a n/a	

Table 5-1 Valve Listing

Drawing : G-191169 Sh 2

Drawing Title: High Pressure Coolant Injection System

Valve Number	Nomenclature	Dwg Coor	Safety	OM Cat	Act / Pass	Size (inch)	Body	Act	Norm Pos	Safety Pos	Fail Pos	Test Type	Test Freq	CSJ/ROJ RR	Remarks
HPCI- CONTROL	HPCI Steam Supply Turbine Control Valve	F-13	2	B	Act	10	GL	HO	O	O	FC	PIT SKID	2Y Q	n/a n/a	Note 12
HPCI-STOP	HPCI Turbine Stop Valve	F-15	2	B	Act	10	GA	HO	C	O/C	FC	PIT SKID	2Y Q	n/a n/a	Note 12
LCV-23-39	HPCI Gland Seal Return Level Cont Drn Valve to Radwaste	M-11	3	B	Act	1	GL	AO	C	O/C	FC	FST PIT STC STO	Q 2Y Q Q	n/a n/a n/a n/a	
LCV-23-40	HPCI Gland Seal Return Level Cont Drn Valve to Radwaste	M-11	3	B	Act	1	GL	AO	C	O/C	FC	FST PIT STC STO	Q 2Y Q Q	n/a n/a n/a n/a	
LCV-23-54	HPCI Drain to Gland Seal Condenser	I-12	2	B	Act	1	GL	AO	C	O	FC	FST PIT STC STO	Q 2Y Q Q	n/a n/a n/a n/a	
PCV-23-50	Pressure Control Valve Cooling Water to Lube Oil Cooler	J-12	2	B	Act	2	GL	AO	O	O	FO	SKID	Q	n/a	
SR-23-34	HPCI Safety Valve	D-09	2	C	Act	1.5	RV	SA	C	O/C	n/a	SP	10Y	n/a	
SR-23-66	HPCI Booster Pump Gland Seal Cond. Line Relief Valve	J-12	2	C	Act	1.5	RV	SA	C	O/C	n/a	SP	10Y	n/a	
V23-130	HPCI Gland Seal Tube Side Return Check Valve	L-11	2	C	Act	2	CK	SA	C	O	n/a	SKID	Q	n/a	Note 12
V23-131	HPCI Gland Seal Cond. Shell Side Return Check Valve	L-11	2	C	Act	2	CK	SA	C	O/C	n/a	SKID	Q	n/a	Note 12
V23-148A	HPCI Steam Ring/Chest Drain Check Valve	G-14	3	C	Act	1	CK	SA	O/C	O	n/a	SKID	Q	n/a	Note 12

Table 5-1 Valve Listing

Drawing : G-191169 Sh 2

Drawing Title: High Pressure Coolant Injection System

Valve Number	Nomenclature	Dwg Coor	Safety	OM Cat	Act / Pass	Size (inch)	Body	Act	Norm Pos	Safety Pos	Fail Pos	Test Type	Test Freq	CSJ/ROJ RR	Remarks
V23-148B	HPCI Steam Ring/Chest Drain Check Valve	G-14	3	C	Act	1	CK	SA	O/C	O	n/a	SKID	Q	n/a	Note 12
V23-50A	HPCI Gland Seal Cond. Supply Valve	J-10	2	B	Act	2	GA	AO	C	O	FO	PIT SKID	2Y Q	n/a n/a	Note 12

Table 5-1 Valve Listing

Drawing : G-191170

Drawing Title: Control Rod Drive Hydraulic System

Valve Number	Nomenclature	Dwg Coor	Safety	OM Cat	Act / Pass	Size (inch)	Body	Act	Norm Pos	Safety Pos	Fail Pos	Test Type	Test Freq	CSJ/ROJ RR	Remarks
CV-3-126	Control Rod Drive Scram Valve (Typical of 89)	C-16	2	B	Act	1	GL	AO	C	O	FO	FST PIT STO	RO 2Y RO	ROJ-V06 n/a ROJ-V06	Note 16
CV-3-127	Control Rod Drive Scram Valve (Typical of 89)	C-18	2	B	Act	.75	GL	AO	C	O	FO	FST PIT STO	RO 2Y RO	ROJ-V06 n/a ROJ-V06	Note 16
LCV-3-33A	Scram Discharge Volume Drain Level Control Valve	D-07	2	A	Act	2	GL	AO	O	C	FC	FST LT PIT STC	Q 2Y 2Y Q	n/a n/a n/a n/a	
LCV-3-33B	Scram Discharge Volume Drain Level Control Valve	D-03	2	A	Act	2	GL	AO	O	C	FC	FST LT PIT STC	Q 2Y 2Y Q	n/a n/a n/a n/a	
LCV-3-33C	Scram Discharge Volume Drain Level Control Valve	D-08	2	A	Act	2	GL	AO	O	C	FC	FST LT PIT STC	Q 2Y 2Y Q	n/a n/a n/a n/a	
LCV-3-33D	Scram Discharge Volume Drain Level Control Valve	D-03	2	A	Act	2	GL	AO	O	C	FC	FST LT PIT STC	Q 2Y 2Y Q	n/a n/a n/a n/a	
PCV-3-32A	Scram Discharge Volume Vent Pressure Control Valve	A-09	2	A	Act	1	GL	AO	O	C	FC	FST LT PIT STC	Q 2Y 2Y Q	n/a n/a n/a n/a	
PCV-3-32B	Scram Discharge Volume Vent Pressure Control Valve	A-01	2	A	Act	1	GL	AO	O	C	FC	FST LT PIT STC	Q 2Y 2Y Q	n/a n/a n/a n/a	

Table 5-1 Valve Listing

Drawing : G-191170

Drawing Title: Control Rod Drive Hydraulic System

Valve Number	Nomenclature	Dwg Coor	Safety	OM Cat	Act / Pass	Size (inch)	Body	Act	Norm Pos	Safety Pos	Fail Pos	Test Type	Test Freq	CSJ/ROJ RR	Remarks
S-3-132	HCU Rupture Disk (typ of 89)	D-16	2	D	Act	.5	RD	SA	C	O/C	n/a	RD	5Y	n/a	
SO-3-120	CRD Manual Control Exhaust Valve (Typical of 89)	D-17	2	B	Act	.5	GA	SO	C	C	FC	FST STC	RO RO	ROJ-V06 ROJ-V06	Note 17
SO-3-121	CRD Manual Control Exhaust Valve (Typical of 89)	D-18	2	B	Act	.5	GA	SO	C	C	FC	FST STC	RO RO	ROJ-V06 ROJ-V06	Note 17
SO-3-122	CRD Manual Control Withdrawal Valve (Typical of 89)	C-18	2	B	Act	.5	GA	SO	C	C	FC	FST STC	RO RO	ROJ-V06 ROJ-V06	Note 17
SO-3-123	CRD Manual Control Insertion Valve (Typical of 89)	C-17	2	B	Act	.5	GA	SO	C	C	FC	FST STC	RO RO	ROJ-V06 ROJ-V06	Note 17
V3-114	Scram Exhaust To Discharge Volume Check (Typical of 89)	C-18	2	C	Act	.75	CK	SA	C	O/C	n/a	SC SO	RO RO	ROJ-V06 ROJ-V06	Note 18
V3-115	CRD Charging Water To Accumulator Check (Typical of 89)	B-16	2	A/C	Act	.5	CK	SA	O/C	C	n/a	LT SC	RO RO	ROJ-V06 ROJ-V06	Note 19
V3-130	Drive Water Insert High Point Vent (Typical of 89)	B-14	2	B	Pass	.75	GL	MAN	C	C	n/a	n/a	n/a	n/a	
V3-132	Drive Water Withdrawal High Point Vent (Typical of 89)	A-14	2	B	Pass	.75	GL	MAN	C	C	n/a	n/a	n/a	n/a	
V3-137	Drive Water Supply Check Valve (Typical of 89)	B-17	2	C	Act	.5	CK	SA	O/C	C	n/a	SC	RO	ROJ-V06	
V3-138	CRD Cooling Water Supply Check Valve (Typical of 89)	B-16	2	C	Act	.5	CK	SA	O/C	C	n/a	SC	Q	n/a	Note 3

Table 5-1 Valve Listing

Drawing : G-191170

Drawing Title: Control Rod Drive Hydraulic System

Valve Number	Nomenclature	Dwg Coor	Safety	OM Cat	Act / Pass	Size (inch)	Body	Act	Norm Pos	Safety Pos	Fail Pos	Test Type	Test Freq	CSJ/ROJ RR	Remarks
V3-162A	Scram Discharge Volume Vent Check Valve	A-09	2	A/C	Act	1	CK	SA	O	C	n/a	LT SC	2Y RO	n/a ROJ-V12	
V3-162B	Scram Discharge Volume Vent Check Valve	A-01	2	A/C	Act	1	CK	SA	O	C	n/a	LT SC	2Y RO	n/a ROJ-V12	
V3-408A	Recirc Pump Seal Purge Valves	F-12	2	B	Pass	.75	GL	MAN	C	C	n/a	n/a	n/a	n/a	
V3-408B	Recirc Pump Seal Purge Valve	F-12	2	B	Pass	.75	GL	MAN	C	C	n/a	n/a	n/a	n/a	
V3-410A	Recirc Pump Seal Purge Valve	F-13	2	B	Pass	.75	GL	MAN	C	C	n/a	n/a	n/a	n/a	
V3-410B	Recirc Pump Seal Purge Valve	F-13	2	B	Pass	.75	GL	MAN	C	C	n/a	n/a	n/a	n/a	
V3-412A	Recirculation Pump Seal Purge Supply Check Valve	E-12	2	A/C	Act	.75	CK	SA	O/C	C	n/a	LJ SC	2Y RO	n/a ROJ-V07	
V3-412B	Recirculation Pump Seal Purge Supply Check Valve	E-12	2	A/C	Act	.75	CK	SA	O/C	C	n/a	LJ SC	2Y RO	n/a ROJ-V07	
V3-413A	Recirculation Pump Seal Purge Supply Check Valve	E-12	2	A/C	Act	.75	CK	SA	O/C	C	n/a	LJ SC	2Y RO	n/a ROJ-V07	
V3-413B	Recirculation Pump Seal Purge Supply Check Valve	E-12	2	A/C	Act	.75	CK	SA	O/C	C	n/a	LJ SC	2Y RO	n/a ROJ-V07	

Table 5-1 Valve Listing

Drawing : G-191171

Drawing Title: Standby Liquid Control System

Valve Number	Nomenclature	Dwg Coor	Safety	OM Cat	Act / Pass	Size (inch)	Body	Act	Norm Pos	Safety Pos	Fail Pos	Test Type	Test Freq	CSJ/ROJ RR	Remarks
S-11-14A	SLC Injection (Squib) Valve	G-03	2	D	Act	1.5	SQUIB	EXP	C	O	n/a	ET	2Y	n/a	Note 4
S-11-14B	SLC Injection (Squib) Valve	H-03	2	D	Act	1.5	SQUIB	EXP	C	O	n/a	ET	2Y	n/a	Note 4
SR-11-39A	SLC Discharge Relief Valve	G-08	2	C	Act	1	RV	SA	C	O/C	n/a	SP	OC	RR-V08	
SR-11-39B	SLC Discharge Relief Valve	K-08	2	C	Act	1	RV	SA	C	O/C	n/a	SP	OC	RR-V08	
V11-16	SLC Injection Piping Check Valve	H-03	1	C	Act	1.5	CK	SA	C	O/C	n/a	SC SO	RO RO	ROJ-V08 ROJ-V08	
V11-17	SLC Injection Piping Check Valve	I-02	1	C	Act	1.5	CK	SA	C	O/C	n/a	SC SO	RO RO	ROJ-V08 ROJ-V08	
V11-18	SLC Injection Valve	I-02	1	B	Pass	1.5	GA	MAN	LO	O	n/a	PIT	2Y	n/a	Note 14
V11-36	SLC Test Connection	I-03	2	B	Pass	.75	GL	MAN	LC	C	n/a	n/a	n/a	n/a	
V11-43A	SLC Pump Discharge Check Valve	H-07	2	C	Act	1.5	CK	SA	C	O/C	n/a	SC SO	Q Q	n/a n/a	
V11-43B	SLC Pump Discharge Check Valve	J-07	2	C	Act	1.5	CK	SA	C	O/C	n/a	SC SO	Q Q	n/a n/a	

Table 5-1 Valve Listing

Drawing : G-191172

Drawing Title: Residual Heat Removal System

Valve Number	Nomenclature	Dwg Coor	Safety	OM Cat	Act / Pass	Size (inch)	Body	Act	Norm Pos	Safety Pos	Fail Pos	Test Type	Test Freq	CSJ/ROJ RR	Remarks
FCV-10-160	RHR Return Line Process Sampling Valve	F-15	2	B	Act	.75	GL	AO	C	C	FC	FST PIT STC	Q 2Y Q	n/a n/a n/a	Valve also appears on G- 191165
RV-10-210A	Relief Valve	E-12	1	A/C	Pass	.5	RV	SA	C	C	n/a	LJ	2Y	n/a	
RV-10-210B	Relief Valve	E-06	1	A/C	Pass	.5	RV	SA	C	C	n/a	LJ	2Y	n/a	
SR-10-35A	RHR Pump Discharge Relief Valve	D-02	2	C	Act	1	RV	SA	C	O/C	n/a	SP	10Y	n/a	
SR-10-35B	RHR Pump Discharge Relief Valve	D-15	2	C	Act	1	RV	SA	C	O/C	n/a	SP	10Y	n/a	
SR-10-40	RHR Shutdown Cooling Suction Line Relief Valve	G-07	2	C	Act	1	RV	SA	C	O/C	n/a	SP	10Y	n/a	
SR-10-72A	RHR Relief Valve	L-07	2	C	Act	1	RV	SA	C	O/C	n/a	SP	10Y	n/a	
SR-10-72B	RHR Relief Valve	L-11	2	C	Act	1	RV	SA	C	O/C	n/a	SP	10Y	n/a	
SR-10-72C	RHR Relief Valve	J-07	2	C	Act	1	RV	SA	C	O/C	n/a	SP	10Y	n/a	
SR-10-72D	RHR Relief Valve	J-10	2	C	Act	1	RV	SA	C	O/C	n/a	SP	10Y	n/a	
SR-10-80A	RHR Heat Exchanger Tube Side Relief Valve	L-03	2	C	Act	4	RV	SA	C	O/C	n/a	SP	10Y	n/a	
SR-10-80B	RHR Heat Exchanger Tube Side Relief Valve	L-14	2	C	Act	4	RV	SA	C	O/C	n/a	SP	10Y	n/a	
SR-10-86A	RHR Heat Exchanger Shell Side Relief Valve	L-03	2	C	Act	1	RV	SA	C	O/C	n/a	SP	10Y	n/a	
SR-10-86B	RHR Heat Exchanger Shell Side Relief Valve	L-14	2	C	Act	1	RV	SA	C	O/C	n/a	SP	10Y	n/a	
V10-13A	Suppression Pool RHR Pump Suction Valve	L-08	2	B	Act	20	GA	MO-AC	O/KL	O/C	FAI	PIT STC STO	2Y Q Q	n/a n/a n/a	

Table 5-1 Valve Listing

Drawing : G-191172

Drawing Title: Residual Heat Removal System

Valve Number	Nomenclature	Dwg Coor	Safet y	OM Cat	Act / Pass	Size (inch)	Body	Act	Norm Pos	Safety Pos	Fail Pos	Test Type	Test Freq	CSJ/ROJ RR	Remarks
V10-13B	Suppression Pool RHR Pump Suction Valve	L-09	2	B	Act	20	GA	MO-AC	O/KL	O/C	FAI	PIT STC STO	2Y Q Q	n/a n/a n/a	
V10-13C	Suppression Pool RHR Pump Suction Valve	J-08	2	B	Act	20	GA	MO-AC	O/KL	O/C	FAI	PIT STC STO	2Y Q Q	n/a n/a n/a	
V10-13D	Suppression Pool RHR Pump Suction Valve	J-09	2	B	Act	20	GA	MO-AC	O/KL	O/C	FAI	PIT STC STO	2Y Q Q	n/a n/a n/a	
V10-15A	Recirculation Loop Supply Valve to RHR Pump Suction	K-07	2	B	Act	20	GA	MO-AC	C	O/C	FAI	PIT STC STO	2Y Q Q	n/a n/a n/a	
V10-15B	Recirculation Loop Supply Valve to RHR Pump Suction	K-10	2	B	Act	20	GA	MO-AC	C	O/C	FAI	PIT STC STO	2Y Q Q	n/a n/a n/a	
V10-15C	Recirculation Loop Supply Valve to RHR Pump Suction	J-07	2	B	Act	20	GA	MO-AC	C	O/C	FAI	PIT STC STO	2Y Q Q	n/a n/a n/a	
V10-15D	Recirculation Loop Supply Valve to RHR Pump Suction	J-10	2	B	Act	20	GA	MO-AC	C	O/C	FAI	PIT STC STO	2Y Q Q	n/a n/a n/a	
V10-16A	RHR Pump Discharge Mini Flow Return to Suppression Pool	I-05	2	B	Act	4	GA	MO-AC	O	O/C	FAI	PIT STC STO	2Y Q Q	n/a n/a n/a	
V10-16B	RHR Pump Discharge Mini Flow Return to Suppression Pool	I-12	2	B	Act	4	GA	MO-AC	O	O/C	FAI	PIT STC STO	2Y Q Q	n/a n/a n/a	

Table 5-1 Valve Listing

Drawing : G-191172

Drawing Title: Residual Heat Removal System

Valve Number	Nomenclature	Dwg Coor	Safety y	OM Cat	Act / Pass	Size (inch)	Body	Act	Norm Pos	Safety Pos	Fail Pos	Test Type	Test Freq	CSJ/ROJ RR	Remarks
V10-17	Recirc Supply to RHR Pump Suct. Outbd. Isolation Valve	G-08	1	A	Act	20	GA	MO-DC	C	O/C	FAI	LJ LT PIT STC STO	2Y 2Y 2Y CS CS	n/a n/a n/a CSJ-V08 CSJ-V08	Note 21
V10-17A1	V10-17 Bonnet Vent Valve	G-08	2	B	Act	.5	GL	MAN	C	O/C	n/a	SC	CS	CSJ-V18	
V10-18	Recirc Supply to RHR Pump Suction Inbd Isolation Valve	F-08	1	A	Act	20	GA	MO-AC	C	O/C	FAI	LJ LT PIT STC STO	2Y 2Y 2Y CS CS	n/a n/a n/a CSJ-V08 CSJ-V08	Note 21
V10-182	RHR SW to RHR Emergency Fill Check Valve	I-02	2	C	Pass	10	CK	SA	C	n/a	n/a	n/a	n/a	n/a	
V10-183	RHR SW to RHR Emergency Fill Isolation Valve	J-02	2	B	Pass	10	GA	MO-AC	C	C	FAI	PIT	2Y	n/a	
V10-184	RHR SW to RHR Emergency Fill Isolation Valve	J-02	2	B	Pass	10	GA	MO-AC	C	C	FAI	PIT	2Y	n/a	
V10-18A	Penetration X-12 Thermal Relief Valve	F-08	2	A/C	Act	.50	CK	SA	C	O/C	n/a	LJ LT SC SO	2Y 2Y RO RO	n/a n/a ROJ-V29 ROJ-V29	Note 21
V10-18A5	V10-18 Bonnet Relief Valve	F-08	2	A/C	Act	.50	CK	SA	C	O/C	n/a	LJ LT SC SO	2Y 2Y RO RO	n/a n/a ROJ-V29 ROJ-V29	Note 21
V10-198B	Process Sampling Valve	E-14	2	A	Pass	.75	GL	MAN	LC	C	n/a	LJ	2Y	n/a	

Table 5-1 Valve Listing

Drawing : G-191172

Drawing Title: Residual Heat Removal System

Valve Number	Nomenclature	Dwg Coor	Safety Y	OM Cat	Act / Pass	Size (inch)	Body	Act	Norm Pos	Safety Pos	Fail Pos	Test Type	Test Freq	CSJ/ROJ RR	Remarks
V10-19A	RHR Minimum Flow Check Valve	L-05	2	C	Act	3	CK	SA	O/C	O/C	n/a	CD PSO	RO Q	n/a n/a	
V10-19B	RHR Minimum Flow Check Valve	L-12	2	C	Act	3	CK	SA	O/C	O/C	n/a	CD PSO	RO Q	n/a n/a	
V10-19C	RHR Minimum Flow Check Valve	J-05	2	C	Act	3	CK	SA	O/C	O/C	n/a	CD PSO	RO Q	n/a n/a	
V10-19D	RHR Minimum Flow Check Valve	J-12	2	C	Act	3	CK	SA	O/C	O/C	n/a	CD PSO	RO Q	n/a n/a	
V10-20	RHR Loop Crossconnect Valve	H-05	2	B	Pass	20	GA	MO-AC	C	C	FAI	PIT	2Y	n/a	
V10-206A	RHR Suppression Pool Suction Drain	I-08	2	B	Pass	.75	GA	MAN	C	C	n/a	n/a	n/a	n/a	
V10-206B	RHR Suppression Pool Suction Line Drain	I-09	2	B	Pass	.75	GA	MAN	C	C	n/a	n/a	n/a	n/a	
V10-25A	RHR to Recirc Loop Isolation Valve	E-06	1	B	Act	24	GA	MO-AC	O	O	FAI	PIT STO	2Y Q	n/a n/a	
V10-25B	RHR to Recirc Loop Isolation Valve	E-12	1	B	Act	24	GA	MO-AC	O	O	FAI	PIT STO	2Y Q	n/a n/a	
V10-26A	RHR To Containment Spray Isolation Valve	C-07	2	A	Act	12	GA	MO-AC	C	O/C	FAI	LJ PIT STC STO	2Y 2Y Q Q	n/a n/a n/a n/a	
V10-26B	RHR To Containment Spray Isolation Valve	C-10	2	A	Act	12	GA	MO-AC	C	O/C	FAI	LJ PIT STC STO	2Y 2Y Q Q	n/a n/a n/a n/a	

