TABLE OF CONTENTS

Changes to the IST Program*

(These changes constitute Revision 5 of the IST Program)

- by system with component changes first, followed by changes to testing requirements of existing components
- *frequency changes are not addressed by system; justification indexes follow

AF System

Added manual valves 1AF-18, -19, -31, -44 and 2AF-32, -45, -56, -57
Added Inst. Air Checks 0AF-133, -153
Added backup nitrogen supply checks 0AF-142, -145, -162, -165
Added backup nitrogen relief valves 0AF-4052, -4057
Deleted testing of 0AF-39, -52 1AF-26, 2AF-64 pump suction isolation valves

Changed testing of 0AF-112, -113, 1/2AF-111 from open to closed
Deleted fail safe testing of 0AF-4012, -4019 control valves
Deleted open stroke time test of 1/2AF-4002, 0AF-4007, -4014
Added Close test to SG HX inject checks 1/2AF-100, -101
Changed AFWP discharge ck to CAT C from AC, deleted SLT-6
1AF-102, -104, -106, -107 and 2AF-103, -105, -106, -107
Added manual exercise of MO 1/2AF-4006

CV System

Added Letdown Orifice outlet and seal water return relief valves 1/2CV-203, 1/2CV-314
Added HX Inlet and Outlet isolation 1/2CV-1299, 1/2CV-285
Added Regen HX Outlet isolation 1/2CV-1298
Added seal water inject and return checks 1/2CV-294, -304A, -304B
Added Aux Press Spray isolation and check valves 1/2CV-296, 1/2CV-297
Added manual Cat A valve 1/2CV-369A
Added Aux Charging line check 1/2CV-383
Added Pump integral checks 1/2P-2A-CK, 1/2P-2B-CK, 1/2P-2C-CK
Deleted Charging Pump suction from VCT 1/2-112C
Deleted Charging Line flow control valve 1/2CV-142
Deleted BATP to Charging Pump suction checks 1/2CV-351
Deleted BATP to Charging Pump suction isol 1/2CV-350
Deleted RWST to Charging Pump suction 1/2CV-357
Deleted BAT Pump discharge checks 1/2BS-333A, -333B

Deleted Aux Charging Line manual isolation 1/2CV-323A
Deleted open test of Charging Header checks 1/2CV-370
Changed open to close stroke time test of 1/2CV-112B
Changed open to close test of Charging header checks 1/2CV-295
Added partial open test for checks 1/2CV-304C, -304D

CC System

Added relief valves 1/2CC-768
Added CCW return checks 1/2CC-745
Deleted CCW surge tank supply 1/2CC-815
Deleted Demin makeup 1/2CC-773

Changed from Cat A to B, deleted SLT-6; 0CC-LW-63, -64
Changed from Cat A to B, deleted SLT-1; 1/2CC-754A, -754B
Deleted SLT-5 from CAT C valves 1/2CC-724A, -724B
Changed vacuum breaker from check to relief valve testing 1/2CC-779A
Added partial open test of checks 1/2CC-755A, -755B

SI System (Cont. Spray)

Deleted relief valve 1/2SI-872

Added close stroke time test 1/2SI-836A, -836B
Added check close test to 1/2SI-847A, -847B, -862A, -862B
Added augmented leak test to 1/2SI-858A, -858B, -871A, -871B
Changed CAT from A to B, deleted leak test 1/2SI-868A, -868B
Deleted open stroke time test 1/2SI-870A, -870B

DI System

No changes identified

FO System

Added due to mod 0FO-192, -193, -3982A, -3982B, -3983A, -3983B
Deleted due to mod 0FO-14, -19, -3910, -3911, -3940, -3941
Deleted SLT-5 of passive 0FO-24, -34
Deleted 0FO-3922 due to no safety function

Deleted close stroke time and SLT-5 of 0FO-3930, -3931

DA System

Added check valves 0DA-316, -318, -323, -325, -416, -418, -423, -425
Now tested as skid mounted 0DA-125, -126, -225, -226, -3057A, -3057B
-3058A, -3058B, -6318A, -6318B, -6319A, -6319B
Added relief valves 0DA-6350A, -6350B, -6350C, -6350D, -6351A, -6351B, -6351C, -6351D
Deleted retired air start relay valves 0DA-6316A, -6316B, -6317A, -6317B

CS System

Added Control valves 1/2CS-466, -476 and bypass control valves 1/2CS-480, -481

Changed CAT from AC to C, deleted SLT-6 for 1/2CS-466AA, -466BB, -476AA, -476BB

HVAC System

Added check valves 1/2H2-V-26 partial open test
Added fail safe test of 0VNCR-4636 and 0VNCSR-4638
Deleted SW valves 0SW-2976, -2977
Deleted SLT-5 from Cat C valves 0[illegible]V-898A, -900A, -914A, -916A

IA System

Deleted capped test connection valves .A-1184 and 2IA-1316
Added N2 inlet and IA bypass manuals 1IA-1203, -1204, -1207, -1210, 2IA-1332, -1333, -1336, -1339