Table 5-1 Valve Listing

Drawing : G-191172

Drawing Title: Residual Heat Removal System

Valve Number	Nomenclature	Dwg Coor	Safety	OM Cat	Act / Pass	Size (inch)	Body	Act	Norm Pos	Safety Pos	Fail Pos	Test Type	Test Freq	CSJ/ROJ RR	Remarks
V10-27A	RHR to Recirc Loop Isolation Valve	D-06	1	A	Act	24	GL	MO-AC	C	O/C	FAI	LJ	2Y	n/a	Note 21
												LT	2Y	n/a	
												PIT	2Y	n/a	
												STC	Q	n/a	
												STO	Q	n/a	
V10-27B	RHR to Recirc Loop Isolation Valve	D-12	1	A	Act	24	GL	MO-AC	C	O/C	FAI	LJ	2Y	n/a	Note 21
												LT	2Y	n/a	
												PIT	2Y	n/a	
												STC	Q	n/a	
												STO	Q	n/a	
V10-31A	RHR To Containment Spray Isolation Valve	C-08	2	A	Act	12	GA	MO-AC	C	O/C	FAI	LJ	2Y	n/a	
												PIT	2Y	n/a	
												STC	Q	n/a	
												STO	Q	n/a	
V10-31B	RHR To Containment Spray Isolation Valve	C-10	2	A	Act	12	GA	MO-AC	C	O/C	FAI	LJ	2Y	n/a	
												PIT	2Y	n/a	
												STC	Q	n/a	
												STO	Q	n/a	
V10-34A	RHR Suppression Pool Cooling Supply Valve	E-03	2	A	Act	10	GL	MO-AC	C	O/C	FAI	LJ	2Y	n/a	
												PIT	2Y	n/a	
												STC	Q	n/a	
												STO	Q	n/a	
V10-34B	RHR Suppression Pool Cooling Supply Valve	E-14	2	A	Act	10	GL	MO-AC	C	O/C	FAI	LJ	2Y	n/a	
												PIT	2Y	n/a	
												STC	Q	n/a	
												STO	Q	n/a	
V10-36A	RHR Pump Discharge Pressurizing Line Check Valve	J-03	2	C	Act	1	CK	SA	O/C	C	n/a	SC	Q	n/a	Note 11

Table 5-1 Valve Listing

Drawing: G-191172

Drawing Title: Residual Heat Removal System

Valve Number	Nomenclature	Dwg Coor	Safety	OM Cat	Act / Pass	Size (inch)	Body	Act	Norm Pos	Safety Pos	Fail Pos	Test Type	Test Freq	CSJ/ROJ RR	Remarks
V10-36B	RHR Pump Discharge Pressurizing Line Check Valve	J-14	2	C	Act	1	CK	SA	O/C	C	n/a	SC	Q	n/a	Note 11
V10-38A	Suppression Chamber RHR Spray Ring Supply Valve	E-04	2	A	Act	4	GL	MO-AC	C	O/C	FAI	LJ PIT STC STO	2Y 2Y Q Q	n/a n/a n/a n/a	
V10-38B	Suppression Chamber RHR Spray Ring Supply Valve	F-13	2	A	Act	4	GL	MO-AC	C	O/C	FAI	LJ PIT STC STO	2Y 2Y Q Q	n/a n/a n/a n/a	
V10-39A	RHR Cont Spray/Suppression Pool Cooling Supply Valve	D-04	2	A	Act	12	GA	MO-AC	C	O/C	FAI	LJ PIT STC STO	2Y 2Y Q Q	n/a n/a n/a n/a	
V10-39B	RHR Cont Spray/Suppression Pool Cooling Supply Valve	D-13	2	A	Act	12	GA	MO-AC	C	O/C	FAI	LJ PIT STC STO	2Y 2Y Q Q	n/a n/a n/a n/a	
V10-46A	RHR to Recirc Injection Check Valve	E-07	1	A/C	Act	24	CK	SA	C	O/C	n/a	LT SC SO	2Y Q CS	n/a n/a CSJ-V14	Note 21
V10-46B	RHR to Recirc Injection Check Valve	E-10	1	A/C	Act	24	CK	SA	C	O/C	n/a	LT SC SO	2Y Q CS	n/a n/a CSJ-V14	Note 21
V10-48A	RHR Pump Discharge Check Valve	L-05	2	C	Act	16	CK	SA	O/C	O/C	n/a	PSO SC SO	Q Q CS	CSJ-V15 n/a CSJ-V15	

Table 5-1 Valve Listing

Drawing : G-191172

Drawing Title: Residual Heat Removal System

Valve Number	Nomenclature	Dwg Coor	Safet y	OM Cat	Act / Pass	Size (inch)	Body	Act	Norm Pos	Safety Pos	Fail Pos	Test Type	Test Freq	CSJ/ROJ RR	Remarks
V10-48B	RHR Pump Discharge Check Valve	L-13	2	C	Act	16	CK	SA	O/C	O/C	n/a	PSO SC SO	Q Q CS	CSJ-V15 n/a CSJ-V15	
V10-48C	RHR Pump Discharge Check Valve	J-05	2	C	Act	16	CK	SA	O/C	O/C	n/a	PSO SC SO	Q Q CS	CSJ-V15 n/a CSJ-V15	
V10-48D	RHR Pump Discharge Check Valve	J-13	2	C	Act	16	CK	SA	O/C	O/C	n/a	PSO SC SO	Q Q CS	CSJ-V15 n/a CSJ-V15	
V10-52A	RHR Containment Spray Loop A Test Connection	C-08	2	B	Pass	.75	GL	MAN	C	C	n/a	n/a	n/a	n/a	
V10-52B	RHR Containment Spray Loop B Test Connection	C-10	2	B	Pass	.75	GL	MAN	C	C	n/a	n/a	n/a	n/a	
V10-57	RHR Loop Crossconnect To RadWaste Isolation Valve	H-13	2	A	Act	4	GA	MO-DC	C	C	FAI	LT PIT STC	2Y 2Y Q	n/a n/a n/a	
V10-65A	RHR HX Bypass Valve	J-03	2	B	Act	20	GL	MO-AC	O	O/C	FAI	PIT STC STO	2Y Q Q	n/a n/a n/a	
V10-65B	RHR HX Bypass Valve	K-15	2	B	Act	20	GL	MO-AC	O	O/C	FAI	PIT STC STO	2Y Q Q	n/a n/a n/a	
V10-66	RHR Loop Crossconnect To RadWaste Isolation Valve	H-13	2	A	Act	4	GA	MO-AC	C	C	FAI	LT PIT STC	2Y 2Y Q	n/a n/a n/a	
V10-78A	RHR "A" Injection Line Test Connection	F-06	2	B	Pass	.75	GL	MAN	C	C	n/a	n/a	n/a	n/a	
V10-78B	RHR "B" Injection Line Test Connection	F-12	2	B	Pass	.75	GL	MAN	C	C	n/a	n/a	n/a	n/a	

Table 5-1 Valve Listing

Drawing : G-191172

Drawing Title: Residual Heat Removal System

Valve Number	Nomenclature	Dwg Coor	Safety	OM Cat	Act / Pass	Size (inch)	Body	Act	Norm Pos	Safety Pos	Fail Pos	Test Type	Test Freq	CSJ/ROJ RR	Remarks
V10-81A	RHR to Recirc Loop Injection Valve	E-07	2	B	Pass	24	GA	MAN	LO	O	n/a	PIT	2Y	n/a	Note 14
V10-81B	RHR to Recirc Loop Injection Valve	E-10	2	B	Pass	24	GA	MAN	LO	O	n/a	PIT	2Y	n/a	Note 14
V10-84	Test Connection Between V10-17 and 18	G-09	2	B	Pass	.75	GL	MAN	C	C	n/a	n/a	n/a	n/a	
V10-89A	RHR HX Service Water Outlet Valve	M-01	3	B	Act	12	GL	MO-AC	C	O/C	FAI	PIT STC STO	2Y Q Q	n/a n/a n/a	Valve also appears on G- 191159 Sh 2
V10-89B	RHR HX Service Water Outlet Valve	M-17	3	B	Act	12	GL	MO-AC	C	O/C	FAI	PIT STC STO	2Y Q Q	n/a n/a n/a	Valve also appears on G- 191159 Sh 2
V10-91A	Test Connection	E-07	2	B	Pass	.75	GA	MAN	LC	C	n/a	n/a	n/a	n/a	
V10-91B	Test Connection	E-11	2	B	Pass	.75	GA	MAN	LC	C	n/a	n/a	n/a	n/a	
V10-95A	Test Connection	D-04	2	B	Pass	.75	GA	MAN	LC	C	n/a	n/a	n/a	n/a	
V10-95B	Test Connection	D-14	2	B	Pass	.75	GA	MAN	LC	C	n/a	n/a	n/a	n/a	
V10-96A	Test Connection	C-08	2	B	Pass	.75	GA	MAN	LC	C	n/a	n/a	n/a	n/a	
V10-96E	Test Connection	C-10	2	B	Pass	.75	GA	MAN	LC	C	n/a	n/a	n/a	n/a	

Table 5-1 Valve Listing

Drawing : G-191173 Sh 1

Drawing Title: Fuel Pool Cooling & Cleanup System

Valve Number	Nomenclature	Dwg Coor	Safet y	OM Cat	Act / Pass	Size (inch)	Body	Act	Norm Pos	Safety Pos	Fail Pos	Test Type	Test Freq	CSJ/ROJ RR	Remarks
V19-18	Fuel Pool Demineralizer Return Check Valve	I-13	3	C	Act	6	CK	SA	O	C	n/a	SC	Q	n/a	
V19-21A	Fuel Pool Cooling Return to Fuel Pool Check Valve	A-07	2	C	Act	6	CK	SA	O	O	n/a	SO	Q	n/a	
V19-21B	Fuel Pool Cooling Return to Fuel Pool Check Valve	A-07	2	C	Act	6	CK	SA	O	O	n/a	SO	Q	n/a	
V19-220	Normal Fuel Pool Cooling Subsystem Isolation Valve	G-07	3	B	Act	8	GA	MO-AC	O	C	FAI	PIT STC	2Y Q	n/a n/a	
V19-221	Normal Fuel Pool Cooling Subsystem Isolation Valve	G-08	3	B	Act	8	GA	MO-AC	O	C	FAI	PIT STC	2Y Q	n/a n/a	
V19-224	Fuel Pool Demineralizer Return Check Valve	I-12	3	C	Act	6	CK	SA	O	C	n/a	SC	RO	ROJ-V23	
V19-46	U Gate Valve F/D Bypass	K-06	3	B	Pass	4	GA	MAN	C	C	n/a	n/a	n/a	n/a	
V19-53	U Gate Valve RX WellL Recirc Valve	H-05	3	B	Pass	6	GA	MAN	C	C	n/a	n/a	n/a	n/a	

Table 5-1 Valve Listing

Drawing : G-191173 Sh 2

Drawing Title: Fuel Pool Cooling & Cleanup System

Valve Number	Nomenclature	Dwg Coor	Safety	OM Cat	Act / Pass	Size (inch)	Body	Act	Norm Pos	Safety Pos	Fail Pos	Test Type	Test Freq	CSJ/ROJ RR	Remarks
RV19-232A	Standby Fuel Pool Heat Exchanger FPC Side Relief Valve	C-07	3	C	Act	1	RV	SA	C	O/C	n/a	SP	10Y	n/a	
RV19-232B	Standby Fuel Pool Heat Exchanger FPC Side Relief Valve	F-07	3	C	Act	1	RV	SA	C	O/C	n/a	SP	10Y	n/a	
RV70-260A	Service Water Relief Valve	D-08	3	C	Act	.75	RV	SA	C	O/C	n/a	SP	10Y	n/a	
RV70-260B	Service Water Relief Valve	F-08	3	C	Act	.75	RV	SA	C	O/C	n/a	SP	10Y	n/a	
V19-226	Standby FPCS Manual Isolation - ESS Pump Cross-tie	C-13	3	B	Pass	6	GA	MAN	C	C	n/a	n/a	n/a	n/a	
V19-230A	Standby Fuel Pool Cooling Pump Discharge Check Valve	G-10	3	C	Act	6	CK	SA	C	O/C	n/a	SC SO	Q Q	n/a n/a	
V19-230B	Standby Fuel Pool Cooling Pump Discharge Check Valve	H-10	3	C	Act	6	CK	SA	C	O/C	n/a	SC SO	Q Q	n/a n/a	
V70-244A	SW System Vacuum Breaker Check Valve	B-10	3	C	Act	2	CK	SA	C	O/C	n/a	SC SO SP	RO RO 10Y	ROJ-V28 ROJ-V28 n/a	
V70-244B	SW System Vacuum Breaker Check Valve	B-10	3	C	Act	2	CK	SA	C	O/C		SC SO SP	RO RO 10Y	ROJ-V28 ROJ-V28 n/a	
V70-257A	SFPC Hx Service Water Outlet Throttling/Isolation Valve	C-10	3	B	Act	4	GL	MO-AC	C	O	FAI	PIT STC STO	2Y Q Q	n/a n/a n/a	
V70-257B	SFPC Hx Service Water Outlet Throttling/Isolation Valve	F-10	3	B	Act	4	GL	MO-AC	C	O	FAI	PIT STC STO	2Y Q Q	n/a n/a n/a	

Table 5-1 Valve Listing

Drawing: G-191174 Sh 1

Drawing Title: Reactor Core Isolation Cooling System

Valve Number	Nomenclature	Dwg Cor	Safety	OM Cat	Act / Pass	Size (inch)	Body	Act	Norm Pos	Safety Pos	Fail Pos	Test Type	Test Freq	CSJ/ROJ RR	Remarks
FCV-13-34	RCIC Main Steam Drain to Condenser Valve	K-17	NNS	B	Act	1	GL	AO	O	O/C	FC	FST	Q	n/a	
												PIT	2Y	n/a	
												STC	Q	n/a	
												STO	Q	n/a	
FCV-13-35	RCIC Main Steam Drain to Condenser Valve	L-17	NNS	B	Act	1	GL	AO	O	O/C	FC	FST	Q	n/a	
												PIT	2Y	n/a	
												STC	Q	n/a	
												STO	Q	n/a	
LCV-13-32	RCIC Steam Drain Trap Bypass Valve	H-17	2	B	Act	.75	GL	AO	C	O/C	FC	FST	Q	n/a	
												PIT	2Y	n/a	
												STC	Q	n/a	
												STO	Q	n/a	
SL-13-55A	RCIC Instrumentation Excess Flow Check Valve	B-08	2	A/C	Act	.75	EFC	SA	O	O/C	n/a	LEF	RO	ROJ-V01	
SL-13-55B	RCIC Instrumentation Excess Flow Check Valve	C-08	2	A/C	Act	.75	EFC	SA	O	O/C	n/a	LEF	RO	ROJ-V01	
SL-13-55C	RCIC Instrumentation Excess Flow Check Valve	B-08	2	A/C	Act	.75	EFC	SA	O	O/C	n/a	LEF	RO	ROJ-V01	
SL-13-55D	RCIC Instrumentation Excess Flow Check Valve	C-08	2	A/C	Act	.75	EFC	SA	O	O/C	n/a	LEF	RO	ROJ-V01	
SSC-13-10	RCIC Barometric Cond Vacuum Pump Disch Stop Check Valve	K-09	2	C	Act	2	GSC	SA	C	O	n/a	SO	Q	n/a	
SSC-13-9	RCIC Steam Exhaust Stop Check Valve	K-08	2	C	Act	8	GSC	SA	C	O	n/a	SO	Q	n/a	
V13-143A	RCIC Pump Suction Test Connection	N-09	2	B	Pass	.75	GL	MAN	LC	C	n/a	n/a	n/a	n/a	

Table 5-1 Valve Listing

Drawing : G-191174 Sh 1

Drawing Title: Reactor Core Isolation Cooling System

Valve Number	Nomenclature	Dwg Coor	Safety	OM Cat	Act / Pass	Size (inch)	Body	Act	Norm Pos	Safety Pos	Fail Pos	Test Type	Test Freq	CSJ/ROJ RR	Remarks
V13-15	RCIC Steam Supply Inboard Containment Isolation Valve	E-07	1	A	Act	3	GA	MO-AC	O	O/C	FAI	LJ	2Y	n/a	
												PIT	2Y	n/a	
												STC	Q	n/a	
												STO	Q	n/a	
V13-150A	Steam Line Drain Root Valve	E-09	2	A	Pass	1	GL	MAN	LC	C	n/a	LJ	2Y	n/a	
V13-16	RCIC Steam Supply Outboard Containment Isolation Valve	E-09	1	A	Act	3	GA	MO-DC	O	O/C	FAI	LJ	2Y	n/a	
												PIT	2Y	n/a	
												STC	Q	n/a	
												STO	Q	n/a	
V13-18	Condensate Supply to RCIC Pump Suction Valve	E-14	2	B	Act	6	GA	MO-DC	O	O/C	FAI	PIT	2Y	n/a	
												STC	Q	n/a	
												STO	Q	n/a	
V13-19	Condensate Supply to RCIC Pump Suction Check Valve	E-14	2	C	Act	6	CK	SA	O/C	O/C	n/a	SC	Q	n/a	Note 11
												SO	Q	n/a	
V13-20	RCIC Pump Discharge Isolation Valve	G-10	2	B	Act	4	GA	MO-DC	O	O	FAI	PIT	2Y	n/a	
												STO	Q	n/a	
V13-20B	Pressurizing Valve Keep Fill System	G-11	2	C	Act	1	CK	SA	C	C	n/a	SC	Q	n/a	Note 11
V13-21	RCIC Injection Isolation Valve	G-09	2	B	Act	4	GA	MO-DC	C	O	FAI	PIT	2Y	n/a	
												STO	Q	n/a	
V13-22	RCIC Injection Check Valve	G-09	2	C	Act	4	CK	SA	C	O/C	n/a	SC	CS	CSJ-V10	
												SO	CS	CSJ-V10	
V13-27	RCIC Pump Discharge Minimum Flow Valve	I-11	2	B	Act	2	GL	MO-DC	C	O/C	FAI	PIT	2Y	n/a	
												STC	Q	n/a	
												STO	Q	n/a	

Table 5-1 Valve Listing

Drawing : G-191174 Sh 1

Drawing Title: Reactor Core Isolation Cooling System

Valve Number	Nomenclature	Dwg Coor	Safety	OM Cat	Act / Pass	Size (inch)	Body	Act	Norm Pos	Safety Pos	Fail Pos	Test Type	Test Freq	CSJ/ROJ RR	Remarks
V13-29	RCIC Pump Discharge Minimum Flow Check Valve	J-10	2	C	Act	2	CK	SA	C	O/C	n/a	CD PSO	RO Q	n/a n/a	
V13-30	RCIC Pump Discharge Return to Condensate Storage Tank	E-10	2	B	Act	4	GL	MO-DC	C	C	FAI	PIT STC	2Y Q	n/a n/a	
V13-38	RCIC Vacuum Pump Discharge Check Valve	K-11	2	C	Act	2	CK	SA	C	O/C	n/a	SC SO	RO Q	ROJ-V26 n/a	
V13-39	Supp Pool Supply to RCIC Pump Suct Inbd Isol Valve	F-13	2	B	Act	6	GA	MO-DC	C	O/C	FAI	PIT STC STO	2Y Q Q	n/a n/a n/a	
V13-40	Suppression Pool Supply to RCIC Pump Suction Check Vlv.	N-11	2	C	Act	6	CK	SA	C	O	n/a	CD	RO	n/a	
V13-41	Supp Pool Supply to RCIC Pump Suct Inbd Isol Valve	N-10	2	B	Act	6	GA	MO-DC	C	O/C	FAI	PIT STC STO	2Y Q Q	n/a n/a n/a	
V13-43A	RCIC Pump Suction Test Connection	N-11	2	B	Pass	.75	GL	MAN	C	C	n/a	n/a	n/a	n/a	
V13-46A	RCIC Main Steam Line Test Connection	E-08	2	B	Pass	.75	GL	MAN	LC	C	n/a	n/a	n/a	n/a	
V13-50	RCIC Turbine Exhaust Check Valve	K-08	2	C	Act	8	CK	SA	C	O/C	n/a	SC SO	RO Q	ROJ-V26 n/a	
V13-52B	RCIC Pump Discharge Test Connection	K-09	2	B	Pass	.75	GL	MAN	LC	C	n/a	n/a	n/a	n/a	
V13-53A	RCIC Turbine Exhaust Test Connection	K-08	2	B	Pass	.75	GL	MAN	LC	C	n/a	n/a	n/a	n/a	
V13-817	RCIC Turbine Exhaust Vacuum Breaker Stop Check Valve	K-07	2	C	Act	1	GSC	SA	C	O	n/a	CD PSO	RO Q	n/a n/a	

Table 5-1 Valve Listing

Drawing : G-191174 Sh 1

Drawing Title: Reactor Core Isolation Cooling System

Valve Number	Nomenclature	Dwg Coor	Safet y	OM Cat	Act / Pass	Size (inch)	Body	Act	Norm Pos	Safety Pos	Fail Pos	Test Type	Test Freq	CSJ/ROJ RR	Remarks
V13-818	RCIC Turbine Exhaust Vacuum Breaker Check Valve	K-07	2	C	Act	1	CK	SA	C	O/C	n/a	CD PSO	RO Q	n/a n/a	

Table 5-1 Valve Listing

Drawing : G-191174 Sh 2

Drawing Title: Reactor Core Isolation Cooling System

Valve Number	Nomenclature	Dwg Coor	Safety	OM Cat	Act / Pass	Size (inch)	Body	Act	Norm Pos	Safety Pos	Fail Pos	Test Type	Test Freq	CSJ/ROJ RR	Remarks
LCV-13-12	RCIC Baro Cond Condensate Pump Disch Drain LCV	L-10	3	B	Act	1	GA	AO	C	O/C	FC	FST PIT STC STO	Q 2Y Q Q	n/a n/a n/a n/a	
LCV-13-13	RCIC Baro Cond Condensate Pump Disch Drain LCV	L-10	3	B	Act	1	GA	AO	C	O/C	FC	FST PIT STC STO	Q 2Y Q Q	n/a n/a n/a n/a	
PCV-13-23	Cooling Water to Barometric Condenser	H-06	2	B	Act	2	GL	AO	O	O	FO	SKID	Q	n/a	Note 12
RCIC- CONTROL	RCIC Turbine Governing Valve	D-12	2	B	Act	2	GL	HO	O	O/C	FAI	PIT SKID	2Y Q	n/a n/a	Note 12
S-13-3	RCIC Turbine Steam Exhaust Rupture Disc	E-11	2	D	Act	8	RD	SA	C	O/C	n/a	RD	5Y	n/a	
S-13-4	RCIC Turbine Steam Exhaust Rupture Disc	E-09	NNS	D	Act	8	RD	SA	C	O/C	n/a	RD	5Y	n/a	
SR-13-25	RCIC Pump Suction Relief Valve	C-07	2	C	Act	1	RV	SA	C	O/C	n/a	SP	10Y	n/a	
SR-13-26	RCIC Pump Discharge Line to Barometric Cond Relief Vlv	I-07	2	C	Act	1	RV	SA	C	O/C	n/a	SP	10Y	n/a	
SR-13-27	RCIC Barometric Condenser Relief Valve	J-14	3	C	Act	1.5	RV	SA	C	O/C	n/a	SP	10Y	n/a	
V13-1	RCIC Turbine Trip & Throttle Valve	D-14	2	B	Act	2	GL	MO-DC	O	O/C	FAI	PIT SKID	2Y Q	n/a n/a	Note 12
V13-131	RCIC Steam Supply Valve	E-15	2	B	Act	3	GL	MO-DC	C	O/C	FAI	PIT STC STO	2Y Q Q	n/a n/a n/a	

Table 5-1 Valve Listing

Drawing : G-191174 Sh 2

Drawing Title: Reactor Core Isolation Cooling System

Valve Number	Nomenclature	Dwg Coor	Safet y	OM Cat	Act / Pass	Size (inch)	Body	Act	Norm Pos	Safety Pos	Fail Pos	Test Type	Test Freq	CSJ/ROJ RR	Remarks
V13-132	RCIC Pump Discharge Valve to Barometric Condenser	G-06	2	B	Act	2	GL	MO-DC	C	O/C	FAI	PIT STC STO	2Y Q Q	n/a n/a n/a	
V13-133	RCIC Barometric Cond Condensate Pump Disch Check Valve	K-10	2	C	Act	2	CK	SA	C	O/C	n/a	SKID	Q	n/a	Note 12
V13-70	RCIC Baro Cond Condensate Pump Disch Check Valve	K-13	3	C	Act	1.25	CK	SA	C	O	n/a	SKID	Q	n/a	Note 12

Table 5-1 Valve Listing

Drawing : G-191175 Sh 1

Drawing Title: Primary Containment & Atmosphere Control

Valve Number	Nomenclature	Dwg Coor	Safet y	OM Cat	Act / Pass	Size (inch)	Body	Act	Norm Pos	Safety Pos	Fail Pos	Test Type	Test Freq	CSJ/ROJ RR	Remarks
S16-19-1	Torus Vent Rupture Disc	J-8	2	D	Act	8	RD	SA	C	O/C	n/a	RD	5Y	n/a	
SB-16-19-10	PCAC Supp Chamber Purge Supply Cont Isol Valve	J-13	2	A	Act	18	BTF	AO	C	C	FC	FST	Q	n/a	
												LJ	2Y	n/a	
												PIT	2Y	n/a	
												STC	Q	n/a	
SB-16-19-11A	PCAC Vacuum Relief From Secondary Containment Iso Valve	K-15	2	A/C	Act	20	BTF	AO	C	O/C	FO	FST	Q	n/a	Note 15
												LJ	2Y	n/a	
												PIT	2Y	n/a	
												SP	6M	n/a	
												STC	Q	n/a	
												STO	Q	n/a	
SB-16-19-11B	PCAC Vacuum Relief From Secondary Containment Iso Valve	M-15	2	A/C	Act	20	BTF	AO	C	O/C	FO	FST	Q	n/a	Note 15
												LJ	2Y	n/a	
												PIT	2Y	n/a	
												SP	6M	n/a	
												STC	Q	n/a	
												STO	Q	n/a	
SB-16-19-23	PCAC Containment Purge Supply Containment Iso Valve	H-15	2	A	Act	6	BTF	AO	C	C	FC	FST	Q	n/a	
												LJ	2Y	n/a	
												PIT	2Y	n/a	
												STC	Q	n/a	
SB-16-19-6	PCAC to SGBT Containment Isolation Valve	D-01	2	A	Act	8	BTF	AO	O	C	FC	FST	Q	n/a	Valve also appears on G- 191238
												LJ	2Y	n/a	
												PIT	2Y	n/a	
												STC	Q	n/a	
SB-16-19-6A	PCAC Drywell Purge & Vent Outlet Bypass Cont Iso Valve	F-02	2	A	Act	3	BTF	AO	C	C	FC	FST	Q	n/a	
												LJ	2Y	n/a	
												PIT	2Y	n/a	
												STC	Q	n/a	

Table 5-1 Valve Listing

Drawing : G-191175 Sh 1

Drawing Title: Primary Containment & Atmosphere Control

Valve Number	Nomenclature	Dwg Coor	Safety	OM Cat	Act / Pass	Size (inch)	Body	Act	Norm Pos	Safety Pos	Fail Pos	Test Type	Test Freq	CSJ/ROJ RR	Remarks
SB-16-19-6B	PCAC Supp Chb Prg & Vent Line Bypass Inbd Cont Isol Vlv	L-03	2	A	Act	3	BTF	AO	O	C	C	FST	Q	n/a	
												LJ	2Y	n/a	
												PIT	2Y	n/a	
												STC	Q	n/a	
SB-16-19-7	PCAC Purge & Vent Exhaust Containment Isolation Valve	D-01	2	A	Act	18	BTF	AO	C	C	FC	FST	Q	n/a	
												LJ	2Y	n/a	
												PIT	2Y	n/a	
												STC	Q	n/a	
SB-16-19-7A	PCAC Drywell Purge & Vent Outlet Cont Isol Valve	E-02	2	A	Act	18	BTF	AO	C	C	FC	FST	Q	n/a	
												LJ	2Y	n/a	
												PIT	2Y	n/a	
												STC	Q	n/a	
SB-16-19-7B	PCAC Supp Chb Purge & Vent Outlet Inbd Cont Isol Valve	K-03	2	A	Act	18	BTF	AO	C	C	FC	FST	Q	n/a	
												LJ	2Y	n/a	
												PIT	2Y	n/a	
												STC	Q	n/a	
SB-16-19-8	PCAC Drywell Air Purge Inlet Containment Isol Valve	I-12	2	A	Act	18	BTF	AO	C	C	FC	FST	Q	n/a	
												LJ	2Y	n/a	
												PIT	2Y	n/a	
												STC	Q	n/a	
SB-16-19-9	PCAC Air Purge Supply From Rx Bldg Cont Isol Valve	I-16	2	A	Act	18	BTF	AO	C	C	FC	FST	Q	n/a	
												LJ	2Y	n/a	
												PIT	2Y	n/a	
												STC	Q	n/a	
V16-19-12A	PCAC Vacuum Relief From Secondary Containment Check Vlv	K-16	2	A/C	Act	20	CK	SA	C	O/C	n/a	LJ	2Y	n/a	
												SC	Q	n/a	
												SO	Q	n/a	
												SP	6M	n/a	

Table 5-1 Valve Listing

Drawing : G-191175 Sh 1

Drawing Title: Primary Containment & Atmosphere Control

Valve Number	Nomenclature	Dwg Coor	Safety	OM Cat	Act / Pass	Size (inch)	Body	Act	Norm Pos	Safety Pos	Fail Pos	Test Type	Test Freq	CSJ/ROJ RR	Remarks
V16-19-12B	PCAC Vacuum Relief From Secondary Containment Check Vlv	M-16	2	A/C	Act	20	CK	SA	C	O/C	n/a	LJ SC SO SP	2Y Q Q 6M	n/a n/a n/a n/a	
V16-19-13A	Drywell Air Lock Equalizing Vent	H-06	2	A	Pass	1.5	BL	MAN	LC	C	n/a	LJ	2Y	n/a	
V16-19-13B	Drywell Airlock Vent	H-06	2	A	Pass	1.5	BL	MAN	LC	C	n/a	LJ	2Y	n/a	
V16-19-19B	PCAC Globe Valve	M-16	2	B	Pass	.75	GL	MAN	LC	C	n/a	n/a	n/a	n/a	
V16-19-20A	PCAC Globe Valve	K-16	2	B	Pass	.75	GL	MAN	LC	C	n/a	n/a	n/a	n/a	
V16-19-21A	PCAC Test Connection	K-01	2	B	Pass	.75	GL	MAN	LC	C	n/a	n/a	n/a	n/a	
V16-19-22B	PCAC Test Connection	I-13	2	B	Pass	.75	GL	MAN	LC	C	n/a	n/a	n/a	n/a	
V16-19-56	Drywell Air Lock Pressurization Valve	I-06	2	B	Pass	.75	GL	MAN	LC	C	n/a	n/a	n/a	n/a	
V16-19-5A	Drywell To Suppression Chamber Downcomer Vacuum Breaker	J-08	2	A/C	Act	18	CK	SA	C	O/C	n/a	LT SC SO SP	2Y Q Q 6M	n/a n/a n/a n/a	
V16-19-5B	Drywell To Suppression Chamber Downcomer Vacuum Breaker	J-08	2	A/C	Act	18	CK	SA	C	O/C	n/a	LT SC SO SP	2Y Q Q 6M	n/a n/a n/a n/a	
V16-19-5C	Drywell To Suppression Chamber Downcomer Vacuum Breaker	J-08	2	A/C	Act	18	CK	SA	C	O/C	n/a	LT SC SO SP	2Y Q Q 6M	n/a n/a n/a n/a	
V16-19-5D	Drywell To Suppression Chamber Downcomer Vacuum Breaker	K-08	2	A/C	Act	18	CK	SA	C	O/C	n/a	LT SC SO SP	2Y Q Q 6M	n/a n/a n/a n/a	

Table 5-1 Valve Listing

Drawing : G-191175 Sh 1

Drawing Title: Primary Containment & Atmosphere Control

Valve Number	Nomenclature	Dwg Coor	Safety	OM Cat	Act / Pass	Size (inch)	Body	Act	Norm Pos	Safety Pos	Fail Pos	Test Type	Test Freq	CSJ/ROJ RR	Remarks
V16-19-5E	Drywell To Suppression Chamber Downcomer Vacuum Breaker	J-08	2	A/C	Act	18	CK	SA	C	O/C	n/a	LT	2Y	n/a	
												SC	Q	n/a	
												SO	Q	n/a	
												SP	6M	n/a	
V16-19-5F	Drywell To Suppression Chamber Downcomer Vacuum Breaker	J-08	2	A/C	Act	18	CK	SA	C	O/C	n/a	LT	2Y	n/a	
												SC	Q	n/a	
												SO	Q	n/a	
												SP	6M	n/a	
V16-19-5G	Drywell To Suppression Chamber Downcomer Vacuum Breaker	J-08	2	A/C	Act	18	CK	SA	C	O/C	n/a	LT	2Y	n/a	
												SC	Q	n/a	
												SO	Q	n/a	
												SP	6M	n/a	
V16-19-5H	Drywell To Suppression Chamber Downcomer Vacuum Breaker	J-08	2	A/C	Act	18	CK	SA	C	O/C	n/a	LT	2Y	n/a	
												SC	Q	n/a	
												SO	Q	n/a	
												SP	6M	n/a	
V16-19-5I	Drywell To Suppression Chamber Downcomer Vacuum Breaker	K-08	2	A/C	Act	18	CK	SA	C	O/C	n/a	LT	2Y	n/a	
												SC	Q	n/a	
												SO	Q	n/a	
												SP	6M	n/a	
V16-19-5J	Drywell To Suppression Chamber Downcomer Vacuum Breaker	J-08	2	A/C	Act	18	CK	SA	C	O/C	n/a	LT	2Y	n/a	
												SC	Q	n/a	
												SO	Q	n/a	
												SP	6M	n/a	
V16-20-20	PCAC Containment Purge Makeup Outbd Cont Isol Valve	H-12	2	A	Act	1	GA	SO	O	C	FC	FST	Q	n/a	
												LJ	2Y	n/a	
												PIT	2Y	n/a	
												STC	Q	n/a	

Table 5-1 Valve Listing

Drawing : G-191175 Sh 1

Drawing Title: Primary Containment & Atmosphere Control

Valve Number	Nomenclature	Dwg Coor	Safety	OM Cat	Act / Pass	Size (inch)	Body	Act	Norm Pos	Safety Pos	Fail Pos	Test Type	Test Freq	CSJ/ROJ RR	Remarks
V16-20-22A	PCAC Containment Purge Makeup Cont Isol Valve	H-11	2	A	Act	1	GL	SO	C	C	FC	FST LJ PIT STC	Q 2Y 2Y Q	n/a n/a n/a n/a	
V16-20-22B	PCAC Containment Purge Makeup Cont Isol Valve	H-12	2	A	Act	1	GL	SO	O	C	FC	FST LJ PIT STC	Q 2Y 2Y Q	n/a n/a n/a n/a	
V16-20-28	Torus Makeup Test Connection	I-11	2	B	Pass	.75	GA	MAN	C	C	n/a	n/a	n/a	n/a	
V16-20-30	Drywell Makeup Test Connection	I-12	2	B	Pass	.75	GL	MAN	LC	C	n/a	n/a	n/a	n/a	
V20-400A	Torus Drain Valve	N-09	2	B	Pass	2	GL	MAN	LC	C	n/a	n/a	n/a	n/a	
V20-400B	Torus Drain Valve	N-07	2	B	Pass	2	GL	MAN	LC	C	n/a	n/a	n/a	n/a	

Table 5-1 Valve Listing

Drawing : G-191177 Sh 1

Drawing Title: Radwaste Systems

Valve Number	Nomenclature	Dwg Coor	Safet y	OM Cat	Act / Pass	Size (inch)	Body	Act	Norm Pos	Safety Pos	Fail Pos	Test Type	Test Freq	CSJ/ROJ RR	Remarks
RV-20-82A	Pen. X-18 Thermal Relief Valve	A-03	2	C	Act	.75	RV	SA	C	O/C	n/a	SP	10Y	n/a	
RV-20-94A	Pen. X-19 Thermal Relief Valve	F-03	2	C	Act	.75	RV	SA	C	O/C	n/a	SP	10Y	n/a	
V20-319A	Rx Bldg Floor Drain Pump To Suppression Pool Iso Valve	D-06	2	B	Pass	1.5	GA	MAN	LC	C	n/a	n/a	n/a	n/a	
V20-319B	Rx Bldg Floor Drain Pump To Suppression Pool Iso Valve	D-06	2	B	Pass	1.5	GA	MAN	LC	C	n/a	n/a	n/a	n/a	
V20-319C	Rx Bldg Floor Drain Pump To Suppression Pool Iso Valve	C-08	2	B	Pass	1.5	GA	MAN	LC	C	n/a	n/a	n/a	n/a	
V20-319D	Rx Bldg Floor Drain Pump To Suppression Pool Iso Valve	C-08	2	B	Pass	1.5	GA	MAN	LC	C	n/a	n/a	n/a	n/a	
V20-78A	Test Connection	B-04	2	B	Pass	.75	GA	MAN	C	C	n/a	n/a	n/a	n/a	
V20-79A	Test Connection	B-04	2	B	Pass	.75	GA	MAN	C	C	n/a	n/a	n/a	n/a	
V20-82	Drywell Floor Drain Sump Containment Isolation Valve	B-04	2	A	Act	3	BL	AO	O	C	FC	FST LJ PIT STC	Q 2Y 2Y Q	n/a n/a n/a n/a	
V20-83	Drywell Floor Drain Sump Containment Isolation Valve	B-05	2	A	Act	3	BL	AO	O	C	FC	FST LJ PIT STC	Q 2Y 2Y Q	n/a n/a n/a n/a	
V20-92A	Test Connection	G-04	2	B	Pass	.75	GA	MAN	C	C	n/a	n/a	n/a	n/a	
V20-93A	Test Connection	G-04	2	B	Pass	.75	GA	MAN	C	C	n/a	n/a	n/a	n/a	

Table 5-1 Valve Listing

Drawing : G-191177 Sh 1

Drawing Title: Radwaste Systems

Valve Number	Nomenclature	Dwg Coor	Safety	OM Cat	Act / Pass	Size (inch)	Body	Act	Norm Pos	Safety Pos	Fail Pos	Test Type	Test Freq	CSJ/ROJ RR	Remarks
V20-94	Drywell Equipment Drain Sump Containment Isolation Vlv	G-04	2	A	Act	3	BL	AO	O	C	FC	FST	Q	n/a	
												LJ	2Y	n/a	
												PIT	2Y	n/a	
												STC	Q	n/a	
V20-95	Drywell Equipment Drain Sump Containment Isolation Vlv	G-05	2	A	Act	3	BL	AO	O	C	FC	FST	Q	n/a	
												LJ	2Y	n/a	
												PIT	2Y	n/a	
												STC	Q	n/a	

Table 5-1 Valve Listing

Drawing : G-191178 Sh 1

Drawing Title: Reactor Water Clean Up System

Valve Number	Nomenclature	Dwg Coor	Safety	OM Cat	Act / Pass	Size (inch)	Body	Act	Norm Pos	Safety Pos	Fail Pos	Test Type	Test Freq	CSJ/ROJ RR	Remarks
V12-15	Reactor Water Cleanup Containment Isolation Valve	D-02	1	A	Act	4	GA	MO-AC	O	C	FAI	LJ PIT STC	2Y 2Y Q	n/a n/a n/a	
V12-16	RWCU Drain/Test Connection	D-03	1	B	Pass	.75	GL	MAN	C	C	n/a	n/a	n/a	n/a	
V12-18	Reactor Water Cleanup Containment Isolation Valve	D-03	1	A	Act	4	GA	MO-DC	O	C	FAI	LJ PIT STC	2Y 2Y Q	n/a n/a n/a	
V12-28A	RWCU Pump Discharge Check Valve	D-08	3	C	Act	3	CK	SA	O/C	C	n/a	CD	RO	n/a	
V12-28B	RWCU Pump Discharge Check Valve	G-08	3	C	Act	3	CK	SA	O/C	C	n/a	CD	RO	n/a	
V12-62	RWCU Flow to Feedwater System Isolation Check Valve	B-05	2	C	Act	4	CK	SA	O/C	C	n/a	CD	RO	n/a	
V12-62A	RWCU Flow to Feedwater System Isolation Check Valve	B-05	3	C	Act	4	CK	SA	O/C	C	n/a	CD	RO	n/a	

Table 5-1 Valve Listing

Drawing : G-191237 Sh 2

Drawing Title: HVAC - Turbine, Service & Control Room Building

Valve Number	Nomenclature	Dwg Coor	Safety	OM Cat	Act / Pass	Size (inch)	Body	Act	Norm Pos	Safety Pos	Fail Pos	Test Type	Test Freq	CSJ/ROJ RR	Remarks
SACC-1A-CHECK	Cont Room HVAC Chiller Refrigerant Piping Check Valve	I-03	3	C	Act	1.375	CK	SA	O/C	O	n/a	SKID	Q	n/a	
SACC-1B-CHECK	Cont Room HVAC Chiller Refrigerant Piping Check Valve	I-04	3	C	Act	1.375	CK	SA	O/C	O	n/a	SKID	Q	n/a	
SCW-46A	SAC-1 Temperature Control Valve Heating and Vent Room	B-6	3	B	Act	2	3-WAY	AO	O	O	FO	FST STO	Q Q	n/a n/a	
SCW-65A	HVAC Expansion Tank Isolation Valve	D-04	3	B	Act	.75	GL	MAN	C	C	n/a	SC	Q	n/a	
SCW-8A	Control Room HVAC Chilled Water Pump Disch Check Valve	E-05	3	C	Act	3	CK	SA	O	O	n/a	SO	Q	n/a	
SR-SACC-1A-1	Cont Room HVAC Chiller Refrigerant Piping Relief Valve	H-03	3	C	Act	.75	RV	SA	C	O/C	n/a	SP	10Y	n/a	
SR-SACC-1A-2	Cont Room HVAC Chiller Refrigerant Piping Relief Valve	H-03	3	C	Act	.75	RV	SA	C	O/C	n/a	SP	10Y	n/a	
SR-SACC-1B-1	Cont Room HVAC Chiller Refrigerant Piping Relief Valve	H-04	3	C	Act	1.25	RV	SA	C	O/C	n/a	SP	10Y	n/a	

Table 5-1 Valve Listing

Drawing : G-191238

Drawing Title: HVAC - Reactor Building

Valve Number	Nomenclature	Dwg Coor	Safety	OM Cat	Act / Pass	Size (inch)	Body	Act	Norm Pos	Safety Pos	Fail Pos	Test Type	Test Freq	CSJ/ROJ SR	Remarks
SB-1-125-1A	Standby Gas Treatment Train Inlet Valve	G-08	2	B	Act	12	BTF	AO	C	O	FO	FST	Q	n/a	
												PIT	2Y	n/a	
												STO	Q	n/a	
SB-1-125-1B	Standby Gas Treatment Train Inlet Valve	G-07	2	B	Act	12	BTF	AO	C	O	FO	FST	Q	n/a	
												PIT	2Y	n/a	
												STO	Q	n/a	
SB-1-125-2A	Standby Gas Treatment Train Inlet Valve	H-06	2	B	Act	12	BTF	AO	O	O/C	FO	FST	Q	n/a	
												PIT	2Y	n/a	
												STC	Q	n/a	
												STO	Q	n/a	
SB-1-125-2B	Standby Gas Treatment Train Inlet Valve	H-06	2	B	Act	12	BTF	AO	C	O/C	FO	FST	Q	n/a	
												PIT	2Y	n/a	
												STC	Q	n/a	
												STO	Q	n/a	
SB-1-125-3A	Standby Gas Treatment Train Discharge Valve	G-06	2	B	Act	12	BTF	AO	O	O	FO	FST	Q	n/a	
												PIT	2Y	n/a	
												STO	Q	n/a	
SB-1-125-3B	Standby Gas Treatment Train Discharge Valve	G-06	2	B	Act	12	BTF	AO	C	O	FO	FST	Q	n/a	
												PIT	2Y	n/a	
												STO	Q	n/a	
SB-1-125-4A	Standby Gas Treatment Train Dilution Valve	H-07	2	B	Act	12	BTF	AO	C	O/C	FC	FST	Q	n/a	
												PIT	2Y	n/a	
												STC	Q	n/a	
												STO	Q	n/a	
SB-1-125-4B	Standby Gas Treatment Train Dilution Valve	H-06	2	B	Act	12	BTF	AO	C	O/C	FC	FST	Q	n/a	
												PIT	2Y	n/a	
												STC	Q	n/a	
												STO	Q	n/a	

Table 5-1 Valve Listing

Drawing : G-191238

Drawing Title: HVAC - Reactor Building

Valve Number	Nomenclature	Dwg Coor	Safety	OM Cat	Act / Pass	Size (inch)	Body	Act	Norm Pos	Safety Pos	Fail Pos	Test Type	Test Freq	CSJ/ROJ RR	Remarks
SB-1-125-5	Standby Gas Treatment Train Xconn Valve	G-06	2	B	Act	4	BTF	AO	C	O/C	FC	FST PIT STC STO	Q 2Y Q Q	n/a n/a n/a n/a	
SB-10	RX Building Supply Isolation Valve	H-08	2	B	Act	54	BTF	AO	O	C	FC	FST PIT STC	Q 2Y Q	n/a n/a n/a	
SB-11	Rx Bldg Exhaust to Stack Sec Cond Isolation Valve	G-08	2	B	Act	54	BTF	AO	O	C	FC	FST PIT STC	Q 2Y Q	n/a n/a n/a	
SB-12	Rx Bldg Exhaust to Stack Sec Cond Isolation Valve	G-09	2	B	Act	54	BTF	AO	O	C	FC	FST PIT STC	Q 2Y Q	n/a n/a n/a	
SB-16-19-6 *	PCAC to SBGT Containment Isolation Valve	F-06	*	*	*	*	*	*	*	*	*	*	*	*	* See G-191175 for valve info and test requirements
SB-9	RX Building Supply Isolation Valve	H-09	2	B	Act	54	BTF	AO	O	C	FC	FST PIT STC	Q 2Y Q	n/a n/a n/a	
SGT-7A	Standby Gas Treatment Train Discharge Check Valve	F-07	2	C	Act	12	CK	SA	C	O/C	n/a	SC SO	Q Q	n/a n/a	
SGT-7B	Standby Gas Treatment Train Discharge Check Valve	F-06	2	C	Act	12	CK	SA	C	O/C	n/a	SC SO	Q Q	n/a n/a	