Deleted open test of boot seal accum checks 1IA-644, -645, -1280, -1281, 2IA-876, -877, -1401, -1402
Deleted open and leak test, changed Cat from AC to C of series checks 1IA-1206, -1209, -1605, -1606, 2IA-1335, -1338, -1652, -1653
Deleted closed and leak test, changed Cat from AC to C of checks 1IA-1301, -1302, 2IA-1418, -1419

MS System

Added manual valve 1/2MS-227, -228, -235, -237, -238, -244, -265, -266
Changed Main Steam Stop Solenoids to skid mounted
1/2MS-2017A-S, 1/2MS-2017B-S, 1/2MS-2017C-S, 1/2MS-2017D-S,
1/2MS-2018A-S, 1/2MS-2018B-S, 1/2MS-2018C-S, 1/2MS-2018D-S
Changed Overspeed trip valves to skid mounted 1/2MS-2082

Added manual exercise of AOVs 1/2MS-2015, -2016
Deleted fail safe test of 1/2MS-2017, -2018
Deleted partial close test of 1/2MS-2017A, -2018A
Changed from Cat A to B 1/2MS-2083, -2084, -5958, -5959; SLT is augmented

SC System

Added reliefs due to modification 1/2SC-991

RC System

Added RCS cold leg to letdown control valves 1/2RC-427
Added non-Code spray nozzle inlet valve 1/2RC-557 as augmented
Added relief valves 1RC-545D, -546D, -547D, -548D and -523A installed by mod

Changed Cat from B to BC for PORVs, added setpoint test 1/2RC-430, -431C
Added stroke time open to PORV block valves 1/2RC-515, -516
Added partial open test of check 1/2RC-528, 1/2RC-529
Added stroke time open for CIVs 1/2RC-538
Added stroke time closed for head vents 1/2RC-570A, -570B, -575A, -575B, -580A, -580B
Deleted exercise of manual valves 1/2RC-595, now passive

RH System

Added RHR Return to Letdown checks 1/2RH-702
Added manual valves 1/2RH-713A, -713B, -716C, -716D
Added Pump Suction checks 1/2RH-718A, -718B
Added Pump Suction relief valves 1/2RH-861B, -861C

Changed valves to active from passive, added stroke time open and fail safe tests 1/2RH-624, -625
Changed valves to active from passive, added stroke time closed and fail safe tests 1/2RH-626
Changed Cat A to B and made SLT an Augmented test 1/2RH-700, -701, -720

Added close test to pump discharge checks 1/2RH-710A, -710B
Deleted stroke time closed test 1/2SI-850A, -850B, -852A, -852B
Added SLT-6 to Cat B valves as augmented 1/2SI-851A, -851B
Deleted partial open test of 1/2SI-853A, -853B, -853C, -853D
Changed from Cat AC to C, made SLT-6 augmented 1/2SI-854A, -854B
Changed from Cat B to A, added SLT-6 to valves 1/2SI-856A, -856B

SI System (Safety Injection)

Added pump test line isolation valves as passive Cat A; 1SI-829D, 2SI-829C
Added Accum N2 supply check 1/2SI-834D
Added Accum N2 vent control valve 1/2-957
Added pump discharge test checks 1/2SI-875A, 875B
Added manual valves 1/2SI-876A, -876B, -879A, -879B
Deleted SI pump suction from BAST valves, 1/2SI-826B, -826C
Deleted SI Accum N2 inlet valves 1/2SI-834A, -834B
Deleted SI-825 bypass valves 1/2SI-895

Changed pump discharge cross-connects to active, changed from Cat A to B, added FSM, deleted SLT-6
1/2SI-829A, -829B
Changed stroke time from open to closed, 1/2SI-825A, -825B
Deleted stroke time closed test of 1/2SI-841A, -841B, -878B, -878D
Added check valve partial open test for 1/2SI-845A, -845B, -845C, -845D, -845E, -845F
Changed open test from disassembly inspect to full flow by RT 1/2SI-867B
Added check valve close test to pump discharge checks 1/2SI-889A, -889B
Deleted fail safe test of test line series return valves 1/2SI-897A, -897B

SA System

No changes identified

SW System

Added SW Strainer auto backwash valves 0SW-2911, -2912
Added manual valves
1SW-182, -183, -185, -186, -188, -189, -191, -192, -203, -205, -207, -209, -212, -214, -215, -217
2SW-228, -230, -232, -233, -236, -237, -248, -250, -253, -255, -256, -258, -259, -261, -262, -264
Deleted CC HX temp control valves 0SW-12B, -12C, 1SW-12A, 2SW-12D
Deleted CC HX manual inlet valves since passive 0SW-290, -346 1SW-286, 2SW-296
Deleted Room cooler inlet temp control valves 0SW-2929A, -2929B, -2976, -2977
Deleted relief valves 0SW-4367, -4370, -4438, -4440, 1/2SW-4389