Table 5-1 Valve Listing

Drawing : G-191267 Sh 1

Drawing Title: Nuclear Boiler Vessel Instrumentation

Valve Number	Nomenclature	Dwg Coor	Safety	OM Cat	Act / Pass	Size (inch)	Body	Act	Norm Pos	Safety Pos	Fail Pos	Test Type	Test Freq	CSJ/ROJ RR	Remarks
SL-2-3-11	Nuclear Boiler Vessel Inst Excess Flow Check Valve	C-06	2	A/C	Act	1	EFC	SA	O	O/C	n/a	LEF	RO	ROJ-V01	
SL-2-3-13A	Nuclear Boiler Vessel Inst Excess Flow Check Valve	D-06	2	A/C	Act	1	EFC	SA	O	O/C	n/a	LEF	RO	ROJ-V01	
SL-2-3-13B	Nuclear Boiler Vessel Inst Excess Flow Check Valve	C-12	2	A/C	Act	1	EFC	SA	O	O/C	n/a	LEF	RO	ROJ-V01	
SL-2-3-15A	Nuclear Boiler Vessel Inst Excess Flow Check Valve	D-06	2	A/C	Act	1	EFC	SA	O	O/C	n/a	LEF	RO	ROJ-V01	
SL-2-3-15B	Nuclear Boiler Vessel Inst Excess Flow Check Valve	D-12	2	A/C	Act	1	EFC	SA	O	O/C	n/a	LEF	RO	ROJ-V01	
SL-2-3-17A	Nuclear Boiler Vessel Inst Excess Flow Check Valve	E-06	2	A/C	Act	1	EFC	SA	O	O/C	n/a	LEF	RO	ROJ-V01	
SL-2-3-17B	Nuclear Boiler Vessel Inst Excess Flow Check Valve	E-12	2	A/C	Act	1	EFC	SA	O	O/C	n/a	LEF	RO	ROJ-V01	
SL-2-3-19A	Nuclear Boiler Vessel Inst Excess Flow Check Valve	F-06	2	A/C	Act	1	EFC	SA	O	O/C	n/a	LEF	RO	ROJ-V01	
SL-2-3-19B	Nuclear Boiler Vessel Inst Excess Flow Check Valve	F-12	2	A/C	Act	1	EFC	SA	O	O/C	n/a	LEF	RO	ROJ-V01	
SL-2-3-21A	Nuclear Boiler Vessel Inst Excess Flow Check Valve	H-06	1	A/C	Act	1	EFC	SA	O	O/C	n/a	LEF	RO	ROJ-V01	
SL-2-3-21B *	Nuclear Boiler Vessel Inst Excess Flow Check Valve	H-06	*	*	*	*	*	*	*	*	*				* See G-191165 for valve info and test requirements
SL-2-3-21C	Nuclear Boiler Vessel Inst Excess Flow Check Valve	H-12	1	A/C	Act	1	EFC	SA	O	O/C	n/a	LEF	RO	ROJ-V01	
SL-2-3-21D *	Nuclear Boiler Vessel Inst Excess Flow Check Valve	H-12	*	*	*	*	*	*	*	*	*				* See G-191165 for valve info and test requirements
SL-2-3-23A	Nuclear Boiler Vessel Inst Excess Flow Check Valve	G-06	1	A/C	Act	1	EFC	SA	O	O/C	n/a	LEF	RO	ROJ-V01	
SL-2-3-23B	Nuclear Boiler Vessel Inst Excess Flow Check Valve	G-06	1	A/C	Act	1	EFC	SA	O	O/C	n/a	LEF	RO	ROJ-V01	

Table 5-1 Valve Listing

Drawing : G-191267 Sh 1

Drawing title: Nuclear Boiler Vessel Instrumentation

Valve Number	Nomenclature	Dwg Coor	Safety	OM Cat	Act / Pass	Size (inch)	Body	Act	Norm Pos	Safety Pos	Fail Pos	Test Type	Test Freq	CSJ/ROJ RR	Remarks
SL-2-3-23C	Nuclear Boiler Vessel Inst Excess Flow Check Valve	G-12	1	A/C	Act	1	EFC	SA	O	O/C	n/a	LEF	RO	ROJ-V01	
SL-2-3-23D	Nuclear Boiler Vessel Inst Excess Flow Check Valve	G-12	1	A/C	Act	1	EFC	SA	O	O/C	n/a	LEF	RO	ROJ-V01	
SL-2-3-25	Nuclear Boiler Vessel Inst Excess Flow Check Valve	I-06	2	A/C	Act	1	EFC	SA	O	O/C	n/a	LEF	RO	ROJ-V01	
SL-2-3-27	Nuclear Boiler Vessel Inst Excess Flow Check Valve	I-06	2	A/C	Act	1	EFC	SA	O	O/C	n/a	LEF	RO	ROJ-V01	
SL-2-3-31A	Nuclear Boiler Vessel Inst Excess Flow Check Valve	F-06	1	A/C	Act	1	EFC	SA	O	O/C	n/a	LEF	RO	ROJ-V01	
SL-2-3-31B	Nuclear Boiler Vessel Inst Excess Flow Check Valve	F-06	1	A/C	Act	1	EFC	SA	O	O/C	n/a	LEF	RO	ROJ-V01	
SL-2-3-31C	Nuclear Boiler Vessel Inst Excess Flow Check Valve	F-06	1	A/C	Act	1	EFC	SA	O	O/C	n/a	LEF	RO	ROJ-V01	
SL-2-3-31D	Nuclear Boiler Vessel Inst Excess Flow Check Valve	F-06	1	A/C	Act	1	EFC	SA	O	O/C	n/a	LEF	RO	ROJ-V01	
SL-2-3-31E	Nuclear Boiler Vessel Inst Excess Flow Check Valve	F-06	1	A/C	Act	1	EFC	SA	O	O/C	n/a	LEF	RO	ROJ-V01	
SL-2-3-31F	Nuclear Boiler Vessel Inst Excess Flow Check Valve	F-06	1	A/C	Act	1	EFC	SA	O	O/C	n/a	LEF	RO	ROJ-V01	
SL-2-3-31G	Nuclear Boiler Vessel Inst Excess Flow Check Valve	F-06	1	A/C	Act	1	EFC	SA	O	O/C	n/a	LEF	RO	ROJ-V01	
SL-2-3-31H	Nuclear Boiler Vessel Inst Excess Flow Check Valve	F-06	1	A/C	Act	1	EFC	SA	O	O/C	n/a	LEF	RO	ROJ-V01	
SL-2-3-31I	Nuclear Boiler Vessel Inst Excess Flow Check Valve	F-12	1	A/C	Act	1	EFC	SA	O	O/C	n/a	LEF	RO	ROJ-V01	
SL-2-3-31J	Nuclear Boiler Vessel Inst Excess Flow Check Valve	F-12	1	A/C	Act	1	EFC	SA	O	O/C	n/a	LEF	RO	ROJ-V01	
SL-2-3-31K	Nuclear Boiler Vessel Inst Excess Flow Check Valve	F-12	1	A/C	Act	1	EFC	SA	O	O/C	n/a	LEF	RO	ROJ-V01	

Table 5-1 Valve Listing

Drawing : G-191267 Sh 1

Drawing Title: Nuclear Boiler Vessel Instrumentation

Valve Number	Nomenclature	Dwg Coor	Safet y	OM Cat	Act / Pass	Size (inch)	Body	Act	Norm Pos	Safety Pos	Fail Pos	Test Type	Test Freq	CSJ/ROJ RR	Remarks
SL-2-3-31L	Nuclear Boiler Vessel Inst Excess Flow Check Valve	F-12	1	A/C	Act	1	EFC	SA	O	O/C	n/a	LEF	RO	ROJ-V01	
SL-2-3-31M	Nuclear Boiler Vessel Inst Excess Flow Check Valve	F-12	1	A/C	Act	1	EFC	SA	O	O/C	n/a	LEF	RO	ROJ-V01	
SL-2-3-31N	Nuclear Boiler Vessel Inst Excess Flow Check Valve	F-12	1	A/C	Act	1	EFC	SA	O	O/C	n/a	LEF	RO	ROJ-V01	
SL-2-3-31P	Nuclear Boiler Vessel Inst Excess Flow Check Valve	F-12	1	A/C	Act	1	EFC	SA	O	O/C	n/a	LEF	RO	ROJ-V01	
SL-2-3-31Q	Nuclear Boiler Vessel Inst Excess Flow Check Valve	F-12	1	A/C	Act	1	EFC	SA	O	O/C	n/a	LEF	RO	ROJ-V01	
SL-2-3-33	Nuclear Boiler Vessel Inst Excess Flow Check Valve	I-12	2	A/C	Act	1	EFC	SA	O	O/C	n/a	LEF	RO	ROJ-V01	
SL-2-3-35	Nuclear Boiler Vessel Inst Excess Flow Check Valve	J-06	2	A/C	Act	1	EFC	SA	O	C	n/a	LEF	RO	ROJ-V01	
V2-3-28A	NBVI Globe Valve	F-06	2	B	Pass	1.00	GL	MAN	C	C	n/a	n/a	n/a	n/a	
V2-3-28B	NBVI Globe Valve	F-11	2	B	Pass	1.00	GL	MAN	C	C	n/a	n/a	n/a	n/a	

Table 5-1 Valve Listing

Drawing : G-191267 Sh 2

Drawing Title: Nuclear Boiler Vessel Instrumentation

Valve Number	Nomenclature	Dwg Coor	Safety	OM Cat	Act / Pass	Size (inch)	Body	Act	Norm Pos	Safety Pos	Fail Pos	Test Type	Test Freq	CSJ/ROJ RR	Remarks
V2-3-430A	Reference Leg Back Fill Inlet Check Valve	C-09	2	A/C	Act	.375	CK	SA	C	C	n/a	LJ SC	2Y RO	n/a ROJ-V15	
V2-3-430B	Reference Leg Back Fill Inlet Check Valve	E-09	2	A/C	Act	.375	CK	SA	C	C	n/a	LJ SC	2Y RO	n/a ROJ-V15	
V2-3-432A	Reference Leg Back Fill Check Valve	C-10	2	A/C	Act	.375	CK	SA	C	C	n/a	LJ SC	2Y RO	n/a ROJ-V15	
V2-3-432B	Reference Leg Back Fill Check Valve	E-10	2	A/C	Act	.375	CK	SA	C	C	n/a	LJ SC	2Y RO	n/a ROJ-V15	
V2-3-433A	Reference Leg Back Fill Inlet Check Valve	F-09	2	A/C	Act	.375	CK	SA	C	C	n/a	LJ SC	2Y RO	n/a ROJ-V15	
V2-3-433B	Reference Leg Back Fill Inlet Check Valve	H-09	2	A/C	Act	.375	CK	SA	C	C	n/a	LJ SC	2Y RO	n/a ROJ-V15	
V2-3-435A	Reference leg Back Fill Inlet Check Valve	F-10	2	A/C	Act	.375	CK	SA	C	C	n/a	LJ SC	2Y RO	n/a ROJ-V15	
V2-3-435B	Reference Leg Back Fill Inlet Check Valve	H-10	2	A/C	Act	.375	CK	SA	C	C	n/a	LJ SC	2Y RO	n/a ROJ-V15	
V2-3-444A	Penetration X-28A Test Connection	C-10	2	B	Pass	.375	GL	MAN	C	C	n/a	n/a	n/a	n/a	
V2-3-444B	Penetration X-28D Test Connection	E-10	2	B	Pass	.375	GL	MAN	C	C	n/a	n/a	n/a	n/a	
V2-3-447A	Penetration X-29A Test Connection	F-10	2	B	Pass	.375	GL	MAN	C	C	n/a	n/a	n/a	n/a	
V2-3-447B	Penetration X-29D Test Connection	H-10	2	B	Pass	.375	GL	MAN	C	C	n/a	n/a	n/a	n/a	
V2-3-448A	Penetration X-28A Test Connection	C-10	2	B	Pass	.375	GL	MAN	C	C	n/a	n/a	n/a	n/a	
V2-3-448B	Penetration X-28D Test Connection	E-10	2	B	Pass	.375	GL	MAN	C	C	n/a	n/a	n/a	n/a	

Table 5-1 Valve Listing

Drawing : G-191267 Sh 2

Drawing Title: Nuclear Boiler Vessel Instrumentation

Valve Number	Nomenclature	Dwg Coor	Safet y	OM Cat	Act / Pass	Size (inch)	Body	Act	Norm Pos	Safety Pos	Fail Pos	Test Type	Test Freq	CSJ/ROJ RR	Remarks
V2-3-451A	Penetration X-29A Test Connection	F-10	2	B	Pass	.375	GL	MAN	C	C	n/a	n/a	n/a	n/a	
V2-3-451B	Penetration X-29D Test Connection	H-10	2	B	Pass	.375	GL	MAN	C	C	n/a	n/a	n/a	n/a	

Table 5-1 Valve Listing

Drawing : VY-E-75-002

Drawing Title: Containment Atmosphere Dilution System

Valve Number	Nomenclature	Dwg Coor	Safet y	OM Cat	Act / Pass	Size (inch)	Body	Act	Norm Pos	Safety Pos	Fail Pos	Test Type	Test Freq	CSJ/ROJ RR	Remarks
FSO-109-75A-1	CAD Sample Torus Inboard Isolation Valve	J-13	2	B	Act	1	GA	SO	C	O/C	FC	FST PIT STC STO	Q 2Y Q Q	n/a n/a n/a n/a	Note 5. Valve also appears on G-191165
FSO-109-75A-2	CAD Sample Torus Outboard Isolation Valve	J-14	2	B	Act	1	GA	SO	C	O/C	FC	FST PIT STC STO	Q 2Y Q Q	n/a n/a n/a n/a	Note 5. Valve also appears on G-191165
FSO-109-75A-3	CAD Supply Torus Inboard Isolation Valve	J-14	2	B	Act	1	GL	SO	C	O/C	FC	FST PIT STC STO	Q 2Y Q Q	n/a n/a n/a n/a	Note 5. Valve also appears on G-191165
FSO-109-75A-4	CAD Supply Torus Outboard Isolation Valve	J-14	2	B	Act	1	GL	SO	C	O/C	FC	FST PIT STC STO	Q 2Y Q Q	n/a n/a n/a n/a	Note 5. Valve also appears on G-191165
FSO-109-75B-1	CAD Sample Lower Drywell Inboard Isolation Valve	I-12	2	B	Act	1	GA	SO	O	O/C	FC	FST PIT STC STO	Q 2Y Q Q	n/a n/a n/a n/a	Note 5. Valve also appears on G-191165
FSO-109-75B-2	CAD Sample Lower Drywell Outboard Isolation Valve	I-12	2	B	Act	1	GA	SO	O	O/C	FC	FST PIT STC STO	Q 2Y Q Q	n/a n/a n/a n/a	Note 5. Valve also appears on G-191165
FSO-109-75C-1	CAD Sample Mid Drywell Inboard Isolation Valve	G-12	2	B	Act	1	GA	SO	O	O/C	FC	FST PIT STC STO	Q 2Y Q Q	n/a n/a n/a n/a	Note 5. Valve also appears on G-191165

Table 5-1 Valve Listing

Drawing : VY-E-75-002

Drawing Title: Containment Atmosphere Dilution System

Valve Number	Nomenclature	Dwg Coor	Safety	OM Cat	Act / Pass	Size (inch)	Body	Act	Norm Pos	Safety Pos	Fail Pos	Test Type	Test Freq	CSJ/ROJ RR	Remarks
FSO-109-75C-2	CAD Sample Mid Drywell Outboard Isolation Valve	G-12	2	B	Act	1	GA	SO	O	O/C	FC	FST PIT STC STO	Q 2Y Q Q	n/a n/a n/a n/a	Note 5. Valve also appears on G-191165
FSO-109-75D-1	CAD Sample Upper Drywell Inboard Isolation Valve	G-12	2	B	Act	1	GA	SO	O	O/C	FC	FST PIT STC STO	Q 2Y Q Q	n/a n/a n/a n/a	Note 5. Valve also appears on G-191165
FSO-109-75D-2	CAD Sample Upper Drywell Outboard Isolation Valve	G-12	2	B	Act	1	GA	SO	O	O/C	FC	FST PIT STC STO	Q 2Y Q Q	n/a n/a n/a n/a	Note 5. Valve also appears on G-191165
FSO-109-76A	CAD CAM Return Containment Isolation Valve	L-13	2	A	Act	1	GA	SO	O	O/C	FC	FST LJ PIT STC STO	Q 2Y 2Y Q Q	n/a n/a n/a n/a n/a	Valve also appears on G- 191165
FSO-109-76B	CAD CAM Return Containment Isolation Valve	L-13	2	A	Act	1	GA	SO	O	O/C	FC	FST LJ PIT STC STO	Q 2Y 2Y Q Q	n/a n/a n/a n/a n/a	Valve also appears on G- 191165
NG-11A	CAD N2 Supply Containment Isolation Valve	H-09	2	A	Act	1	GL	SO	C	O/C	FC	FST LJ PIT STC STO	Q 2Y 2Y Q Q	n/a n/a n/a n/a n/a	

Table 5-1 Valve Listing

Drawing: VY-E-75-002

Drawing Title: Containment Atmosphere Dilution System

Valve Number	Nomenclature	Dwg Coor	Safet y	OM Cat	Act / Pass	Size (inch)	Body	Act	Norm Pos	Safety Pos	Fail Pos	Test Type	Test Freq	CSJ/ROJ RR	Remarks
NG-11B	CAD N2 Supply Containment Isolation Valve	H-08	2	A	Act	1	GL	SO	C	O/C	FC	FST	Q	n/a	
												LJ	2Y	n/a	
												PIT	2Y	n/a	
												STC	Q	n/a	
												STO	Q	n/a	
NG-12A	CAD N2 Supply Containment Isolation Valve	J-09	2	A	Act	1	GL	SO	C	O/C	FC	FST	Q	n/a	
												LJ	2Y	n/a	
												PIT	2Y	n/a	
												STC	Q	n/a	
												STO	Q	n/a	
NG-12B	CAD N2 Supply Containment Isolation Valve	J-08	2	A	Act	1	GL	SO	C	O/C	FC	FST	Q	n/a	
												LJ	2Y	n/a	
												PIT	2Y	n/a	
												STC	Q	n/a	
												STO	Q	n/a	
NG-13A	CAD N2 Supply Containment Isolation Valve	I-09	2	A	Act	1	GL	SO	C	O/C	FC	FST	Q	n/a	
												LJ	2Y	n/a	
												PIT	2Y	n/a	
												STC	Q	n/a	
												STO	Q	n/a	
NG-13B	CAD N2 Supply Containment Isolation Valve	H-09	2	A	Act	1	GL	SO	C	O/C	FC	FST	Q	n/a	
												LJ	2Y	n/a	
												PIT	2Y	n/a	
												STC	Q	n/a	
												STO	Q	n/a	
NG-19	Manual Valve	H-10	2	B	Pass	1	GL	MAN	LC	C	n/a	n/a	n/a	n/a	
NG-20	Manual Valve	J-08	2	B	Pass	1	GL	MAN	LC	C	n/a	n/a	n/a	n/a	
PSV-NG-34A	Pressure Relief Valve	B-03	2	C	Act	.5	RV	SA	C	O/C	n/a	SP	10Y	n/a	
PSV-NG-34B	Pressure Relief Valve	G-03	2	C	Act	.5	RV	SA	C	O/C	n/a	SP	10Y	n/a	

Table 5-1 Valve Listing

Drawing : VY-E-75-002

Drawing Title: Containment Atmosphere Dilution System

Valve Number	Nomenclature	Dwg Coor	Safety	OM Cat	Act / Pass	Size (inch)	Body	Act	Norm Pos	Safety Pos	Fail Pos	Test Type	Test Freq	CSJ/ROJ RR	Remarks
SS-78A	Isolation Valve	L-14	2	B	Pass	.75	GL	MAN	LC	C	n/a	n/a	n/a	n/a	
VG-12A	VG-8A Test Connection	H-12	2	B	Pass	1	GL	MAN	LC	C	n/a	n/a	n/a	n/a	
VG-12B	VG-8B Test Connection	I-14	2	B	Pass	1	GL	MAN	C	C	n/a	n/a	n/a	n/a	
VG-13	Torus Root Isolation Supply to H2/O2 Monitor	J-13	2	B	Pass	1	GL	MAN	LC	C	n/a	n/a	n/a	n/a	
VG-17A	Test Connection	C-14	2	B	Pass	1	GL	MAN	LC	C	n/a	n/a	n/a	n/a	
VG-17B	Torus CAD Vent Line Test Connection	F-14	2	B	Pass	1	GL	MAN	C	C	n/a	n/a	n/a	n/a	
VG-19	Torus/Cam/H2/O2 Analyzer Test Connection	J-14	2	B	Pass	1	GL	MAN	LC	C	n/a	n/a	n/a	n/a	
VG-21	CAM sample Line From Drywell/Torus Atmos	G-18	2	B	Pass	1	GL	MAN	C	C	n/a	n/a	n/a	n/a	
VG-22A	CAD To SGBT System Containment Isolation Valve	B-16	2	A	Act	1	GL	MO-AC	C	O/C	FAI	LJ PIT STC STO	2Y 2Y Q Q	n/a n/a n/a n/a	
VG-22B	CAD To SGBT System Containment Isolation Valve	E-16	2	A	Act	1	GL	MO-AC	C	O/C	FAI	LJ PIT STC STO	2Y 2Y Q Q	n/a n/a n/a n/a	
VG-23	CAD Rad Monitor Supply Containment Isolation Valve	J-19	2	A	Act	1	GL	SO	O	O/C	FC	FST LJ PIT STC STO	Q 2Y 2Y Q Q	n/a n/a n/a n/a n/a	Valve also appears on G-191165
VG-24	CAD H2O2 Analyzer Return Isolation Valve	L-11	2	B	Act	1	GL	SO	O	O/C	FC	FST PIT STC STO	Q 2Y Q Q	n/a n/a n/a n/a	Note 5