Changed testing from open to closed for valves 0FP-296A, -304A
Deleted SLT-5 from Cat C valves 0SW-32A, -32B, -32C, -32D, -32E, -32F
Added open stroke time test of SFP HX outlets 0SW-2930A, -2930B
Added PIT to 1/2MS-2090 (moved from MS to SW system)

SF System

Added manual valves 0SF-21, -22, -27, -28

Deleted SLT-5 from Cat C pump discharge checks 0SF-9A, -10A

WD System

No changes identified

The following indexes identify frequency changes for various components. The Old CSJ and VRR indexes identify changes and deletions. The New CSJ and ROJ indexes identify changes and additions of justifications. The TJ and TP indexes identify justifications and positions provided for augmented components. There was no TJ or TP index included in the old program. VRR Index reduced from 38 reliefs to 2. PRR Index reduced from 18 reliefs to 1.

TJ Index

		Frequency	Old Number
TJ-01	1/2CS-466, -476	CS	New
TJ-02	1/2CS-480, -481	CS	New
TJ-03	1/2H2-V-26	R	New
TJ-04	1IA-644, -645, -1280, -1281 2IA-876, -877, -1401, -1402	CS	CSJ-13/VRR-14
TJ-05	1IA-1301, -1302 2IA-1418, -1419	CS	CSJ-28
TJ-06	1IA-1203, -1204, -1207, -1210 2IA-1332, -1333, -1336, -1339	CS	New
TJ-07	1/2MS-2017A, -2018A	CS	CSJ-16

New VRR Index

VRR-01	1/2SI-842A, 1/2SI-842B, 1/2SI-867A Disassemble Inspect	VRR-4
VRR-02	1/2RC-434, -435 Alternate media for testing	VRR-38

New PRR Index

PRR-01	Instrument Accuracy	PRR-10

New TP Index

TP-01	AOVs for overpressure protection	New
TP-02	Control valves not stroke timed	New
TP-03	Testing of series check valves	New
TP-04	Pressure regulating devices	New
TP-05	CSR Chilled Water Pump Instrumentation	New

New CSJ Index

New Number		Old Number
CSJ-01	1/2AF-4006	New
CSJ-02	1AF-18, 19, -31, -44, 2AF-32, -45, -56, -57	New
CSJ-03	1/2CV-112B	CSJ-34
CSJ-04	1/2CV-296	New
CSJ-05	1/2CV-313, -313A	CSJ-6
CSJ-06	1/2CV-371, -371A	CSJ-7
CSJ-07	1/2CV-1298	New
CSJ-08	0CC-LW-63, -64	CSJ-35
CSJ-09	1/2CC-719	CSJ-9
CSJ-10	1/2CC-754A, -754B, -759A, -759B	CSJ-10
CSJ-11	1/2SI-836A, -836B	CSJ-11
CSJ-12	1/2SI-847A, -847B	New
CSJ-13	1/2CS-466AA, -466BB, -476AA, -476BB	CSJ-38/VRR-21
CSJ-14	1/2VNPSE-3212, -3213, -3244, -3245	CSJ-12
CSJ-15	1/2MS-2015, -2016	New
CSJ-16	1/2MS-2017, -2018	CSJ-15
CSJ-17	1/2RC-427	New
CSJ-18	1/2RC-430, -431C	CSJ-18
CSJ-19	1/2RC-570A, -570B, -575A, -575B, -580A, -580B	CSJ-19
CSJ-20	1/2RH-700, -701, -720	CSJ-37
CSJ-21	1/2RH-710A, -710B	CSJ-26
CSJ-22	1/2RH-718A, -718B	New
CSJ-23	1/2MS-227,-228,-235,-237,-238,-244,-265,-266	New
CSJ-24	1/2RH-704A, -704B	CSJ-37
CSJ-25	1/2RH-713A, -713B, -716C, -716D	New
CSJ-26	1/2SI-853A, -853B	VRR-3
CSJ-27	1/2SI-853C, -853D	VRR-3
CSJ-28	1/2SI-897A, -897B	CSJ-25/36
CSJ-29	1/2RH-702	New
CSJ-30	1/2SW-2880	CSJ-27
CSJ-31	1SW-182, -183, -185, -186, -188, -189, -191, -192, -203, -205, -207, -209, -212, -214, -215, -217 2SW-228, -230, -232, -233, -236, -237, -248, -250, -253, -255, -256, -258, -259, -261, -262, -264	New
CSJ-32	0SW-315, -360, 1SW-322, 2SW-307	New