Table 5-1 Valve Listing

Drawing : VY-E-75-002

Drawing Title: Containment Atmosphere Dilution System

Valve Number	Nomenclature	Dwg Coor	Safety	OM Cat	Act / Pass	Size (inch)	Body	Act	Norm Pos	Safety Pos	Fail Pos	Test Type	Test Freq	CSJ/ROJ RR	Remarks
VG-25	CAD H2O2 Analyzer Return Isolation Valve	L-11	2	B	Act	1	GL	SO	O	O/C	FC	FST	Q	n/a	Note 5
												PIT	2Y	n/a	
												STC	Q	n/a	
												STO	Q	n/a	
VG-26	CAD Rad Monitor Supply Containment Isolation Valve	J-19	2	A	Act	1	GL	SO	O	O/C	FC	FST	Q	n/a	Valve also appears on G- 191165
												LJ	2Y	n/a	
												PIT	2Y	n/a	
												STC	Q	n/a	
VG-32	Check Valve	M-15	2	C	Pass	.75	CK	SA	C	C	n/a	n/a	n/a	n/a	
VG-33	CAD H2O2 Analyzer Return Isolation Valve	L-11	2	B	Act	1	GL	SO	O	O/C	FC	FST	Q	n/a	Note 5
												PIT	2Y	n/a	
												STC	Q	n/a	
												STO	Q	n/a	
VG-34	CAD H2O2 Analyzer Return Isolation Valve	L-11	2	B	Act	1	GL	SO	O	O/C	FC	FST	Q	n/a	Note 5
												PIT	2Y	n/a	
												STC	Q	n/a	
												STO	Q	n/a	
VG-35	VG-18 Test Connection	K-12	2	B	Pass	1	GL	MAN	LC	C	n/a	n/a	n/a	n/a	
VG-37	Sample Station Inlet Isolation	K-17	2	B	Pass	.375	GL	MAN	C	C	n/a	n/a	n/a	n/a	
VG-38	Sample Station Outlet Isolation	L-17	2	B	Pass	.375	GL	MAN	C	C	n/a	n/a	n/a	n/a	
VG-39	Outlet Isolation	L-18	2	B	Pass	.375	GL	MAN	C	C	n/a	n/a	n/a	n/a	
VG-41	H2/O2 Monitor Return to RB Ventilation System	L-16	2	B	Pass	1	GL	MAN	LC	C	n/a	n/a	n/a	n/a	
VG-42	H2/O2 Monitor Return to RB Ventilation System	K-16	NNS	B	Pass	1	GL	MAN	LC	C	n/a	n/a	n/a	n/a	
VG-78	Test Connection	G-17	2	B	Pass	.75	GL	MAN	LC	C	n/a	n/a	n/a	n/a	

Table 5-1 Valve Listing

Drawing : VY-E-75-002

Drawing Title: Containment Atmosphere Dilution System

Valve Number	Nomenclature	Dwg Coor	Safety	OM Cat	Act / Pass	Size (inch)	Body	Act	Norm Pos	Safety Pos	Fail Pos	Test Type	Test Freq	CSJ/ROJ RR	Remarks
VG-79	H2/O2 Mon. Return Line to Torus/RB Vent. Sys. Test Conn	H-15	2	B	Pass	.75	GL	MAN	LC	C	n/a	n/a	n/a	n/a	
VG-80		K-17	2	B	Pass	.75	GL	MAN	LC	C	n/a	n/a	n/a	n/a	
VG-9A	CAD To SBTG System Containment Isolation Valve	H-12	2	A	Act	1	GL	SO	C	O/C	FC	FST LJ PIT STC STO	Q 2Y 2Y Q Q	n/a n/a n/a n/a n/a	
VG-9B	CAD To SBTG System Containment Isolation Valve	I-14	2	A	Act	1	GL	SG	C	O/C	FC	FST LJ PIT STC STO	Q 2Y 2Y Q Q	n/a n/a n/a n/a n/a	

5.3 Valve Notes

1. Full stroke exercising and timing tests of the MSIVs are accomplished quarterly when reactor power is decreased to less than 75 percent. At least twice a week, the MSIVs are also exercised by partial closure and subsequent reopening.
2. The RCIC and HPCI turbine exhaust check valves, V23-65 and V13-50, will also be disassembled and inspected at least once every 10 years. (LER 87-18 and NRC Inspection Report 50-271/87-21) This additional testing is not required by 10 CFR 50.55a.
3. Testing of CRD Cooling Water Supply Check valve, V3-138, is not required when the corresponding control rod has been declared inoperable and its directional control valves disarmed in accordance with the provisions of Technical Specifications 3.3.A.2.
4. At least once during each operating cycle, the Standby Liquid Control system shall be verified operable by: a) Initiating one of the SLC loops, excluding the primer chamber and inlet fitting, and verifying a flow path from the pump to the reactor vessel. Both loops shall be tested over the course of two operating cycles. (T.S. 4.4.A.2) b) Testing of both trigger assemblies removed from the system (each refueling outage) by installing in the test block to verify operability. c) Testing of the replacement trigger assemblies by installing one of the assemblies in the test block and firing it using the installed circuitry. Replacement triggers shall be from the same batch as the test assembly. The unfired replacement triggers, taken from the same batch shall be installed into the explosive valves. (T.S. 4.4.A.3 and 4.6.E)
5. Only one valve in each CAD sample line or H₂O₂ analyzer line is required to be operable in accordance with Technical Specifications Table 4.7.2.b.
6. Positive verification of full opening of the Transversing In-Core(TIP) Ball Valves, BV-7-1 through 3 is shown by successful insertion of the TIP Probe through the valve. Positive verification of full closing of the valve is shown during each Refueling Outage by successful leak testing (LJ). This testing is in compliance with Paragraph 4.1 of Part 10 of the Code which states "Where local observation is not possible, other indications shall be used for verification." Local observation of valve position would require disassembly of the valve enclosures as the limit switches are contained within the enclosures.
7. The Nuclear Boiler Safety/Relief Valves, SV-2-70A & B and RV-2-71A through D will be tested in accordance with the requirements of OM-1 only.
8. These valves form the Alternate Cooling System boundary alignment and are otherwise included in the IST Program per based on a commitment to NRC. Reference: OP-2181; NRC Inspection Report 94-03, dated 3/4/94.

5.3 Valve Notes (Con't)

9. The Cooling Tower SW Distribution Tray valves, V70-17A through V70-17D shall be cycled once each refueling as part of augmented testing to the 1994 Service Water System Self Assessment Report. These valves are not required to be exercised in accordance with the requirements of 10 CFR 50.55a.
10. The Service Water Pump Discharge Check Valves, V70-1A through 1D, are part-stroke exercised open on a quarterly basis during plant operation during the regularly scheduled quarterly service water pumps tests. These valves are full stroke exercised open during refueling outages.
11. The RHR and Core Spray Keep-Fill Check Valves (V14-33A, V14-33B, V10-36A and V10-36B) are verified closed on a quarterly basis utilizing a non-intrusive technique.

The Core Spray Discharge Flushing Line Check Valves (V14-22A, V14-22B, V14-23A and V14-23B) are verified closed on a quarterly basis utilizing a non-intrusive technique.

The HPCI and RCIC Keep-Fill Check Valves (V23-20B and V13-20B) are verified closed on a quarterly basis utilizing a non-intrusive technique.

The HPCI and RCIC Pump Suction Valves (V23-32 and V13-19) are verified closed on a quarterly basis utilizing a non-intrusive technique.

12. These valves are skid-mounted. NUREG 1482, Section 3.4 states that the testing of the major component is an acceptable means for verifying the operational readiness of the skid-mounted component and component subassemblies if the licensee documents this approach in the IST program. The scope of skid-mounted components additionally includes components that are not mounted on the skid, but which function much the same as skid mounted components.
13. These valves are post-accident sampling (PASS) valves. NUREG 1482, Section 4.4.2 states that PASS valves that perform a containment isolation function are required to be included in the IST Program.
14. These valves are Category B passive valves. NUREG 1482, Section 4.2.6 states that the code does not restrict the verification of remote position indication to only active valves. OM-10, Table 1, indicates that the licensee must also verify the position for Category B passive valves.

5.3 Valve Notes (Con't)

15. The performance of pressure sensing instrumentation testing for PCAC Vacuum Relief from Secondary Containment Iso Valves, SB-16-19-11A and 11B, is performed (OP 4376) as required by OM-1 subsection 3.3.2.3 and Technical Specification 4.7.A.5.a.
16. The Control Rod Drive Scram Inlet and Outlet Valves, CV-3-126 and CV-3-127, will be tested in accordance with the requirements of Tech. Spec Surveillance 4.3.C.1 after refueling outages and prior to operation above 30% power.
17. The CRD Manual Control Insertion, Withdrawal and Exhaust Valves, SO-3-120, 121, 122 and 123 are verified operable in accordance with the weekly rod testing performed in accordance Tech. Spec. Surveillance 4.3.A.2 during power operations. The closure operation of these valves and the control rod drives are verified after refueling outages and prior to operation above 30% power per Tech. Spec. Surveillance 4.3.C.1.
18. The Scram Exhaust To Discharge Volume Check Valves, V3-114, will be tested in accordance with the requirements of Tech. Spec Surveillance 4.3.C.1 after refueling outages and prior to operation above 30% power.
19. The CRD Charging Water to Accumulator Check Valves, V3-115, closure verification will be performed by the accumulator pressure decay test (OP 4111) during refueling outages.
20. The Rx Recirc Sample Line Flow Control/Isolation valves, FCV-2-39 and FCV-2-40, position indication testing is planned to commence after a design change to the valve position indication circuitry in 1998. (Commitment BMO9507R1_02)
21. These valves are PIV's, they are subject to leak testing commensurate with nominal operating reactor vessel pressure.

COLD SHUTDOWN JUSTIFICATION

Number: CSJ-V01, Revision 2 (Sheet 1 of 1)

SYSTEM: Reactor Building Closed Cooling WaterCOMPONENTS:

Valve Number	OM Cat.	Safety Class	Drawing Number	Dwg. Coord.
V70-117	A	2	G-191159 Sh 3	L-12

Valve V70-117 is the reactor building closed cooling water return containment isolation valve. This valve has a safety function in the closed position to provide primary containment isolation.

JUSTIFICATION:

This valve cannot be full-stroke exercised closed during normal (power) operation since shutting this valve would stop cooling water flow to vital primary containment equipment, including the primary containment air coolers and the reactor recirculation pumps.

This valve will be stroke timed closed during Cold Shutdowns in accordance with Paragraphs 4.2.1.2(c), (f), (g) and (h) of the code.

COLD SHUTDOWN JUSTIFICATION

Number: CSJ-V02, Revision 1 (Sheet 1 of 1)

THIS COLD SHUTDOWN JUSTIFICATION WAS DELETED IN REVISION 18 OF THE IST PROGRAM.

This CSJ number is being maintained for traceability to the Third Interval IST Program Submittal SER's.

COLD SHUTDOWN JUSTIFICATION

Number: CSJ-V03, Revision 1 (Sheet 1 of 1)

THIS COLD SHUTDOWN JUSTIFICATION WAS DELETED IN REVISION 15 OF THE IST PROGRAM.

This CSJ number is being maintained for traceability to the Third Interval IST Program Submittal SER's.

COLD SHUTDOWN JUSTIFICATION

Number: CSJ-V04, Revision 2 (Sheet 1 of 1)

SYSTEM: Nuclear BoilerCOMPONENTS:

Valve Number	OM Cat.	Safety Class	Drawing Number	Dwg. Coord.
V2-53A	B	1	G-191167	L-09
V2-53B	B	1	G-191167	L-09
V2-54A	B	1	G-191167	L-09
V2-54B	B	1	G-191167	L-09

These valves are the reactor recirculation pump discharge isolation and bypass valves. They have a safety function in the closed position to limit primary system coolant loss following a LOCA and to ensure low pressure coolant injection flow is properly directed to the reactor.

JUSTIFICATION:

These valves cannot be exercised closed during reactor power operation since cycling these valves would result in a reactor recirculation pump trip.

These valves will be stroke timed closed during Cold Shutdowns in accordance with Paragraphs 4.2.1.2(c), (f), (g) and (h) of Part 10 of the Code.

COLD SHUTDOWN JUSTIFICATION

Number: CSJ-V05, Revision 2 (Sheet 1 of 1)

SYSTEM: Core SprayCOMPONENTS:

Valve Number	OM Cat.	Safety Class	Drawing Number	Dwg. Coord.
V14-13A	A/C	1	G-191168	F-06
V14-13B	A/C	1	G-191168	D-06

These valves are the Core Spray injection check valves. They have a safety function in the open position to pass core spray injection flow to the reactor, and in the closed position for primary containment and pressure isolation.

JUSTIFICATION:

These valves cannot be exercised open during normal (power) operation since core spray pump discharge cannot overcome reactor pressure. Manual exercising is precluded during power operation since the valves are inside the inerted drywell.

These valves will be manually exercised open during Cold Shutdowns when the drywell is accessible in accordance with 4.3.2.2(c), (f), (g) and (h) of Par. 10 of the Code.

COLD SHUTDOWN JUSTIFICATION

Number: CSJ-V06, Revision 1 (Sheet 1 of 1)

SYSTEM: High Pressure Coolant InjectionCOMPONENTS:

Valve Number	OM Cat.	Safety Class	Drawing Number	Dwg. Coord.
V23-18	C	2	G-191169 Sh 1	G-05

This valve is the High Pressure Coolant Injection (HPCI) discharge to Feedwater Line "A" check valve. The valve has a safety function in the open position to pass HPCI flow to the reactor and in the closed position to prevent backflow feedwater into HPCI piping.

JUSTIFICATION:

This valve cannot be exercised open during normal (power) operation since flow through this valve must be injected into the reactor coolant system. This would thermally shock the reactor nozzles and cause a positive reactivity excursion. Manual operation of the valve is not possible since the valve is located in the steam tunnel which is inaccessible during power operations.

This valve will be manually exercised open and closed during Cold Shutdowns when the steam tunnel is accessible in accordance with 4.3.2.2(c), (f), (g) and (h) of Part 10 of the Code.

COLD SHUTDOWN JUSTIFICATION

Number: CSJ-V07, Revision 0 (Sheet 1 of 1)

THIS COLD SHUTDOWN JUSTIFICATION WAS DELETED IN REVISION 18 OF THE IST PROGRAM.

This CSJ number is being maintained for traceability to the Third Interval IST Program Submittal SER's.

COLD SHUTDOWN JUSTIFICATION

Number: CSJ-V08, Revision 2 (Sheet 1 of 1)

SYSTEM: Residual Heat RemovalCOMPONENTS:

Valve Number	OM Cat.	Safety Class	Drawing Number	Dwg. Coord.
V10-17	A	2	G-191172	G-08
V10-18	A	2	G-191172	F-08

These valves are the Residual Heat Removal (RHR) shutdown cooling supply isolation valves. They have a safety function in the closed position to provide primary containment and pressure isolation, and in the open position to provide RHR pump suction during shutdown cooling operation.

JUSTIFICATION:

These valves cannot be stroke timed open during reactor power operation since there is a 100 psig interlock that prevents opening these valves during power operation. This interlock is required to prevent overpressurization of the lower pressure rated RHR shutdown cooling subsystem.

These valves will be stroke timed open and stroke timed closed during Cold Shutdowns in accordance with Paragraphs 4.2.1.2(c), (f), (g) and (h) of Part 10 of the Code.

COLD SHUTDOWN JUSTIFICATION

Number: CSJ-V09, Revision 1 (Sheet 1 of 1)

THIS COLD SHUTDOWN JUSTIFICATION WAS DELETED IN REVISION 15 OF THE IST PROGRAM.

This CSJ number is being maintained for traceability to the Third Interval IST Program Submittal SER's.

COLD SHUTDOWN JUSTIFICATION

Number: CSJ-V10, Revision 2 (Sheet 1 of 1)

SYSTEM: Reactor Core Isolation CoolingCOMPONENTS:

Valve Number	OM Cat.	Safety Class	Drawing Number	Dwg. Coord.
V13-22	C	2	G-191174 Sh 1	G-09

This valve is the Reactor Core Isolation Cooling (RCIC) discharge to Feedwater Line "B" check valve. The valve has a safety function in the open position to pass RCIC flow to the reactor and in the closed position to prevent backflow into the RCIC system.

JUSTIFICATION:

This valve cannot be exercised open during normal (power) operation since flow through this valve must be injected into the reactor coolant system. This would thermally shock the reactor nozzles and cause a positive reactivity excursion.

This valve is located in the steam tunnel which is inaccessible during power operations. Additionally, there is no means to manually exercise this valve.

This valve will be exercised open and closed during Cold Shutdowns in accordance with Paragraphs 4.3.2.2(c), (f), (g) and (h) of Part 10 of the Code.

COLD SHUTDOWN JUSTIFICATION

Number: CSJ-V11, Revision 1 (Sheet 1 of 1)

THIS COLD SHUTDOWN JUSTIFICATION WAS DELETED IN REVISION 18 OF THE IST PROGRAM.

This CSJ number is being maintained for traceability to the Third Interval IST Program Submittal SER's.

COLD SHUTDOWN JUSTIFICATION

Number: CSJ-V12, Revision 1 (Sheet 1 of 1)

THIS COLD SHUTDOWN JUSTIFICATION DELETED IN REVISION 18 OF THE IST PROGRAM.

This CSJ number is being maintained for traceability to the Third Interval IST Program Submittal SER's.

COLD SHUTDOWN JUSTIFICATION

Number: CSJ-V13, Revision 1 (Sheet 1 of 1)

THIS COLD SHUTDOWN JUSTIFICATION DELETED IN REVISION 18 OF THE IST PROGRAM.

This CSJ number is being maintained for traceability to the Third Interval IST Program Submittal SER's.

COLD SHUTDOWN JUSTIFICATION

Number: CSJ-V14 Revision 1 (Sheet 1 of 1)

SYSTEM: Residual Heat RemovalCOMPONENTS:

Valve Number	OM Cat.	Safety Class	Drawing Number	Dwg. Coord.
V10-46A	A/C	1	G-191172	E-07
V10-46B	A/C	1	G-191172	E-10

These valves are the Low Pressure Coolant Injection (LPCI) injection check valves. They have a safety function in the open position to pass LPCI flow to the reactor, and in the closed position for primary containment and pressure isolation.

JUSTIFICATION:

These valves cannot be exercised open during normal (power) operation since the Residual Heat Removal (RHR) pump discharge cannot overcome reactor pressure. Manual exercising is not possible during plant operation because the valves are located inside the inerted drywell and are not accessible during plant operation.

These valves will be exercised open with flow during Cold Shutdown in accordance with Paragraphs 4.3.2.2(c), (f), (g) and (h) of Part 10 of the Code.

COLD SHUTDOWN JUSTIFICATION

Number: CSJ-V15 Revision 1 (Sheet 1 of 1)

SYSTEM: Residual Heat RemovalCOMPONENTS:

Valve Number	OM Cat.	Safety Class	Drawing Number	Dwg. Coord.
V10-48A	C	2	G-191172	L-05
V10-48B	C	2	G-191172	L-13
V10-48C	C	2	G-191172	J-05
V10-48D	C	2	G-191172	J-13

These valves are the RHR pump discharge check valves. These valves have a safety function to open to pass RHR pump discharge flow for all modes of RHR/LPCI system operation. These valves also have a safety function to close to prevent the backflow of water through an idle RHR pump.

Justification:

It is not practical to perform a full-stroke open exercise of these valves on a quarterly basis during plant operation. These valves are exercised during the performance of the quarterly RHR pump surveillance. During plant operation, the only practical flow path for these pumps is in the torus to torus flow path. The RHR pumps do not have sufficient head to flow to the recirculation loops with the reactor coolant system at normal operating pressure. Typical RHR pump flowrates in the torus to torus flow configuration are approximately 6,500 gpm for the RHR pump test. The required design accident condition flow rate to perform a full-stroke exercise is 7,300 gpm which can only be achieved when the RHR system is in the vessel to vessel flow configuration.

These valves will be part-stroke open exercised quarterly during plant operation and will be full-stroke open exercised during cold shutdowns in accordance with Paragraphs 4.3.2.2(b), (f), (g) and (h) of Part 10 of the Code.

COLD SHUTDOWN JUSTIFICATION

Number: CSJ-V16, Revision 0 (Sheet 1 of 2)

SYSTEM: Service WaterCOMPONENTS:

Valve Number	OM Cat.	Safety Class	Drawing Number	Dwg. Coord.
V70-11	B	3	G-191159 Sh 2	D-07
V70-17	B	3	G-191159 Sh 2	D-06
SB-70-1	B	NNS	G-191159 Sh 2	D-09
V70-18	B	3	G-191159 Sh 2	E-07

Valve V70-11 is the SW Discharge to Cooling Tower Basin Isolation Valve. The safety function of this valve is to open to provide water to the Cooling Tower Basin to prevent the development of ice in the basin.

Valve V70-17 is the Alternate Cooling to SW Supply Valve. The safety function of this valve is to open to provide flow to the Cooling Tower spray header to provide an alternate cooling path for the Service Water System.

Valve SB-70-1 is the SW Discharge to Main Condenser Discharge Block Valve. The safety function of this valve is to open to provide a flow path to the river. These valves have an active function to change position in order to provide a path for flow to the Cooling Tower when the Service Water System is required to be in the Alternate Cooling mode of operation.

Valve V70-18 is the Service Water Header Discharge Isolation Valve. The safety function of this valve is to close to maintain inventory of vital cooling water when the Service Water System is in the Alternate Cooling mode of operation.

JUSTIFICATION:

It is not practicable to full or part stroke exercise these valves quarterly during normal (power) operation for the following reasons.

The Service Water system is designed with two discharge flow paths - main condenser discharge block and cooling tower. The discharge flow path is selected based on environmental conditions. Service Water is discharged to the cooling tower deep basin when Connecticut River temperature is less than 45°F to keep the deep basin from freezing. The deep basin cannot be allowed to freeze, because it contains water inventory necessary for alternate cooling mode operation of Service Water system. Service Water is discharged to the condenser discharge block when Connecticut River temperature is greater than or equal to 45°F. This discharge path causes less back pressure in the discharge line and increases flow through the Emergency Diesel Generator Jacket Water Coolers. The flow increase is necessary to compensate for higher river water temperature.

COLD SHUTDOWN JUSTIFICATION

Number: CSJ-V16, Revision 0 (Sheet 2 of 2)

V70-11, V70-17, SB-70-1 and V70-18 are large (20" and 24") manual valves and must be operated as a set because their positions are interdependent. For example, allowing V70-11 and SB-70-1 to be open at the same time, except for the minimum time required for system lineup changes, could drain the deep basin inventory. Closing V70-18 with Service Water discharge lined-up to the main condenser discharge block will isolate Service Water from the safety-related cooling loads and closing V70-18 with Service Water discharge lined-up to the cooling tower will isolate turbine building cooling loads.

These valves will be full stroked open and close during cold shutdown in accordance with Paragraph 4.2.1.2(c), (f) and (g) when Service Water cooling loads are more manageable.

COLD SHUTDOWN JUSTIFICATION

Number: CSJ-V17 Revision 0 (Sheet 1 of 1)

SYSTEM: Instrument AirCOMPONENTS:

Valve Number	OM Cat.	Safety Class	Drawing Number	Dwg. Coord.
V72-28A	B	NNS	G-191160 Sh 3	L-15
V72-28B	B	NNS	G-191160 Sh 3	L-16
V72-28D	B	NNS	G-191160 Sh 3	K-16
V72-28E	B	NNS	G-191160 Sh 3	K-16

V72-28A and V72-28B have a safety function to close to isolate the Instrument Air (IA) system from the outboard MSIVs. Following an Appendix R fire event in the control room and cable spreading room, V72-28A and V72-28B are closed to isolate the air supply and V72-28D and V72-28E are opened to vent the residual air contained in the piping from the air supply isolation valves to the MSIV accumulators. This action prevents the MSIVs from inadvertently re-opening if a hot short were to occur in the MSIV solenoid circuitry. Reference: Minor Modification 96-34.

V72-28D and V72-28E have a safety function to open to vent the residual air contained in the IA system supply to the outboard MSIVs (V2-86A, V2-86B, V2-86C and V2-86D). Following an Appendix R fire event in the control room and cable spreading room, V72-28A and V72-28B are closed to isolate the air supply and V72-28D and V72-28E are opened to vent the residual air contained in the piping from air supply isolation valves to the MSIV accumulators. This action prevents the MSIVs from inadvertently re-opening if a hot short were to occur in the MSIV solenoid circuitry. Reference: Minor Modification 96-34.

Justification:

V72-28A and V72-28B cannot be exercised closed and cannot be exercised open during power operation on a quarterly basis exercising these valves would isolate/vent instrument air to the MSIV accumulators. Instrument Air pressure is required to maintain the MSIVs in the open position. The loss of instrument air pressure would cause the MSIVs to go to the closed position and result in a reactor power transient.

V72-28A and V72-28B will be full-stroke closed and V72-28D and V72-28E will be full-stroke opened during Cold Shutdowns in accordance with Paragraphs 4.2.1.2(f) & (g) of Part 10 of the Code.

COLD SHUTDOWN JUSTIFICATION

Number: CSJ-V18, Revision 0 (Sheet 1 of 1)

SYSTEM: Residual Heat Removal**COMPONENTS:**

Valve Number	OM Cat.	Safety Class	Drawing Number	Dwg. Coord.
V10-17A1	B	2	G-191172	G-08

Valve V10-17A1 is the V10-17 outboard containment isolation valve bonnet pressure locking relief device. This is a manual globe type valve. The safety function of this valve is to open to alleviate bonnet pressure locking of V10-17 in an Appendix R scenario.

JUSTIFICATION:

It is not practical to full or part-stroke open V10-17A1 during power operation. Opening V10-17A1 is a potential personnel/contamination hazard due to the release of high pressure (1000 psig) contaminated fluid. During cold shutdown, V10-17 bonnet pressure will equalize with reactor pressure and opening V10-17A1 is not a personnel hazard.

V10-17A1 will be full-stroke opened during Cold Shutdowns in accordance with Paragraphs 4.2.1.2(f) & (g) of Part 10 of the Code.

REFUELING OUTAGE JUSTIFICATION

Number: ROJ-V01, Revision 2 (Sheet 1 of 3)

SYSTEM: Nuclear Boiler
 High Pressure Coolant Injection
 Reactor Core Isolation Cooling
 Recirculation Pump Cooling Water

COMPONENTS:

Valve Number	OM Cat.	Safety Class	Drawing Number	Dwg. Coord.
SL-13-55A	A/C	2	G-191174 Sh 1	B-08
SL-13-55B	A/C	2	G-191174 Sh 1	C-08
SL-13-55C	A/C	2	G-191174 Sh 1	B-08
SL-13-55D	A/C	2	G-191174 Sh 1	C-08
SL-14-31A	A/C	2	G-191168	F-07
SL-14-31B	A/C	2	G-191168	E-07
SL-2-62A	A/C	2	G-191167	I-13
SL-2-62B	A/C	2	G-191167	I-13
SL-2-62C	A/C	2	G-191167	J-13
SL-2-62D	A/C	2	G-191167	J-13
SL-2-64A	A/C	2	G-191167	K-13
SL-2-64B	A/C	2	G-191167	K-13
SL-2-64C	A/C	2	G-191167	K-13
SL-2-64D	A/C	2	G-191167	L-13
SL-2-73A	A/C	2	G-191167	F-12
SL-2-73B	A/C	2	G-191167	F-12
SL-2-73C	A/C	2	G-191167	G-12
SL-2-73D	A/C	2	G-191167	G-12
SL-2-73E	A/C	2	G-191167	G-12
SL-2-73F	A/C	2	G-191167	G-12
SL-2-73G	A/C	2	G-191167	H-12
SL-2-73H	A/C	2	G-191167	H-12
SL-2-2-7A	A/C	2	G-191159 Sh 5	G-02
SL-2-2-7B	A/C	2	G-191159 Sh 5	G-02
SL-2-2-8A	A/C	2	G-191159 Sh 5	G-02
SL-2-2-8B	A/C	2	G-191159 Sh 5	G-02
SL-2-3-11	A/C	2	G-191267 Sh 1	C-06
SL-2-3-13A	A/C	2	G-191267 Sh 1	D-06
SL-2-3-13B	A/C	2	G-191267 Sh 1	C-12
SL-2-3-15A	A/C	2	G-191267 Sh 1	D-06

REFUELING OUTAGE JUSTIFICATION

Number: ROJ-V01, Revision 2 (Sheet 2 of 3)

Valve Number	OM Cat.	Safety Class	Drawing Number	Dwg. Coord.
SL-2-3-15B	A/C	2	G-191267 Sh 1	D-12
SL-2-3-17A	A/C	2	G-191267 Sh 1	E-06
SL-2-3-17B	A/C	2	G-191267 Sh 1	E-12
SL-2-3-19A	A/C	2	G-191267 Sh 1	F-06
SL-2-3-19B	A/C	2	G-191267 Sh 1	F-12
SL-2-3-21A	A/C	1	G-191267 Sh 1	H-06
SL-2-3-21B	A/C	1	G-191165	C-13
SL-2-3-21C	A/C	1	G-191267 Sh 1	I-12
SL-2-3-21D	A/C	1	G-191165	C-13
SL-2-3-23A	A/C	1	G-191267 Sh 1	G-06
SL-2-3-23B	A/C	1	G-191267 Sh 1	G-06
SL-2-3-23C	A/C	1	G-191267 Sh 1	G-12
SL-2-3-23D	A/C	1	G-191267 Sh 1	G-12
SL-2-3-25	A/C	2	G-191267 Sh 1	I-04
SL-2-3-27	A/C	2	G-191267 Sh 1	I-06
SL-2-3-31A	A/C	1	G-191267 Sh 1	F-06
SL-2-3-31B	A/C	1	G-191267 Sh 1	F-06
SL-2-3-31C	A/C	1	G-191267 Sh 1	F-06
SL-2-3-31D	A/C	1	G-191267 Sh 1	F-06
SL-2-3-31E	A/C	1	G-191267 Sh 1	F-06
SL-2-3-31F	A/C	1	G-191267 Sh 1	F-06
SL-2-3-31G	A/C	1	G-191267 Sh 1	F-06
SL-2-3-31H	A/C	1	G-191267 Sh 1	F-06
SL-2-3-31I	A/C	1	G-191267 Sh 1	F-12
SL-2-3-31J	A/C	1	G-191267 Sh 1	F-12
SL-2-3-31K	A/C	1	G-191267 Sh 1	F-12
SL-2-3-31L	A/C	1	G-191267 Sh 1	F-12
SL-2-3-31M	A/C	1	G-191267 Sh 1	F-12
SL-2-3-31N	A/C	1	G-191267 Sh 1	F-12
SL-2-3-31P	A/C	1	G-191267 Sh 1	F-12
SL-2-3-31Q	A/C	1	G-191267 Sh 1	F-12
SL-2-3-33	A/C	2	G-191267 Sh 1	I-12
SL-2-3-35	A/C	2	G-191267 Sh 1	J-06

REFUELING OUTAGE JUSTIFICATION

Number: ROJ-V01, Revision 2 (Sheet 3 of 3)

Valve Number	OM Cat.	Safety Class	Drawing Number	Dwg. Coord.
SL-2-305A	A/C	2	G-191167	M-02
SL-2-305B	A/C	2	G-191167	M-02
SL-23-37A	A/C	2	G-191169 Sh 1	F-05
SL-23-37B	A/C	2	G-191169 Sh 1	F-05
SL-23-37C	A/C	2	G-191169 Sh 1	F-05
SL-23-37D	A/C	2	G-191169 Sh 1	F-05

These valves are instrumentation line excess flow check valves. They are required to be verified operable in accordance with Vermont Yankee Technical Specification 3.7.D.1.

JUSTIFICATION:

These valves cannot be exercised closed during normal (power) operation since closing these valves would isolate instrumentation required for power operation. These valves can only be verified to closed by leak testing performed during the primary system inservice pressure test performed each refueling outage. This test cannot be repeated during each Cold Shutdown since the reactor vessel is not pressurized during Cold Shutdowns.

These valves will be exercised open and closed each Refueling Outage during leakage rate testing performed in accordance with Paragraphs 4.2.2.3 and 4.3.2.2(e), (h) of Part 10 of the Code.

REFUELING OUTAGE JUSTIFICATION

Number: ROJ-V02, Revision 1 (Sheet 1 of 1)

SYSTEM: Nuclear BoilerCOMPONENTS:

Valve Number	OM Cat.	Safety Class	Drawing Number	Dwg. Coord.
RV-2-71A	C	1	G-191167	D-08
RV-2-71B	C	1	G-191167	G-08
RV-2-71C	C	1	G-191167	G-08
RV-2-71D	C	1	G-191167	H-08

Valves RV-2-71A through D are the nuclear boiler main steam safety/relief valves. They have a safety function in the open position for Automatic Depressurization System (ADS) operation and for overpressure protection, and in the closed position to maintain reactor coolant inventory.

JUSTIFICATION:

Stroke testing of these valves quarterly during power operation is not recommended. As recommended by NUREG-0737 and the corresponding study by the BWR Owners Group (BWR Owners Group Evaluation of NUREG-0737, Item II.K.3.16, "Reduction of Challenges and Failures of Relief Valves"), the exercising of these valves should be minimized to reduce the number of challenges to safety/relief valves.

The failure of any relief valve to close during stroking at power operation would cause an uncontrolled rapid depressurization of the primary system (stuck open relief valve transient) along with an undesired positive reactivity excursion.

These valves can only be tested with primary system pressure greater than 100 psig, therefore, they cannot be exercised during cold shutdowns or during refueling outages. Exercising these valves at each start-up from cold shutdown (or quarterly) would produce additional stress cycles on the nuclear boiler system which could lead to a low cycle fatigue failure. These valves will be exercised during plant startup after each refueling outage in accordance with Paragraph 4.2.1.2(h) of Part 10 of the Code and Paragraph 3.4.1.1(d) of Part 1 of the Code.

This Refueling Outage Justification is for clarification purposes only.

REFUELING OUTAGE JUSTIFICATION

Number: ROJ-V03, Revision 2 (Sheet 1 of 2)

SYSTEM: Nuclear BoilerCOMPONENTS:

Valve Number	OM Cat.	Safety Class	Drawing Number	Dwg. Coord.
V2-27A	A/C	2	G-191167	F-03
V2-27B	C	2	G-191167	H-02
V2-28A	A/C	2	G-191167	F-05
V2-28B	A/C	2	G-191167	H-05
V2-96A	A/C	2	G-191167	H-03
V2-96B	C	2	G-191167	F-03

Valves V2-27A and V2-28A are the outboard and inboard containment isolation check valves for the "A" Feedwater Line, respectively. They have a safety function in the closed position to provide primary containment isolation, and in the open position to pass High Pressure Coolant Injection flow to the reactor.

Valves V2-96A and V2-28B are the outboard and inboard containment isolation check valves for the "B" Feedwater Line, respectively. They have a safety function in the closed position to provide primary containment isolation, and in the open position to pass Reactor Core Isolation Cooling flow to the reactor.

Valve V2-96B is the second outboard check valve in the "A" Feedwater Line. The valve has a safety function in the closed position to prevent diversion of High Pressure Coolant Injection flow in the "A" Feedwater Line.

Valve V2-27B is the second outboard check valve in the "B" Feedwater Line. The valve has a safety function in the closed position to prevent diversion of Reactor Core Isolation Cooling flow in the "B" Feedwater Line.

REFUELING OUTAGE JUSTIFICATION

Number: ROJ-V03, Revision 2 (Sheet 2 of 2)

JUSTIFICATION:

These valves cannot be exercised closed during normal (power) operation because the feedwater system is required to maintain reactor vessel water level. Interruption of feedwater to perform the exercise test of these valves would result in a reactor scram.

These valves can only be stroke close tested via a leak type or non-intrusive test. Testing during Cold Shutdowns is impracticable due to the significant system and test equipment configurations required. Additionally, valves V2-27B, V2-28B and V2-96A cannot be exercised during Cold Shutdowns since this would require removing the only mechanism of reactor vessel level control (via the Reactor Water Cleanup System).

V2-27A, V2-28A, V2-28B and V2-96A will be stroke close tested each Refueling Outage during leakage rate testing performed in accordance with Paragraphs 4.2.2.2 and 4.3.2.2(e), (h) of Part 10 of the Code.

V2-27B and V2-96B will be stroke close tested each Refueling Outage using non-intrusive testing or disassembly in accordance with Paragraphs 4.3.2.2(e), (h) and 4.3.2.4(a) or (c) of Part 10 of the Code.

V2-27B and V2-96B were replaced during the 1996 Refueling Outage. Valve disassembly was used instead of a non-intrusive test for this refuel outage because:

- These valves were disassembled to facilitate installation.
- These valves were manually stroked after installation to verify freedom of movement and blue checked. These action satisfy the OM-10 stroke close requirement intent.

REFUELING OUTAGE JUSTIFICATION**Number: ROJ-V04, Revision 1 (Sheet 1 of 1)****SYSTEM:** Nuclear Boiler**COMPONENTS:**

Valve Number	OM Cat.	Safety Class	Drawing Number	Dwg. Coord.
V2-37A	A/C	2	G-191167	B-08
V2-37B	A/C	2	G-191167	G-09
V2-37C	A/C	2	G-191167	G-09
V2-37D	A/C	2	G-191167	H-09

These valves are the Main Steam Relief Valve (MSRV) actuator air supply check valves. They have a safety function in the closed position to ensure automatic depressurization system (ADS) capability is maintained via the MSRV accumulators on a loss of the instrument nitrogen supply.

JUSTIFICATION:

These valves are located in the drywell and thus cannot be stroke close exercised during normal power operations or Cold Shutdowns when the drywell is inerted. These valves can only be stroke close tested via a leak type or non-intrusive test which would require isolating the instrument nitrogen supply to the MSRVs. Testing during Cold Shutdowns is impracticable due to the significant system and test equipment configurations required.

These valves will be exercised closed each Refueling Outage during leakage rate testing performed in accordance with Paragraphs 4.2.2.3 and 4.3.2.2(e), (h) of Part 10 of the Code.

REFUELING OUTAGE JUSTIFICATION

Number: ROJ-V05, Revision 1 (Sheet 1 of 1)

SYSTEM: Nuclear Boiler**COMPONENTS:**

Valve Number	OM Cat.	Safety Class	Drawing Number	Dwg. Coord.
V2-82A	A/C	2	G-191167	B-10
V2-82B	A/C	2	G-191167	B-10
V2-82C	A/C	2	G-191167	B-10
V2-82D	A/C	2	G-191167	B-10
V2-87A	A/C	2	G-191167	B-13
V2-87B	A/C	2	G-191167	B-13
V2-87C	A/C	2	G-191167	B-13
V2-87D	A/C	2	G-191167	B-13

These valves are the Main Steam Isolation Valve (MSIV) actuator air supply check valves. They have a safety function in the closed position to ensure MSIV capability is maintained via the MSIV accumulators on a loss of instrument air or nitrogen supply.

JUSTIFICATION:

Valves V2-82A through D are located in the drywell and thus cannot be stroke close tested during normal power operations or Cold Shutdowns when the drywell is inerted.

Valves V2-87A through D are located in the main steam tunnel which is inaccessible during power operations, thus, these valves cannot be stroke close tested during normal power operations.

These valves can only be stroke close tested via a leak type or non-intrusive test which would require isolating the instrument air or nitrogen to the MSIVs. Testing during Cold Shutdowns is impracticable due to the significant system and test equipment configurations required.

These valves will be exercised closed each Refueling Outage during leakage rate testing performed in accordance with Paragraphs 4.2.2.3 and 4.3.2.2(e), (h) of Part 10 of the Code.

REFUELING OUTAGE JUSTIFICATION

Number: ROJ-V06, Revision 3 (Sheet 1 of 2)

SYSTEM: Control Rod Drive Hydraulic**COMPONENTS:** (Typical of 89 each)

Valve Number	OM Cat.	Safety Class	Drawing Number	Dwg. Coord.
CV-3-126	B	2	G-191170	C-16
CV-3-127	B	2	G-191170	C-18
SO-3-120	B	2	G-191170	D-17
SO-3-121	B	2	G-191170	D-18
SO-3-122	B	2	G-191170	C-18
SO-3-123	B	2	G-191170	C-17
V3-114	C	2	G-191170	C-18
V3-115	A/C	2	G-191170	B-16
V3-137	C	2	G-191170	B-17

Valves CV-3-126 & 127 are the Control Rod Drive (CRD) scram valves. These valves have a safety function in the open position to pass scram accumulator discharge to the control rod drives for a reactor scram.

Valves SO-3-120 & 123 are the manual control exhaust and insertion valves, respectively, for the CRD under piston area. They have a safety function in the closed position to prevent diversion of scram accumulator discharge into the exhaust water header or the drive water header.

Valves SO-3-121 & 122 are the manual control exhaust and withdrawal valves, respectively, for the CRD over piston area. These valves have a safety function in the closed position to ensure that scram exhaust flow is properly directed to the discharge volume.

Valves V3-114 are the scram exhaust to the discharge volume check valves. These valves have a safety function in the open position to pass scram exhaust flow to the discharge volume. These valves have a safety function in the closed position to prevent the scram discharge volume from operating the drive in the event that the scram discharge volume pressure should exceed reactor pressure following a scram.

Valves V3-115 are the charging water to the CRD accumulator check valves. These valves have a safety function in the closed position to prevent diversion of scram accumulator discharge into the charging header.

Valves V3-137 are the Drive Water Supply Check Valves. These valves have a safety function in the closed position to prevent a loss of inventory to the drive water riser

REFUELING OUTAGE JUSTIFICATION

Number: ROJ-V06, Revision 3 (Sheet 2 of 2)

JUSTIFICATION:

Exercising valves CV-3-126, CV-3-127, V3-114 and V3-137 during power operation would require scramming the plant solely for testing purposes. Since scram insertion times are representative of valve operability and stroke times, testing will be performed in accordance with Technical Specifications 4.3.C.1 and 2. These sections require that all control rods be subjected to scram-time measurements on a refueling outage basis and that 50% of the control rods be measured for scram times every 16 to 32 weeks. An evaluation is required that provides reasonable assurance that proper control rod drive performance is being maintained. These tests will adequately verify valve operability and stroke times.

Valves SO-3-120 through 123 are verified operable at least once a week in accordance with Technical Specifications 4.3.A.2 for each partially or fully withdrawn operable control rod. For a control rod that is fully inserted, the safety function of these valves is fulfilled. Stroke testing these valves while the control rod is fully inserted will not result in an increase in safety or quality. All control rods drives are verified operable in accordance with Technical Specifications 4.3.B.1 each Refueling Outage, thus stroke testing of these valves for control rods that remained fully inserted throughout the operating cycle will occur each Refueling Outage. This alternate test frequency is consistent with NUREG 1482, Appendix A, NRC Staff Position 7 "Testing Individual Scram Valves For Control Rods in Boiling Water Reactors."

Closure testing of V3-115 requires that the CRD pumps be stopped to depressurize the charging water header. Therefore the accumulator pressure decay test (OP 4111) will be performed during refueling outages. This alternate test frequency is consistent with NUREG 1482, Appendix A, NRC Staff Position 7 "Testing Individual Scram Valves For Control Rods in Boiling Water Reactors."

Closure testing of V3-114 requires a scram signal to be in and the scram discharge volume to be pressurized. This condition is beyond operating parameters as specified in Technical Specification 3.3., therefore testing can only be performed during a refueling outage when test conditions can be met.

These valves will be exercised as a minimum each Refueling Outage in accordance with Paragraphs 4.2.1.2(e), (h) and 4.3.2.2(e), (h) of Part 10 of the Code.

REFUELING OUTAGE JUSTIFICATION

Number: ROI-V07, Revision 2 (Sheet 1 of 1)

SYSTEM: Control Rod Drive Hydraulic**COMPONENTS:**

Valve Number	OM Cat.	Safety Class	Drawing Number	Dwg. Coord.
V3-412A	A/C	2	G-191170	E-12
V3-412B	A/C	2	G-191170	E-12
V3-413A	A/C	2	G-191170	E-12
V3-413B	A/C	2	G-191170	E-12

These valves are the recirculation pump seal purge supply check valves. They have a safety function in the closed position to provide primary containment isolation.

JUSTIFICATION:

These valves can only be exercised closed via a leak type or non-intrusive test which would require isolating the seal purge to the recirculation pumps. To preclude adverse affects on seal life, the recirculation pumps would have to be secured. Testing during Cold Shutdowns is impracticable due to the significant system and test equipment configurations required.

These valves will be exercised closed each Refueling Outage during leakage rate testing performed in accordance with Paragraphs 4.2.2.2 and 4.3.2.2(e), (h) of Part 10 of the Code.

REFUELING OUTAGE JUSTIFICATION

Number: ROJ-V08, Revision 2 (Sheet 1 of 1)

SYSTEM: Standby Liquid Control**COMPONENTS:**

Valve Number	OM Cat.	Safety Class	Drawing Number	Dwg. Coord.
V11-16	C	1	G-191171	H-03
V11-17	C	1	G-191171	I-02

These valves are the Standby Liquid Control (SLC) injection line check valves. They have a safety function in the open position to pass borated water into the reactor, and in the closed position to provide primary containment isolation.

JUSTIFICATION:

Exercising these valves open during power operation would require injecting borated water into the reactor coolant system. This would create a reactivity excursion and potential for reactor trip. Injection of demineralized water would require removing the SLC system from service to clean the borated solution from the piping and replacing the explosive actuated valves.

Full-stroke closed testing requires the removal of at least one explosive actuated valve.

These valves will be full-stroke exercised open during refueling outages when the SLC system can be tested without creating a reactivity excursion.

These valves will be exercised closed each Refueling Outage during leakage rate testing performed in accordance with Paragraphs 4.3.2.2(e), (h) of Part 10 of the Code.

REFUELING OUTAGE JUSTIFICATION

Number: ROJ-V09, Revision 0 (Sheet 1 of 1)

THIS REFUELING OUTAGE JUSTIFICATION WAS WITHDRAWN IN REVISION 18 OF THE IST PROGRAM.

This ROJ number is being maintained for traceability to the Third Interval IST Program Submittal SER's

REFUELING OUTAGE JUSTIFICATION

Number: ROJ-V10, Revision 1 (Sheet 1 of 1)

THIS REFUELING OUTAGE JUSTIFICATION WAS WITHDRAWN IN REVISION 16 OF THE IST PROGRAM.

This ROJ number is being maintained for traceability to the Third Interval IST Program Submittal SER's.

REFUELING OUTAGE JUSTIFICATION

Number: ROJ-V11, Revision 2 (Sheet 1 of 1)

SYSTEM: Neutron Monitoring System**COMPONENTS:**

Valve Number	OM Cat.	Safety Class	Drawing Number	Dwg. Coord.
V7-1	A/C	2	5920-271	C-08
V7-2	A/C	2	5920-271	D-08

These valves are the Neutron Monitoring System (NMS) Tip Purge primary containment isolation valves. These valves have a safety function in the closed position to provide primary containment isolation.