Old CSJ Index

Old CSJ NO.	COMPONENT	New
1	1/2AF-100, -101, -106, -107, 1AF-102, -104, 2AF-103, -105	ROJ-02
2	1/2AF-108, 0AF-109, 0AF-110	Tested Q
3	1/2AF-111, 0AF-112, 0AF-113	ROJ-01
4	1/2CV-112C	Not tested
5	1/2CV-142	Not tested
6	1/2CV-313, -313A	CSJ-05
7	1/2CV-371, -371A	CSJ-06
8	1/2CV-384B	Not tested
9	1/2CC-719	CSJ-09
10	1/2CC-754A/B, -759A/B	CSJ-10
11	1/2SI-836A/B	CSJ-11
12	1/2VNPSE-3212, -3213, -3244, -3245	CSJ-14
13	1IA-1280, -1281, -644, -645 2IA-1401, -1402, -876, -877	TJ-04
14	1/2MS-2015, -2016	CSJ-15
15	1/2MS-2017, -2018	CSJ-16
16	1/2MS-2017A, -2018A	TJ-07
17	1/2MS-2017A-S, -2017B-S, -2017C-S, -2017D-S 1/2MS-2018A-S, -2018B-S, -2018C-S, -2018D-S	Skid
18	1/2RC-430 -431C	CSJ-18
19	1/2RC-570A/B, -575A/B, -580A/B	CSJ-19
20	1/2SI-841A/B	Passive
21	1/2SI-852A/B	Tested Q
22	1/2SI-878A/C	Tested Q
23	1/2SI-878B/D	Tested Q
24	1/2SI-826B/C	Not tested
25	1/2SI-897A/B	CSJ-28
26	1/2RH-710A/B	CSJ-21
27	1/2SW-2880	CSJ-30
28	1IA-1206, -1209, -1605, -1606, -1301, -1302, -6310, -6311 2IA-1335, -1338, -1652, -1653, -1418, -1419, -6342, -6343	(some) TJ-05
29	1/2SI-870A/B	Tested Q
30	1/2SI-957 -834A/B	-957 tested Q, -834A/B not tested
31	1/2AF-4002, AF-4007, AF-4014	Tested Q
32	0SW-315, -360, [illegible]SW-322, 2SW-307	CSJ-32
33	1/2H2-V-04, -05, -12, -13, -19, -20, -22, -23	ROJ-21
34	1/2CV-112B -357	CSJ-03, Not tested
35	CCW-LW-63, -64	CSJ-08
36	1/2SI-897A/B	CSJ-28
37	1/2RH-700, -701, -704A/B, -720	CSJ-20 CSJ-24

New ROJ Index

New Number	Components	Old Number
ROJ-01	0AF-112, -113 1/2AF-111	CSJ-3
ROJ-02	1/2AF-100, -101	CSJ-1
ROJ-03	1/2AF-106, -107, 1AF-102, -104, 2AF-103, -105	CSJ-1
ROJ-04	1/2CV-294	New
ROJ-05	1/2CV-370	VRR-13
ROJ-06	1/2CV-295, -297	New
ROJ-07	1/2CV-304A, -304B	New
ROJ-08	1/2CV-304C, -304D	VRR-12
ROJ-09	1/2CV-383	New
ROJ-10	1/2CC-745	New
ROJ-11	1/2CC-755A, -755B	VRR-10
ROJ-12	1/2CC-767	VRR-30
ROJ-13	1/2RM-3200AA	VRR-16
ROJ-14	1/2RC-528	VRR-11
ROJ-15	1/2RC-529	VRR-18
ROJ-16	0SW-112A, -135A	VRR-15
ROJ-17	1/2SI-834D	New
ROJ-18	1/2SI-845A, -845B, -845C, -845D, -845E, -845F	VRR-2
ROJ-19	1/2SI-862A, -862B	VRR-9
ROJ-20	1/2SI-847A, -847B	New
ROJ-21	1/2H2-V-04, -05, -12, -13, -19, -20, -22, -23	CSJ-33/VRR-[illegible]
ROJ-22	1/2SI-889A, -889B	VRR-7
ROJ-23	1/2SI-867B	VRR-4
ROJ-24	1/2SI-867A, 1/2SI-842A, 1/2SI-842B	VRR-4
ROJ-25	0FP-296A, -304A	New
ROJ-26	1/2SI-854A, -854B	VRR-6
ROJ-27	1/2SI-875A, -875B	New

Old VRR Index

VRR NUMBER	Components	New
1	1/2MS-2082 (fast acting valves)	Deleted, not req'd
2	1/2SI-845A through F	ROJ-18
3	1/2SI-853A/B	CSJ-26
4	1/2SI-867A/B, -842A/B	VRR-01, ROJ-23, ROJ-24
5	All CSD testing	Deleted, not req'd
6	1/2SI-854A/B	ROJ-26
7	1/2SI-889A/B (open test, now tested Q)	ROJ-22 (close)
8	1/2SI-858A/B	Deleted, tested Q
9	1/2SI-862A/B	ROJ-19
10	1/2CC-755A/B	ROJ-11
11	1/2RC-528	ROJ-14
12	1/2CV-304C/D	ROJ-8
13	1/2CV-370	ROJ-5
14	1IA-644, -645, -1280, -1281 2IA-876, -877, -1401, -1402	TJ-04
15	0SW-112A, -135A	ROJ-16
16	1/2RM-3200AA	ROJ-13
17	0DA-3057A/B, -3058A/B	Deleted, now Skid
18	1/2RC-529	ROJ-15
19	1/2CV-300A/B	Deleted, not tested
20	1/2MS-2090	Deleted, tested Q
21	1/2CS-466AA/BB, -476AA/BB	CSJ-13
22	Generic - evaluate leak rate 6 inch and greater	Deleted, not req'd
23	Generic - CIV individual leak tests	Deleted, not req'd
24	1/2CV-351	Deleted, not tested
25	0DA-125, -126, -225, -226, 0DA-6316A/B, -6317A/B, -6318A/B, -6319A/B	Deleted, now Skid
26	CV-333A/B (actual designator is BS-333A/B)	Deleted, tested Q
27	1/2SI-891A/B	Deleted, tested Q
28	0AF04007, 4014, 1AF04002	Deleted, tested Q
29	Generic - CIVs tested per APP J	Deleted, not req'd
30	1/2CC-767	ROJ-12
31	0HV-898A, -900A, -914A, -916A	Deleted, tested Q
32	IA valves combined seat leakage test	Deleted, not req'd
33	0FO-3940, -3941	Deleted, not tested

VRR NUMBER	Components	New
34	1/2H2-V-4, -5, -12, -13, -19, -20, -22, -23	ROJ-21
35	Main steam and pressurizer safety valves jack & lap	Deleted not req'd
36	Hot shutdown plant	Deleted not req'd
37	1/2SI-891A/B flow instrument	Deleted not req'd
38	1/2RC-434, -435 Alternate media	VRR-02

Old PRR Index

PRR NUMBER	Components	New
1	Various pumps, temp and speed instruments	Deleted not req'd
2	Various pumps, inlet pressure prior to start	Deleted not req'd
3	SI pumps, min flow test	Deleted not req'd
4	RHR pumps, min flow test	Deleted not req'd
5	AF pumps, min flow test	Deleted not req'd
6	Cont Spray pumps, min flow test	Deleted not req'd
7	Various pumps, vibs by velocity	Deleted not req'd
8	Various pumps, no bearing temp measurement	Deleted not req'd
9	Various pumps, liquid in gage line	Deleted not req'd
10	Various pumps, instrument accuracy and range	PRR-01
11	BAT pumps, min flow test	Deleted not req'd
12	BAT pumps, tested refueling only	Deleted not req'd
13	SW pumps, inlet press by water level	Deleted not req'd
14	CVCS pumps, discharge press, not DP	Deleted not req'd
15	Chilled Water pumps, fixed resistance system	Deleted not req'd
16	All pumps, diff press calculated, not measured	Deleted not req'd
17	SI and RHR pumps, 5 minute hold time	Deleted not req'd
18	AF pumps, 5 minute hold time	Deleted not req'd

1.0 INTRODUCTION

In the fall of 1997, a comprehensive review was initiated of the design and licensing bases and regulatory commitments in regards to pump and valve inservice testing (IST) requirements at the Point Beach Nuclear Plant, (PBNP), Units 1 and 2. Determinations of component safety functions and testing requirements and the bases for these determinations were documented in the PBNP IST Program Background Document. As a result of this review, improvements to the IST Program were recommended and a number of required changes were identified to comply with regulatory and code requirements. This revision of the PBNP IST Program incorporates the improvements and required changes. All Unit 1 and 2 components tested under the IST Program are identified along with relevant component information, drawings, tests, and test frequencies. This document also provides an overall description of activities which are intended to fulfill the IST requirements for pumps and valves. Appendices to this document contain requests for relief from code requirements, justifications of deferral of testing, utility technical positions, and a list of significant changes to the program (added or deleted components; added, deleted, or modified relief requests and deferred test justifications; changed tests or test frequencies).

2.0 CODE AND REGULATORY REQUIREMENTS

PBNP Technical Specification 15.4.2 requires IST of ASME Code Class 1, 2, and 3 pumps and valves in accordance with the applicable Edition and Addenda of the ASME Boiler and Pressure Vessel Code, Section XI, as specified in 10CFR50.55a. Paragraph (f)(4)(ii) of 10CFR50.55a requires that IST Programs be updated at ten year intervals to comply with the latest NRC approved edition and addenda of the ASME Code incorporated by reference in Paragraph (b) 12 months prior to the start of the interval. The third ten year test interval for PBNP Units 1 and 2 commenced December 21, 1990. Although the original licensing dates of Units 1 and 2 are different, concurrent testing intervals were established for Units 1 and 2 during the 1980's (second ten year interval) to match the ten year testing intervals and code editions for both units.

The Code of Record for the current third ten year test interval is the 1986 Edition of Section XI. Per Paragraph (f)(4)(iv), later code editions and addenda, or portions thereof, may be adopted provided they have been approved for use by the NRC. The IST Program outlined in this document is based on the requirements of the 1986 Edition of Section XI (the Code), Subsections IWP and IWV, unless otherwise noted. Per the requirements of the 1986 Edition of Section XI, safety valves, relief valves, vacuum breakers and rupture disks are tested in accordance with ASME Standard OM-1-1981 (OM-1).