JUSTIFICATION:

These valves can only be tested via a leak type or non-intrusive test that requires securing of the nitrogen purge to the NMS Tip system. The nitrogen purge is required during operation and Cold Shutdown to prevent condensation and corrosion in the NMS Tip system.

These valves will be exercised closed each Refueling Outage during leakage rate testing performed in accordance with Paragraphs 4.2.2.2 and 4.3.2.2(e), (h) of Part 10 of the Code.

REFUELING OUTAGE JUSTIFICATION

Number: ROJ-V12, Revision 1 (Sheet 1 of 1)

SYSTEM: Control Rod Drive Hydraulic**COMPONENTS:**

Valve Number	OM Cat.	Safety Class	Drawing Number	Dwg. Coord.
V3-162A	A/C	2	G-191170	A-09
V3-162B	A/C	2	G-191170	A-01

These valves are the Control Rod Drive (CRD) scram discharge volume vent check valves. They have a safety function in the closed position to isolate the scram discharge volume during a scram condition, thereby preventing reactor coolant inventory loss.

JUSTIFICATION:

These valves can only be exercised closed via a leak type or non-intrusive test which would require removing the CRD system from service. Testing during Cold Shutdowns is impracticable due to the significant system and test equipment configurations required.

These valves will be exercised closed each Refueling Outage during leakage rate testing performed in accordance with Paragraphs 4.2.2.3 and 4.3.2.2(e), (h) of Part 10 of the Code.

REFUELING OUTAGE JUSTIFICATION

Number: ROJ-V13, Revision 1 (Sheet 1 of 1)

THIS REFUELING OUTAGE JUSTIFICATION WAS WITHDRAWN IN REVISION 16 OF THE IST PROGRAM.

This ROJ number is being maintained for traceability to the Third Interval IST Program Submittal SER's.

REFUELING OUTAGE JUSTIFICATION

Number: ROJ-V14, Revision 1 (Sheet 1 of 1)

SYSTEM: Service Water**COMPONENTS:**

Valve Number	OM Cat.	Safety Class	Drawing Number	Dwg. Coord.
V70-1A	C	3	G-191159 Sh 1	C-02
V70-1B	C	3	G-191159 Sh 1	B-02
V70-1C	C	3	G-191159 Sh 1	K-02
V70-1D	C	3	G-191159 Sh 1	J-02

These valves are the station service water pump discharge check valves. They have a safety function in the open position to provide cooling water to systems and equipment required to operate under accident conditions and to provide an inexhaustible supply of water for standby coolant system operation. They have a function in the closed position to prevent the diversion of cooling water through an idle station Service Water pump

JUSTIFICATION:

It is not practical to verify the full-stroke open function of these check valves. The service water pumps do not have installed plant instrumentation to determine pump flow rate. The design flow rate through these check valves can only be verified during the refueling outage service water pump capacity test when each service water pump is run at its design capacity (Ref. RR-P01). This testing involves installing a temporary fully instrumented test loop to determine pump flow rate.

These check valves will be part-stroke exercised open during the regularly scheduled quarterly service water pump tests. These valves will be full-stroke exercised open and closed in accordance with Paragraph 4.3.2.2(e), (h) of Part 10 of the Code during each refueling outage service water pump capacity test.

REFUELING OUTAGE JUSTIFICATION

Number: ROJ-V15, Revision 1 (Sheet 1 of 1)

SYSTEM: Nuclear Boiler Vessel Instrumentation**COMPONENTS:**

Valve Number	OM Cat.	Safety Class	Drawing Number	Dwg. Coord.
V-2-3-430A	A/C	2	G-191267 Sh 2	C-09
V-2-3-430B	A/C	2	G-191267 Sh 2	E-09
V-2-3-432A	A/C	2	G-191267 Sh 2	C-10
V-2-3-432B	A/C	2	G-191267 Sh 2	E-10
V-2-3-433A	A/C	2	G-191267 Sh 2	F-09
V-2-3-433B	A/C	2	G-191267 Sh 2	H-09
V-2-3-435A	A/C	2	G-191267 Sh 2	F-10
V-2-3-435B	A/C	2	G-191267 Sh 2	H-10

These valves are the reactor vessel instrumentation reference leg back fill inlet check valves. These valves are required to close in order to prevent the reference legs from emptying in the event of a break in the non-safety related portion of the back-fill system and perform a containment isolation function.

JUSTIFICATION:

These valves cannot be exercised during power operations or during cold shutdowns since shutting these valves would isolate filling water to the reference leg lines for reactor vessel pressure and level instrumentation. The function of the reference leg backfill system is to ensure that the reactor water level reference leg fluid does not become saturated with non-condensable gases. Full closure of these valves is verified during local leakage rate tests when the test boundary is drained and vented which could introduce non-condensable gases to the reference legs.

These valves will be exercised closed each Refueling Outage during leakage rate testing performed in accordance with Paragraphs 4.2.2.2 and 4.3.2.2(e), (h) of Part 10 of the Code.

REFUELING OUTAGE JUSTIFICATION

Number: ROJ-V16, Revision 1 (Sheet 1 of 1)

SYSTEM: Service WaterCOMPONENTS:

Valve Number	OM Cat.	Safety Class	Drawing Number	Dwg. Coord.
V70-13A	B	3	G-191159 Sh 1	J-07
V70-13B	B	3	G-191159 Sh 1	B-07
V70-2A	B	3	G-191159 Sh 1	C-03
V70-2B	B	3	G-191159 Sh 1	B-03
V70-2C	B	3	G-191159 Sh 1	J-03
V70-2D	B	3	G-191159 Sh 1	J-03

These valves are the Service Water System Header Supply Isolation Valves. The safety function of these valves is to close in order to isolate the upstream portions of the Service Water System when transferring to the Alternate Cooling mode of operation.

JUSTIFICATION:

It is impracticable to full or part-stroke close exercise these valves on a quarterly basis or during cold shutdowns. Closure of these valves could interrupt cooling flow to their respective trains of the Reactor Building Closed Cooling Water system heat exchangers (E-8-1A or E-8-1B), the RHR heat exchangers (E14-1A or E14-1B) and the emergency diesel generator lube oil and jacket water coolers. Interruption of flow to these components could cause damage to equipment. These valves will be full-stroke exercised closed during refueling outages in accordance with Paragraphs 4.2.1.2 (e) and (h) of Part 10 of the Code when cooling flow to these components can be isolated.

REFUELING OUTAGE JUSTIFICATION

Number: ROJ-V17, Revision 1 (Sheet 1 of 1)

SYSTEM: Service Water**COMPONENTS:**

Valve Number	OM Cat.	Safety Class	Drawing Number	Dwg. Coord.
V70-15A	B	3	G-191159 Sh 1	J-08
V70-15B	B	3	G-191159 Sh 1	B-08

These valves are the Service Water System Header Supply Isolation Valves. The safety function of these valves is to close to eliminate Alternate Cooling Flow from bypassing the cooling tower while the Service Water System is in the Alternate Cooling mode of operation.

JUSTIFICATION:

It is impracticable to full or part-stroke exercise these valves on a quarterly basis or during cold shutdowns.

Closure of either of these valves could interrupt cooling flow in their respective trains to the Reactor Building Closed Cooling Water system heat exchangers (E-8-1A or E-8-1B). The RBCCW systems provide cooling flow to components such as the RHR pump coolers, the CRD pump coolers, and the spent fuel pool heat exchangers (E9-1A and E9-1B) which are required for the safe operation of the plant at power and cold shutdown periods. These valves shall be full-stroke exercised during refueling outages

These valves will be full-stroke exercised closed in accordance with Paragraph 4.2.1.2(e), (h) of Part 10 of the Code during each refueling outage when these cooling loads can be safely isolated.

REFUELING OUTAGE JUSTIFICATION

Number: ROJ-V19, Revision 0 (Sheet 1 of 1)

THIS REFUELING OUTAGE JUSTIFICATION WAS WITHDRAWN FROM THE IST PROGRAM.

This ROJ number is being maintained for traceability to the Third Interval IST Program Submittal SER's.

REFUELING OUTAGE JUSTIFICATION

Number: ROJ-V20, Revision 0 (Sheet 1 of 1)

THIS REFUELING OUTAGE JUSTIFICATION WAS WITHDRAWN FROM THE IST PROGRAM.

This ROJ number is being maintained for traceability to the Third Interval IST Program Submittal SER's.

REFUELING OUTAGE JUSTIFICATION

Number: ROJ-V21, Revision 2 (Sheet 1 of 1)

SYSTEM: Service WaterCOMPONENTS:

Valve Number	OM Cat.	Safety Class	Drawing Number	Dwg. Coord.
V70-16A	B	3	G-191159 Sh 2	D-07
V70-16B	B	3	G-191159 Sh 1	C-09
V70-184	B	3	G-191159 Sh 1	C-09

V70-16A and V70-16B are in the RHRSW pump suction line from the cooling tower. The safety function of these is to open to supply a suction source to the RHRSW pumps from the cooling tower when the service water system is aligned for the alternate cooling mode of operation. V70-184 is used to vent piping between V70-16A and V70-16B when alternate cooling is placed in service.

JUSTIFICATION:

It is impracticable to full or part-stroke exercise these valves on a quarterly basis or during cold shutdowns. The suction line from the cooling towers to valve V70-16B is chemically treated to control the growth of microbiologically influenced corrosion (MIC). The opening of these valves could dilute the chemical mixture in this line. Dilution of the chemical mixture in this line would reduce its effectiveness.

These valves will be full-stroke exercised closed in accordance with Paragraph 4.2.1.2(e), (h) of Part 10 of the Code during each refueling basis when the line can be retreated with chemicals.

REFUELING OUTAGE JUSTIFICATION

Number: ROJ-V22, Revision 1 (Sheet 1 of 1)

SYSTEM: Instrument Air SystemCOMPONENTS:

Valve Number	OM Cat.	Safety Class	Drawing Number	Dwg. Coord.
V72-89B	A/C	2	G-191160 Sh 3	K-14
V72-89C	A/C	2	G-191160 Sh 3	K-15

These valves are the Instrument Air to the Drywell Containment Isolation Valves. These valves have a safety function to close to prevent the release of fission products from the drywell to the reactor building in the event of an accident.

JUSTIFICATION:

It is not practical to verify the closure function of these valves on a quarterly or cold shutdown basis. The only means to verify closure of these valves is to perform a leakage type test or to utilize a non-intrusive testing method.

In order to assure closure of these valves to perform a leakage rate test or non-intrusive test, it would be necessary to isolate instrument air to the main steam isolation valves inside containment. Additionally, in order to perform a leakage type test, it would be necessary to open system drains and vents. Isolation of this line could result in closure of the air operated main steam isolation valves and subsequent reactor scram.

These valves will be exercised closed each Refueling Outage during leakage rate testing performed in accordance with Paragraphs 4.2.2.2 and 4.3.2.2(e), (h) of Part 10 of the Code.

REFUELING OUTAGE JUSTIFICATION

Number: ROJ-V23, Revision 1 (Sheet 1 of 1)

SYSTEM: Standby Fuel Pool CoolingCOMPONENTS:

Valve Number	OM Cat.	Safety Class	Drawing Number	Dwg. Coord.
V19-224	C	3	G-191173 Sh 1	I-12

V19-224 is normally open during plant operation to allow cooling flow to pass to the fuel storage pool. The safety function of this valve is to close to provide isolation capability of the non-seismic normal fuel pool cooling system from the standby fuel pool cooling system.

JUSTIFICATION:

It is not practical to full-stroke exercise this valve to the closed position on a quarterly basis or during cold shutdowns. This valve is normally open to allow cooling flow from the normal fuel pool cooling pumps to the fuel storage pool. Additionally this valve is located directly upstream of check valve V19-18. The only practical means to verify the closure of this valve is to pressurize the volume between V19-223, V19-53 and V19-46 and V19-224 utilizing a differential pressure or leakage type test or by performing a non-intrusive test when normal fuel pool cooling system flow through the demineralizer is isolated. The use of non-intrusive techniques to verify closure on a quarterly basis or during cold shutdowns is not practical. These valves are not located in an easily accessible location and scaffolding is required to setup the necessary equipment.

NUREG 1482, subsection 4.1.4, states, "The NRC has determined that the need to setup test equipment is adequate justification to defer backflow testing of a check valve until a refueling outage".

The closure function of this valve will be verified during refueling outages by utilizing a differential pressure or leakage type test or by performing a non-intrusive test in accordance with Paragraph 4.3.2.2(e), (h) of Part 10 of the Code.

REFUELING OUTAGE JUSTIFICATION

Number: ROJ-V24, Revision 2 (Page 1 of 1)

SYSTEM: Instrument Air System**COMPONENTS:**

Valve Number	OM Cat.	Safety Class	Drawing Number	Dwg. Coord.
V70-113	A/C	2	G-191159 Sh 3	K-08

This valve is the RBCCW system drywell supply line containment isolation valve. This valve has a safety function to close to prevent the release of fission products from the drywell to the reactor building in the event of an accident.

JUSTIFICATION:

It is not practical to verify the closure function of this valve on a quarterly or cold shutdown basis. The only means to verify closure of this valve is to perform a leakage type test or to utilize a non-intrusive testing method.

In order to assure closure of this valve, it is necessary to perform a leakage rate test or non-intrusive test. Leakage type testing would require isolation of the RBCCW system supply to the drywell and opening of system drains and vents. Isolation of this line would result in a loss of cooling flow to important plant equipment such as the recirculation pumps, possibly resulting in their failure.

This valve will be exercised closed each Refueling Outage during leakage rate testing performed in accordance with Paragraphs 4.2.2.2 and 4.3.2.2(e), (h) of Part 10 of the Code.

REFUELING OUTAGE JUSTIFICATION

Number: ROJ-V25, Revision 1 (Sheet 1 of 1)

SYSTEM: High Pressure Coolant InjectionCOMPONENTS:

Valve Number	OM Cat.	Safety Class	Drawing Number	Dwg. Coord.
V23-56	C	2	G-191169 Sh 1	J-05
V23-65	C	2	G-191169 Sh 1	I-03

V23-56 is the HPCI Turbine Drain Condensate Exhaust Line Containment Isolation Valve. This valve is normally closed during plant operation. This valve has a safety function to open to pass turbine exhaust condensate to the torus. Additionally, this valve has a safety function to close for containment isolation.

V23-65 is the HPCI Turbine Steam Exhaust Line Containment Isolation Valve. This valve is normally closed during plant operation. This valve has a safety function to open to pass turbine exhaust steam to the torus. Additionally, this valve has a safety function to close for containment isolation.

JUSTIFICATION:

It is not practical to verify the closure function of these valves on a quarterly or cold shutdown basis. During normal operation the HPCI steam and condensate exhaust lines are required to be available to support operation of the HPCI turbine.

The only practical means to verify the closure of V23-56 is to pressurize the volume between SSC-23-13 and V23-56 utilizing a differential pressure or leakage type test or by performing a non-intrusive test. The only practical means to verify the closure of V23-65 is to pressurize the volume between SSC-23-12 and V23-65 utilizing a differential pressure or leakage type test or by performing a non-intrusive test.

Additionally, the use of non-intrusive techniques to verify closure on a quarterly basis or during cold shutdowns is not practical. These valves are not located in an easily accessible location and scaffolding is required to setup the necessary equipment.

NUREG 1482, subsection 4.1.4, states, "The NRC has determined that the need to setup test equipment is adequate justification to defer backflow testing of a check valve until a refueling outage".

These closure function of this valve will be verified during refueling outages by utilizing a differential pressure or leakage type test or by performing a non-intrusive test in accordance with Paragraph 4.3.2.2(e), (h) of Part 10 of the Code.

REFUELING OUTAGE JUSTIFICATION

Number: ROJ-V26, Revision 1 (Sheet 1 of 1)

SYSTEM: Reactor Core Isolation CoolingCOMPONENTS:

Valve Number	OM Cat.	Safety Class	Drawing Number	Dwg. Coord.
V13-38	C	2	G-191174 Sh 1	K-11
V13-50	C	2	G-191174 Sh 1	K-08

V13-38 is the RCIC Turbine Vacuum Pump Exhaust Line Containment Isolation Valve. This valve is normally closed during plant operation. This valve has a safety function to open to pass vacuum pump discharge to the torus. Additionally, this valve has a safety function to close for containment isolation.

V13-50 is the RCIC Turbine Steam Exhaust Line Containment Isolation Valve. This valve is normally closed during plant operation. This valve has a safety function to open to pass turbine exhaust steam to the torus. Additionally, this valve has a safety function to close for containment isolation.

JUSTIFICATION:

It is not practical to verify the closure function of these valves on a quarterly or cold shutdown basis. During normal operation the RCIC steam and vacuum pump exhaust lines are required to be available to support operation of the RCIC turbine.

The only practical means to verify the closure of V13-38 is to pressurize the volume between SSC-13-10 and V13-38 utilizing a differential pressure or leakage type test or by performing a non-intrusive test. The only practical means to verify the closure of V13-50 is to pressurize the volume between SSC-13-12 and V13-50 utilizing a differential pressure or leakage type test or by performing a non-intrusive test.

Additionally, the use of non-intrusive techniques to verify closure on a quarterly basis or during cold shutdowns is not practical. These valves are not located in an easily accessible location and scaffolding is required to setup the necessary equipment.

NUREG 1482, subsection 4.1.4, states, "The NRC has determined that the need to setup test equipment is adequate justification to defer backflow testing of a check valve until a refueling outage".

These closure function of this valve will be verified during refueling outages by utilizing a differential pressure or leakage type test or by performing a non-intrusive test in accordance with Paragraph 4.3.2.2(e), (h) of Part 10 of the Code.

REFUELING OUTAGE JUSTIFICATION**Number: ROJ-V27, Revision 0 (Sheet 1 of 1)****SYSTEM:** Nuclear Boiler**COMPONENTS:**

Valve Number	OM Cat.	Safety Class	Drawing Number	Dwg. Coord.
SR-2-14A	C	NNS	G-191167	M-12
SR-2-14B	C	NNS	G-191167	M-12
SR-2-14C	C	NNS	G-191167	M-12
SR-2-14D	C	NNS	G-191167	M-12

SR-2-14A through 14D are 3 inch Main Steam Relief Valve(MSRV) exhaust line vacuum breakers. These valves are normally closed during plant operation. These valves have a safety function to close to direct MSRV discharge flow to the suppression pool in the event of a MSRV actuation.

JUSTIFICATION:

It is not practical to verify the closure function of these valves on a quarterly or cold shutdown basis. These valves are located in the drywell and are not accessible during normal power operations or Cold Shutdowns when the drywell is inerted. These valves can only be tested when the drywell is accessible and the reactor vessel is depressurized.

These valves will be manually exercised closed each refuel outage in accordance with Paragraph 4.3.2.2(e), (h) of Part 10 of the Code.

REFUELING OUTAGE JUSTIFICATION

Number: ROJ-V28, Revision 0 (Sheet 1 of 1)

SYSTEM: Fuel Pool Cooling & Cleanup
Service Water**COMPONENTS:**

Valve Number	OM Cat.	Safety Class	Drawing Number	Dwg. Coord.
V70-244A	C	3	G-191173 Sh 2	B-10
V70-244B	C	3	G-191173 Sh 2	B-10
V70-281A	C	3	G-191159 Sh 1	J-09
V70-281B	C	3	G-191159 Sh 1	B-09
V70-281C	C	3	G-191159 Sh 1	J-09
V70-281D	C	3	G-191159 Sh 1	C-09
V70-511B	C	3	G-191159 Sh 1	H-12
V70-511C	C	3	G-191159 Sh 1	H-12
V70-252B	C	3	G-191159 Sh 2	G-05
V70-252C	C	3	G-191159 Sh 2	G-05

These valves are the Service Water System Vacuum Breaker valves. They have a safety function in the open position to eliminate vacuum in the service water system and minimize the potential for system water hammer upon service water pump restart after station blackout or Appendix R fire scenarios, and in the closed position to maintain the service water system pressure boundary.

JUSTIFICATION:

It is not practical to full or part-stroke exercise these valves on a quarterly basis or during cold shutdowns due to the significant system and test equipment configurations required. These valves are located in the overhead and require installation of scaffolding and test equipment.

NUREG 1482, subsection 4.1.4, states, "The NRC has determined that the need to setup test equipment is adequate justification to defer backflow testing of a check valve until a refueling outage". The reasoning used in NUREG 1482, subsection 4.1.4 can also be applied to justify deferred testing for these valves in the forward flow direction.

These opening and closure functions of these valves will be verified using a differential pressure or leakage type test or by performing a non-intrusive test during refueling outages in accordance with Paragraph 4.3.2.2(e), (h) of Part 10 of the Code.

REFUELING OUTAGE JUSTIFICATION

Number: ROJ-V29, Revision C (Sheet 1 of 1)

SYSTEM: Residual Heat Removal
Nuclear Boiler

COMPONENTS:

Valve Number	OM Cat.	Safety Class	Drawing Number	Dwg. Coord.
V10-18A	A/C	2	G-191172	F-08
V10-18A5	A/C	2	G-191172	F-08
V2-39A	A/C	2	G-191167	L-04
V2-74A	A/C	2	G-191167	D-10

V10-18A has a safety function to open to provide overpressure protection for Penetration X-12. V10-18A and associated piping are configured like an typical equalizing line across V10-18. V10-18A also has a safety function to close as one of the inboard containment isolation valves for Penetration X-12. (Ref. EDCR# 96-416).

V10-18A5 has a safety function to open to provide V10-18 bonnet pressure locking protection. V10-18A5 also has a safety function to close as one of the inboard containment isolation valves for Penetration X-12. (Ref. EDCR# 96-416, ECN-1).

V2-39A has a safety function to open to provide overpressure protection for Penetration X-41. V2-39A and associated piping are configured like an typical equalizing line across FCV-2-39. V2-39A is oriented to open anytime pressure on the penetration side of FCV-2-39 is greater than reactor side of FCV-2-39. V2-39A also has a safety function to close for primary containment isolation of penetration X-41. (Ref. EDCR# 96-416).

V2-74A has a safety function to open to provide overpressure protection for Penetration X-8. V2-74A and associated piping are configured like an typical equalizing line across V2-74. V2-74A is oriented to open anytime pressure on the penetration side of V2-74 is greater than reactor side of V2-74. V2-74A also has a safety function to close for primary containment isolation of penetration X-8. (Ref. EDCR# 96-416).

JUSTIFICATION:

It is not practical to full or part-stroke exercise these valves on a quarterly basis or during cold shutdowns. These valves are located inside the drywell and are not accessible during power operation. The stroke open and close function of these valves will be verified each refueling outage in accordance with Paragraph 4.3.2.2(e), (h) of Part 10 of the Code.