According to 10 CFR 50.55a(f)(l) and 10 CFR 50.55a(f)(4), inservice testing shall be conducted in accordance with the appropriate edition/addenda of the code to the extent practical within the limitations of design, geometry, and materials of construction. Where code requirements have been determined to be impractical, written relief has been requested. Generic Letter (GL) 89-04, "Guidance on Developing Acceptable Inservice Testing Programs," granted generic industry relief to allow the use of alternatives outlined in Attachment 1, Positions 1, 2, 6, 9 and 10.

In addition to ASME Section XI and OM-1, this IST Program was prepared using the guidelines provided in NRC NUREG-1482, "Guidelines for Inservice Testing at Nuclear Power Plants", Generic Letter (GL) 89-04, and NUREG/CR-6396, "Examples, Clarification, and Guidance on Preparing Requests for Relief from Pump and Valve Inservice Testing Requirements."

3.0 GENERAL IST PROGRAM GUIDELINES AND POSITIONS

PBNP IST Program Background Document was developed to establish consistent guidelines for determining IST Program scope and testing requirements. The IST Program Background Document contains evaluations of plant systems and related components and provides the detailed bases for including components in the IST Program or for excluding them. The following guidelines were used for evaluating pumps and valves with respect to IST Program scope and for implementation of ASME Code requirements.

3.1 By 10 CFR 50.55a(f)(l), inservice testing of pumps and valves for plants with construction permits docketed prior to January 1, 1971, is limited to those that are safety-related. This applies to PBNP Units 1 and 2.

3.2 NUREG-0800, Section 5.4.7, and NRC Technical Position RSB 5-1, define requirements to be capable of achieving cold shutdown using only safety-related equipment. However, per RSB 5-1, for facilities which received their operating licenses prior to 1979 the extent that these requirements were to be backfitted was to be determined based on further staff reviews. No backfit requirements have been imposed by the NRC staff and WE has made no commitments in regards to NUREG-0800, Section 5.4.7, and NRC Technical Position RSB 5-1. The 1986 Edition of Section XI requires testing of components required to bring the plant to cold shutdown; however, the wording of later ASME standards and code editions was modified to replace the words "cold shutdown" with "safe shutdown" in recognition that some older plants were licensed for a safe shutdown condition of hot shutdown rather than cold shutdown. Per NRC guidance in NUREG-1482, Section 2.2, plants licensed for hot shutdown need not include components which perform no safety function for accident mitigation but are necessary to achieve cold shutdown. Point Beach is licensed for hot shutdown as the safe shutdown condition.

3.3 The PBNP FSAR, regulatory commitments, and related licensing basis or design basis documents (such as docketed design and testing commitments), are the primary references for determining which components perform functions within the scope of the ASME Code. Technical Specifications and several other plant source documents (DBDs, design guides, emergency and abnormal operating procedures, etc.) identify components that may be important to safe operation of the facility, an enhancement to system reliability, or are operated in conjunction with accident recovery. However, unless specific credit is taken for a component or system in design or licensing basis documents for achieving safe shutdown or mitigating the consequences of an accident, the component need not be included in the IST Program.

3.4 USAS B31.1 was the construction code for Point Beach. Since Point Beach was not constructed to Section III of the ASME Boiler and Pressure Vessel Code, components were originally neither designed to ASME Code Class 1, 2, and 3 requirements nor classified as such. The ASME Code classifications of systems and components at Point Beach were established only to define components subject to inservice inspection and testing requirements. The NRC staff issued Reg. Guide 1.26 to provide guidance on ASME Code classification of components for non-Section III plants. Per the NRC Standard Review Plan, NUREG-0800, Section 3.2.2, licensees may use either Reg. Guide 1.26 or the ANS standards (ANSI/ANS-51.1 for PWRs) for establishing component classifications. Both documents classify components according to the safety functions that they perform. However, Reg. Guide 1.26 does not cover many components and systems which may perform safety-related functions such as emergency diesel support systems, HVAC systems, and instrument air/nitrogen systems. Also, Reg. Guide 1.26 does not define classification requirements for primary containment penetration piping and containment isolation valves. Therefore, many components which perform safety functions may not be ASME Class 1, 2, or 3 if classifications were based only on Reg. Guide 1.26. Technically, non-ASME Code Class components are outside the scope of the IST Program since the regulations for IST specifically apply only for ASME Class 1, 2 and 3 pumps and valves. However, 10CFR50.55a and 10CFR50, Appendix B, Criterion XI, require that all components be tested commensurate with their importance to safety regardless of Code classification. Some non-ASME Code Class components are included in the Point Beach IST Program. Additionally, some ASME Code Class components may have tests listed in the IST Program which are not required by the ASME Code, but which are performed based on engineering judgment. Tests of non-ASME Code Class components in the IST Program are identified as "augmented tests". Likewise, tests of ASME Code Class components which are beyond ASME Code requirements are also identified as "augmented tests". Augmented tests are performed in accordance with ASME Code requirements when practical. When the tests methods or frequencies for Augmented tests deviate from ASME Code requirements, technical positions and technical justifications are included in Appendices E and F to justify these deviations from the ASME Code.

3.5 NUREG-1482, "Guidelines for Inservice Testing at Nuclear Power Plants," lists typical safety-related, ASME Code Class systems in pressurized water reactors and lists typical components included in IST Programs. However, this guidance is generic in nature. The requirements for classifications of systems and component testing varies significantly, even between plants of similar design. This is because the licensing bases differ from plant to plant and the lack of standardized plant designs. Additionally, the accident analysis input assumptions and the components credited with active safety functions may differ.

3.6 The NRC staff has not provided definitive guidance regarding the events which should be considered "accidents" within the scope of the ASME Code. However, per NRC staff guidance contained in NUREG-1482, Appendix A, accidents considered should not be limited to Chapter 14 design basis accidents. Design basis accidents are worst case scenarios which define bounding consequences. However, less severe scenarios may exist which may still result in core damage and threaten the health and safety of the public. Therefore, the scope of the PBNP IST Program includes all components which function to prevent, or mitigate the consequences of, any accident which could result in off-site doses in excess of 10CFR100 limits.

3.7 Consistent with industry practice, components required solely to mitigate the consequences of 10CFR50 Appendix R fires and station blackout events are outside the scope of the IST Program since these events are beyond the facility design basis. Beyond design basis events are initiated by multiple (and sometimes complete) failures of safety-related components and systems. The facility design is based on requirement that each safety system be capable of performing its safety-related functions given a failure of the most limiting active component. Although regulations have been imposed that require the capability to cope with, or to mitigate these events, they are outside the scope of the facility accident analyses. Components whose sole safety functions are to mitigate these events are not required by regulations to be classified as safety-related. These components are non-safety-related but are classified as QA scope, augmented quality (AQ), per the Point Beach Q list.

3.8 Safety-related systems are required to be capable of performing their safety function during and following design basis events (the Point Beach definition of design basis events includes more than accidents) given the most limiting single active component failure. However, where multiple components are capable of performing the same equivalent and redundant specified function (e.g., multiple valves closing in series) and where the components are not supplied by alternate and redundant power supplies, or are not required to meet single failure criteria, only one of the redundant components need be included in the IST Program. The component must be relied upon to perform and not simply have the capability of performance. This exemption only applies where licensing documents do not take credit for the designed redundancy. Components performing redundant functions shall be included in the testing program if, in the process of analysis or licensing justification, they are relied upon to be operable.

3.9 Per the guidance of NUREG-1482, Section 3.4, skid-mounted components are not considered to be within the scope of IST. Component subassemblies, such as solenoid valves used for control of air operated valves, are also excluded as allowed by NUREG-1482. Skid-mounted components and component subassemblies were determined and excluded in accordance with the definition and exclusions contained in the 1996 Addenda to the 1995 Edition of the ASME Operations and Maintenance Code (OMa-1996), paragraphs ISTA 1.7, ISTB 1.2(c), and ISTC 1.2. Per OMa-1996, skid-mounted pumps and valves are excluded provided they are tested as part of the major component (valve assembly, turbine, engine, etc.) and are justified by the Owner to be adequately tested. The bases for exclusion of skid-mounted components are contained in the PBNP IST Program Background Document.

3.10 As outlined in NUREG-1482, the intent of the Code is that inservice tests be performed at the specified frequency with the actual time between tests being approximately equal. The test frequencies stipulated by ASME Section XI and the current PBNP Technical Specifications are ambiguous (monthly, quarterly, biennially, etc.). Based on Standard Technical Specifications and the NRC staff recommendations of NUREG-1482, Section 3.1.3, test frequencies shall be defined as follows:

Stipulated Code or Technical Specification Frequency	Required IST Frequency (at least once every)
Monthly	31 Days
Quarterly or Every 3 Months	92 Days
Yearly or Annually	366 Days
Refueling	Every Refueling Outage
Biennially or Every 2 Years	24 Months

3.11 As allowed by PBNP Technical Specifications and recommended in NUREG-1482, Section 3.1.3, a 25% extension may be applied to the required IST frequencies listed above to provide operational and scheduling flexibility with the exception of the refueling outage frequency. Testing which is performed at a refueling outage frequency shall be performed every refueling outage unless specific relief is granted. The test frequency extension allowance does not apply to the safety and relief valve test frequencies specified in ASME OM-1.

4.0 DEFINITIONS

4.1 **Active valves** - Valves which are required to change disk position to accomplish a specific function for accident mitigation or achieving/maintaining safe shutdown.

4.2 **Administrative Controls** - A valve shall be considered to be under administrative control, if; the valve is locked or de-energized in its normal position, or procedurally controlled if mispositioned. Administrative controls may also consist of stationing a dedicated operator at the controls of the valve, who is in continuous communication with the control room.

4.3 **Containment Isolation Valve** - Valves which provide a barrier between the containment environment and the outside environment which must be capable of closure to maintain containment integrity. Containment isolation valves are listed in FSAR Section 5.2.2.