REFUELING OUTAGE JUSTIFICATION

Number: ROJ-V30, Revision 0 (Sheet 1 of 1)

SYSTEM: Diesel Generator Starting Air**COMPONENTS:**

Valve Number	OM Cat.	Safety Class	Drawing Number	Dwg. Coord.
V72-76A	C	3	G-191160 Sh 7	H-12
V72-76B	C	3	G-191160 Sh 7	H-08

V72-76A and V72-76B, DG Starting Air Compressor Discharge Check Valves, have a safety function to open to provide a flow path from the diesel starting air compressors C-3-1A and C-3-1B to air receiver tanks TK-80-1A, B and TK-80-1C, D. This flow path is required to recharge the diesel generator starting air receiver tanks.

JUSTIFICATION:

It is not practical to full-stroke exercise V72-76A and V72-76B on a quarterly basis or during cold shutdowns. Full-stroke exercising of these valves requires depressurizing the air receiver tanks and timing the recovery to normal operating pressure. These valves will be part-stroke open exercised quarterly during diesel generator operability testing. The full-stroke open exercise function of these valves will be verified each refueling outage during the Diesel Generator Air Compressor Capacity Test.

REFUELING OUTAGE JUSTIFICATION

Number: ROJ-V31, Revision 0 (Sheet 1 of 2)

SYSTEM: Residual Heat Removal, Reactor Water Cleanup, Reactor Core Isolation Cooling and High Pressure Coolant Injection

COMPONENTS:

Valve Number	OM Cat.	Safety Class	Drawing Number	Dwg. Coord.
V10-19A	C	2	G-191172	L-05
V10-19B	C	2	G-191172	L-12
V10-19C	C	2	G-191172	J-05
V10-19D	C	2	G-191172	J-12
V12-28A	C	3	G-191178 Sh 1	D-08
V12-28B	C	3	G-191178 Sh 1	G-08
V12-62	C	2	G-191178 Sh 1	B-05
V12-62A	C	3	G-191178 Sh 1	B-05
V13-29	C	2	G-191174 Sh 1	J-10
V13-40	C	2	G-191174 Sh 1	N-11
V13-817	C	2	G-191174 Sh 1	K-07
V13-818	C	2	G-191174 Sh 1	K-07
SSC-23-13	C	2	G-191169 Sh 1	J-04
V23-56	C	2	G-191169 Sh 1	J-05
V23-61	C	2	G-191169 Sh 1	L-06
V23-62	C	2	G-191169 Sh 1	J-10
V23-842	C	2	G-191169 Sh 1	I-02
V23-843	C	2	G-191169 Sh 1	I-03
V78-2	C	3	G-191162 Sh 2	E-02

Valves V10-19A through D are RHR pump. They have a safety function in the open position to pass RHR flow to the suppression pool for pump protection. They have a safety function in the close position to prevent backflow through an idle RHR pump.

Valves V12-28A and V12-28B are RWCU pump discharge check valves. They have a safety function in the closed position to prevent reverse flow in the event of a HELB upstream of the RWCU pumps.

Valves V12-62 and V12-62A are RWCU flow to Feedwater system isolation check valves. They have a safety function in the closed position to prevent gross diversion of RCIC flow and prevent reverse flow in the event of a HELB upstream.

Valve V13-29 is RCIC pump minimum flow recirculation line check valve. It has a safety function in the closed position to provide primary containment isolation and a safety function in the open position to pass RCIC flow to the suppression pool for pump protection.

REFUELING OUTAGE JUSTIFICATION**Number: ROJ-V31, Revision 0 (Sheet 2 of 2)**

Valve V13-40 is RCIC pump suction valve from the suppression pool. It has a safety function in the open position to pass flow from the suppression pool to the RCIC pump suction. This flow path is required after the CST supply has been exhausted.

Valves V13-817 and V13-818 are RCIC turbine exhaust line vacuum breakers. They have a safety function in the closed position to provide primary containment isolation and a safety function in the open position to prevent water hammer on RCIC turbine exhaust line check SSC-13-9.

Valves SSC-23-13 and V23-56 are HPCI turbine exhaust drain check valves. They have a safety function in the closed position to provide primary containment isolation and a safety function in the open position to pass condensate in the HPCI turbine exhaust line drain pot to the suppression pool.

Valve V23-61 is HPCI pump suction valve from the suppression pool. It has a safety function in the open position to pass flow from the suppression pool to the HPCI pump suction. This flow path is required after the CST supply has been exhausted.

Valve V23-62 is HPCI pump minimum flow recirculation line check valve. It has the closed position to provide primary containment isolation and a safety function in the open position to pass HPCI flow to the suppression pool for pump protection.

Valves V23-842 and V23-843 are HPCI turbine exhaust line vacuum breakers. They have a safety function in the closed position to provide primary containment isolation and a safety function in the open position to prevent water hammer on HPCI turbine exhaust line check SSC-23-12.

Valve V78-2 is the Diesel Fuel Oil Storage Tank fill line check valve. It has a safety function in the closed position to prevent loss of Diesel Fuel Oil Storage Tank contents in the event of failure of the NNS fill line.

JUSTIFICATION:

Valves V10-19A, V10-19B, V10-19C, V10-19D, V13-29, V13-40, SSC-23-13, V23-56, V23-61 and V23-62 cannot be verified to exercise full open during normal (power) operation due to the lack of instrumentation for positive test results.

Valves V12-62, V12-62A, V13-817, V13-818, V23-842, V23-843 and V78-2 cannot be individually exercised closed during normal (power) operation because there are two check valves in series without test connections.

Valves V12-28A and V12-28B cannot be verified to exercise closed during normal (power) operation due to the lack of instrumentation for positive test results.

Each of these valves will be disassembled and inspected each refueling outage in accordance with Paragraph 4.3.2.4(c) of the Part 10 of the Code.

REFUELING OUTAGE JUSTIFICATION

Number: ROJ-V18, Revision 1 (Sheet 1 of 1)

SYSTEM: Service Water**COMPONENTS:**

Valve Number	OM Cat.	Safety Class	Drawing Number	Dwg. Coord.
V70-187A	B	3	G-191159 Sh 1	J-06
V70-187B	B	3	G-191159 Sh 1	B-06

These valves are the Service Water Pump Gland Seal Supply Isolation Valves. The safety function of these valves is to close in order to provide a backup leakage barrier for the Service Water Supply Header Isolation Valves (V70-13A and V70-13B) while the Service Water System is in the Alternate Cooling mode of operation.

JUSTIFICATION:

It is impracticable to full or part-stroke exercise these valves on a quarterly basis or during cold shutdowns. The closure of either one of these valves will interrupt cooling flow to two of the Service Water Pump gland seals. Operation of the service water pumps without gland seal flow is not recommended. The Service Water Pumps are required to be operable during power operation and cold shutdowns for cooling to other loads.

These valves will be full-stroke exercised closed in accordance with Paragraph 4.2.1.2(e), (h) of Part 10 of the Code during each refueling outage when one loop of service water (two service water pumps) can be secured.

RELIEF REQUEST

Number: RR-V01, Revision 1 (Sheet 1 of 1)

SYSTEM: Service Water**COMPONENTS:**

Valve Number	OM Cat.	Safety Class	Drawing Number	Dwg. Coord.
SE-70-4A	B	3	G-191159 Sh 1	K-11
SE-70-4B	B	3	G-191159 Sh 1	K-11
SE-70-4C	B	3	G-191159 Sh 1	K-11
SE-70-4D	B	3	G-191159 Sh 1	K-11

These valves are the Residual Heat Removal Service Water (RHRSW) pump motor cooling coil supply isolation valves. They have a safety function in the open position to provide cooling for the RHRSW pump motor during operation.

EXAM OR TEST CATEGORY:

Category B.

THIS RELIEF REQUEST WAS WITHDRAWN IN REVISION 16 OF THE IST PROGRAM.

This RR number is being maintained for traceability to the Third Interval IST Program Submittal SER's.

RELIEF REQUEST

Number: RR-V02, Revision 1 (Sheet 1 of 1)

SYSTEM: Service WaterCOMPONENTS:

Valve Number	OM Cat.	Safety Class	Drawing Number	Dwg. Coord.
V70-1A	C	3	G-191159 Sh 1	C-03
V70-1B	C	3	G-191159 Sh 1	B-03
V70-1C	C	3	G-191159 Sh 1	I-03
V70-1D	C	3	G-191159 Sh 1	H-03

These valves are the station Service Water pump discharge check valves. They have a safety function in the open position to provide cooling water to systems and equipment required to operate under accident conditions and to provide an inexhaustible supply of water for standby coolant system operation. They have a function in the closed position to prevent the diversion of cooling water through an idle station Service Water pump.

EXAM OR TEST CATEGORY:

Category C.

THIS RELIEF REQUEST WAS WITHDRAWN IN REVISION 16 OF THE IST PROGRAM.

This RR number is being maintained for traceability to the Third Interval IST Program Submittal SER's.

RELIEF REQUEST

Number: RR-V03, Revision 1 (Sheet 1 of 2)

SYSTEM: Diesel Generator Starting AirCOMPONENTS:

Valve Number	OM Cat.	Safety Class	Drawing Number	Dwg. Coord.
AS-24-1A	B	3	G-191160 Sh 7	B-16
AS-24-1B	B	3	G-191160 Sh 7	B-03
AS-24-2A	B	3	G-191160 Sh 7	B-17
AS-24-2B	B	3	G-191160 Sh 7	B-03
AV-24-1A	B	3	G-191160 Sh 7	B-17
AV-24-1B	B	3	G-191160 Sh 7	B-03

These valves are the Emergency Diesel Generator (EDG) starting air inlet and vent valves. They have safety functions, as a set, to provide starting air to the EDG, to prevent EDG and/or piping damage after the EDG starts, and to prevent inadvertent EDG starts.

EXAM OR TEST CATEGORY:

Category B.

CODE REQUIREMENT: Part 10

Para. 4.2.1.1 "Exercising Test Frequency"

"Active Category A and B valves shall be tested nominally every 3 months, except as provided by paras. 4.2.1.2, 4.2.1.5, and 4.2.1.7."

Para. 4.2.1.3 "Valve Obturator Movement"

"The necessary valve obturator movement shall be determined by exercising the valve while observing an appropriate indicator, such as indicating lights which signal the required change of obturator position, or by observing other evidence, such as changes in system pressure, flow rate, level, or temperature, which reflect change of obturator position."

RELIEF REQUEST

Number: RR-V03, Revision 1 (Sheet 2 of 2)

REQUEST FOR RELIEF:

Relief is requested on the basis that compliance with the Code requirements is impractical and that the proposed alternatives would provide an acceptable level of quality and safety.

These valves do not have remote position indication. Measuring the stroke time of these valves by observing stem travel would require disassembly of the operator.

Testing of the inlet valves individually would require the lifting of the power leads to the other valve. Since the stroke timing of these valves is performed by the indirect indication of the respective EDG start time, to lift leads each quarter and perform the necessary EDG fast starts to verify each valve's stroke time would be an undue hardship. Because excessive EDG fast starts are a known contributor to decreased EDG reliability and owing to the criticality of the EDGs as part of the ECCS system, the overall impact of testing these valves in accordance with Code requirements would be an overall decrease in plant safety. Furthermore, since the air start system is not totally redundant (e.g. they share common piping, components and initiating logic), testing of these valves individually on a quarterly basis would not increase the quality and safety of the system.

ALTERNATE METHOD:

During EDG slow start testing performed each month, indirect indication that at least one of the two parallel air start inlet valves opens, and the vent valve closes, will be performed by ensuring the EDG starts.

During EDG fast start testing performed every six months, indirect measurement that at least one of the two parallel air start inlet valves opens promptly, and the vent valve closes promptly, will be performed by ensuring the EDG starts within the Technical Specification limit of 13 seconds. Measuring the EDG start time gives indication of possible valve degradation (as a pair) since any significant changes in valve stroke time will be identified by longer than normal EDG start times.

In addition, to further assess the operational readiness of each air start inlet valve, an independent operability test is performed once per operating cycle. This test will be accomplished by alternately lifting the power leads to one of the two air start valves, and then measuring the EDG fast start time with the remaining valve in operation.

USNRC EVALUATION STATUS:

Relief was granted in the March 1994 SER [Reference (u)] for Relief Request RR-V03, Revision 1.

RELIEF REQUEST

Number: RR-V04, Revision 1 (Sheet 1 of 1)

SYSTEM: Fuel Oil Transfer**COMPONENTS:**

Valve Number	OM Cat.	Safety Class	Drawing Number	Dwg. Coord.
V78-2	C	3	G-191162 Sh 2	E-02

Valve V78-2 is the fuel oil storage tank fill line check valve. It has a safety function in the close position to ensure fuel oil system integrity upon loss of the non-safety related fill line piping.

EXAM OR TEST CATEGORY:

Category C.

THIS RELIEF REQUEST WAS WITHDRAWN IN REVISION 16 OF THE IST PROGRAM.

This RR number is being maintained for traceability to the Third Interval IST Program Submittal SER's.

RELIEF REQUEST

Number: RR-V05, Revision 1 (Sheet 1 of 1)

SYSTEM: Nuclear Boiler**COMPONENTS:**

Valve Number	OM Cat.	Safety Class	Drawing Number	Dwg. Coord.
RV-2-71A	B/C	1	G-191167	D-08
RV-2-71B	B/C	1	G-191167	G-08
RV-2-71C	B/C	1	G-191167	G-08
RV-2-70A	C	1	G-191167	D-08
RV-2-70B	C	1	G-191167	D-08

Valves SV-2-70A and SV-2-70B are the main steam safety valves. They have a safety function to prevent over-pressurization of the reactor coolant system.

Valves RV-2-71A through D are the main steam dual function relief valves. They have a safety function to prevent over-pressurization of the reactor coolant system and to function as part of the reactor coolant Automatic Depressurization System (ADS).

EXAM OR TEST CATEGORY:

Category C

THIS RELIEF REQUEST WAS WITHDRAWN IN REVISION 16 OF THE IST PROGRAM.

This RR number is being maintained for traceability to the Third Interval IST Program Submittal SER's.

RELIEF REQUEST

Number: RR-V06, Revision 0 (Sheet 1 of 1)

SYSTEM: High Pressure Coolant Injection**COMPONENTS:**

Valve Number	OM Cat.	Safety Class	Drawing Number	Dwg. Coord.
HPCI-CONTROL	B	2	G-191169 Sh 2	F-13

This valve is the High Pressure Coolant Injection (HPCI) turbine steam inlet Control valve. It has a safety function to operate to provide and regulate steam to the HPCI turbine.

EXAM OR TEST CATEGORY:

Category B.

THIS RELIEF REQUEST WAS WITHDRAWN IN REVISION 18 OF THE IST PROGRAM.

This RR number is being maintained for traceability to the Third Interval IST Program Submittal SER's.

RELIEF REQUEST

Number: RR-V07, Revision 2 (Sheet 1 of 1)

SYSTEM: Control Rod Drive Hydraulic**COMPONENTS:**

Valve Number	OM Cat.	Safety Class	Drawing Number	Dwg. Coord.
V3-162A	A/C	2	G-191170	A-09
V3-162B	A/C	2	G-191170	A-01

These valves are the Control Rod Drive (CRD) scram discharge volume vent check valves. They have a safety function in the closed position to isolate the scram discharge volume during a scram condition, thereby preventing reactor coolant inventory loss.

THIS RELIEF REQUEST WAS WITHDRAWN IN REVISION 15 OF THE IST PROGRAM.

This RR number is being maintained for traceability to the Third Interval IST Program Submittal SER's.

RELIEF REQUEST

Number: RR-V08, Revision 0 (Sheet 1 of 2)

SYSTEM: Standby Liquid Control**COMPONENTS:**

Valve Number	OM Cat.	Safety Class	Drawing Number	Dwg. Coord.
SR-11-39A	C	2	G-191171	G-08
SR-11-39B	C	2	G-191171	K-08

Valves SR-11-39A & B are the Standby Liquid Control (SLC) pump discharge relief valves. They have a safety function to operate to prevent overpressurization of the SLC system.

EXAM OR TEST CATEGORY:

Category C

CODE REQUIREMENT: Part 1

Para. 1.3.4.1(b) "Subsequent 10 Year Periods"

"All valves of each type and manufacturer shall be tested within each subsequent 10 year period, with a minimum of 20% of the valves tested within 48 months. This 20% shall be previously untested valves, if they exist."

Para. 1.3.4.1(e)(2) "Valves Not Meeting Acceptance Criteria"

"Any valve exceeding its stamped set pressure by 3% or greater shall be repaired or replaced, the cause of failure shall be determined and corrected, and the valve shall successfully pass a retest before it is returned to service."

REQUEST FOR RELIEF:

Relief is requested on the basis that the proposed alternatives would provide an acceptable level of quality and safety.

RELIEF REQUEST**Number: RR-V08, Revision 0 (Sheet 2 of 2)****REQUEST FOR RELIEF(CONT.):**

Vermont Yankee Technical Specifications 4.4.A requires testing of valves SR-11-39A & B at least once every operating cycle. This testing frequency represents a six-fold increase over the testing frequency required by Part 1 of the Code and, as such, yields more accurate valve degradation trending data. The testing is currently performed at the Vermont Yankee plant site.

The acceptable range of relief valve actuation given in Technical Specifications 4.4.A is 1400 psig to 1490 psig. The 1400 psig value ensures that a sufficient injection pressure can be established prior to lifting of the relief valve. The 1490 psig value ensures relief valve actuation prior to reaching the system design pressure of 1500 psig. 1490 psig translates into a maximum relief valve setpoint of 99% of system design pressure as opposed to 110% allowable by the piping code. Applying the Part 1 tolerance of 3% to the current setpoint would unnecessarily reduce the acceptable range to 1400 psig to 1442 psig (1442 psig = 96% of system design pressure).

The increased testing frequency and present setpoint requirements provide adequate assurance of the operational readiness of valves SR-11-39A & B and, as such, no significant increase in the level of safety or quality can be expected if the subject Code requirements are imposed.

ALTERNATE METHOD:

In accordance with Vermont Yankee Technical Specifications 4.4.A, valves SR-11-39A & B shall be tested at least once every operating cycle. The setting of the valves shall be between 1400 and 1490 psig.

USNRC EVALUATION STATUS:

Relief was granted in the September 1993 SER [Reference (s)] for Relief Request RR-V08, Revision 0.

RELIEF REQUEST

Number: RR-V09, Revision 1 (Sheet 1 of 1)

SYSTEM: Residual Heat Removal**COMPONENTS:**

Valve Number	OM Cat.	Safety Class	Drawing Number	Dwg. Coord.
V10-17	A	2	G-191172	D-06
V10-27A	A	2	G-191172	D-06
V10-27B	A	2	G-191172	D-12

Valve V10-17 is the Residual Heat Removal (RHR) shutdown cooling supply outboard primary containment isolation valve. The valve has a safety function in the closed position to provide primary containment and pressure isolation, and in the open position to provide RHR pump suction during shutdown cooling operation.

Valves V10-27A & B are the RHR system low pressure coolant injection primary containment isolation valves. These valves have a safety function in the closed position to provide primary containment and pressure isolation, and in the open position to pass low pressure coolant injection water to the reactor.

USNRC EVALUATION STATUS:

THIS RELIEF REQUEST WAS WITHDRAWN IN REVISION 16 OF THE IST PROGRAM PLAN.

This RR number is being maintained for traceability to the Third Interval IST Program Submittal SER's.

RELIEF REQUEST

Number: RR-V10, Revision 0 (Sheet 1 of 1)

SYSTEM: Residual Heat Removal Service Water**COMPONENTS:**

Valve Number	OM Cat.	Safety Class	Drawing Number	Dwg. Coord.
V10-89A	B	3	G-191179 Sh 2	G-01
V10-89B	B	3	G-191179 Sh 2	C-01

These valves are the Residual Heat Removal Service Water (RHRSW) flow control valves for the RHR heat exchangers. They have a safety function to provide and regulate cooling water to the RHR heat exchangers.

THIS RELIEF REQUEST WAS WITHDRAWN IN REVISION 15 OF THE IST PROGRAM.

This RR number is being maintained for traceability to the Third Interval IST Program Submittal SER's.

RELIEF REQUEST

Number: RR-V11, Revision 0 (Sheet 1 of 1)

SYSTEM: Reactor Core Isolation Cooling**COMPONENTS:**

Valve Number	OM Cat.	Safety Class	Drawing Number	Dwg. Coord.
RCIC-CONTROL	B	2	G-191174 Sh 2	D-12

This valve is the Reactor Core Isolation Cooling (RCIC) turbine governor control valve. This valve has a safety function to operate to provide and regulate steam to the RCIC turbine.

EXAM OR TEST CATEGORY:

Category B.

THIS RELIEF REQUEST WAS WITHDRAWN IN REVISION 18 OF THE IST PROGRAM.

This RR number is being maintained for traceability to the Third Interval IST Program Submittal SER's.

RELIEF REQUEST

Number: RR-V12, Revision 0 (Sheet 1 of 3)

SYSTEM: Service Water System**COMPONENTS:**

Valve Number	OM Cat.	Safety Class	Drawing Number	Dwg. Coord.
V70-43A	C	3	G-191159 Sh 1	J-12
V70-43B	C	3	G-191159 Sh 1	B-12

These valves are the Service Water System header discharge check valves. These valves have a safety function to close to prevent the backflow of RHRSW pump discharge to the suction of the pumps when operating in the Alternate Cooling mode of operation.

EXAM OR TEST CATEGORY:

Category C

CODE REQUIREMENT: Part 10

Para. 4.3.2.1 "Exercising Tests for Check Valves"

"Check valves shall be exercised nominally every 3 months, except as provided by paras.4.3.2.2, 4.3.2.3, 4.3.2.4 and 4.3.2.5.

REQUEST FOR RELIEF:

Relief is requested on the basis that compliance with the Code requirements is impracticable and that the proposed alternatives would provide an acceptable level of quality and safety.

It is impractical to full or part-stroke exercise these valves in the closed direction on a quarterly, cold shutdown or refueling outage basis. Closure of these valves would require shutdown of each of the Service Water Pumps in their individual trains when the Service Water System is required to supply cooling water to core standby cooling equipment and the emergency diesel generators.

RELIEF REQUEST

Number: RR-V12, Revision 0 (Sheet 2 of 3)

ALTERNATE TEST METHOD:

These valves are 8 inch swing check valves of the same design, manufacturer, size, model and materials of construction. Additionally, these valves are be oriented in the horizontal position and see similar service conditions. These valves will be partially disassembled, inspected and manually exercised on a sampling basis (one valve per refueling outage) when the Service Water System flow to the required loads can be isolated in accordance with NRC Staff Position 2 identified in NRC Generic Letter 89-04. During the valve disassembly, the internals of the valve will be verified to be structurally sound (no loose or corroded parts). If the disassembled valve is not capable of being full-stroke exercised or there is binding or failure of the valve internals, the other valve will also be disassembled, inspected and manually exercised during the same outage.

RELIEF REQUEST

Number: RR-V12, Revision 0 (Sheet 3 of 3)

USNRC EVALUATION STATUS

This relief request was approved in for use in USNRC Generic 89-04, NRC Staff Position 2