4.4 **Design Bases** - That information which identifies the specific functions to be performed by a structure, system, or component of a facility, and the specific values or ranges of values chosen for controlling parameters as reference bounds for design. These values may be (1) restraints derived from generally accepted "state of the art" practices for achieving functional goals, or (2) requirements derived from analysis (based on calculation and/or experiments) of the effects of a postulated accident for which a structure, system, or component must meet its functional goals.

4.5 **Event V PIVs** - Two check valves in series at the reactor coolant system pressure boundary interface with a low pressure system which penetrates containment. Failure of Event V check valves may result in a LOCA bypasses containment.

4.6 **Exercising** - The demonstration based on direct or indirect visual or other positive indication that the moving parts of a valve function satisfactorily.

4.7 **Fail-safe Valves** - Valves equipped with fail-safe actuators that are required to move to a position intended to fulfill the intended safety function upon a loss of actuating power (typically instrument air and/or electrical control power).

4.8 **Inactive Valves** - Valves with safety functions in both directions may not have to actuate or change positions to perform their safety function in one of the two directions. For cases such as these, the applicable valves are identified as having an active safety function in one direction and an inactive safety function in the other direction.

4.9 **Instrument Accuracy** - The allowable inaccuracy of an instrument loop based on the combination of the inaccuracies of each instrument or component in the loop.

4.10 **Instrument Loop** - Two or more instruments or components working together to provide a single output (e.g., a vibration probe and its associated signal conditioning and readout devices).

4.11 **Limiting Value of Full-Stroke Time** - The calculated maximum allowable valve stroke time limit established to assure that corrective action is taken on a degraded valve before it reaches the point where there is a high probability of failure to perform its safety function if called upon. If a design, Technical Specification, FSAR, or accident analysis limit exists which is more limiting, then it shall be used as the limiting value of full-stroke time in lieu of the calculated value.

4.12 **Operational Readiness** - The ability of a pump or valve to perform its intended function.

4.13 **Passive Valves** - Valves which are not required to change disk position in order to accomplish their safety function.

4.14 **Pressure Isolation Valves** - Two normally closed valves in series that form the reactor coolant pressure boundary and isolate reactor coolant system pressure from an attached low pressure system.

4.15 **Reactor Coolant System Pressure Boundary** - All those pressure retaining components of boiling and pressurized water reactors such as pressure vessels, piping, pumps, and valves which are:

4.15.1 Part of the reactor coolant system or,

4.15.2 Connected to the reactor coolant system, up to and including any and all of the following:

a. The outermost containment isolation valves in system piping which penetrates primary containment,

b. The second of two valves normally closed during normal reactor operation in system piping which does not penetrate primary containment,

c. The reactor coolant system safety and relief valves.

4.16 **Reference Values** - One or more values of test parameters measured or determined when the equipment is known to be operating acceptably.

4.17 **Safety-Related** - designation applied to components which must function to:

4.17.1 Assure the integrity of the reactor coolant pressure boundary,

4.17.2 Shut down the reactor and maintain it in a safe shutdown condition, or

4.17.3 Prevent or mitigate the consequences of accidents which could result in potential offsite exposures comparable to 10CFR100 limits.

4.18 **Single Failure** - An occurrence which results in the loss of a capability of a component to perform its intended safety functions. Multiple failures resulting from a single occurrence are considered to be a single failure. Fluid and electric systems are considered to be designed against an assumed single failure if neither (1) a single failure of any active component (assuming passive components function properly) nor (2) a single failure of a passive component (assuming active components function properly) results in a loss of the capability of the system to perform its safety functions.

4.19 **Skid-Mounted Pumps and Valves** - Pumps and valves which are integral to or that support operation of major components, even though these pumps and valves may not be located on the skid. In general, these pumps and valves are supplied by the manufacturer of the major component. Examples include: diesel fuel oil pumps and valves, steam admission and trip throttle valves for turbines, and solenoid operated pilot valves used to control air operated valves.

4.20 **System Resistance** - The hydraulic resistance to flow in a system.

4.21 **Valve Category** - The ASME Code defines test requirements by valve categories. All valves in the IST Program are assigned to one of the following categories:

4.21.1 Category A - Valves for which seat leakage is limited to a specific maximum amount in the closed position for fulfillment of their function.

4.21.2 Category B - Valves for which seat leakage in the closed position is inconsequential for fulfillment of their function.

4.21.3 Category C - Valves which are self-actuating in response to some system characteristic, such as pressure (relief valves).

4.21.4 Category D - Valves which are actuated by an energy source capable of only one operation such as rupture disks or explosive-actuated valves.

5.0 REFERENCES

5.1 Title 10, Code of Federal Regulations, Part 50

5.2 NRC Regulatory Guides - Division 1

5.3 Standard Review Plan Section 3.2.2, "System Quality Group Classification"

5.4 Standard Review Plan Section 3.9.6, "Inservice Testing of Pumps and Valves"

5.5 Standard Review Plan Section 5.4.7, "Design Requirements of the RHR System"

5.6 Final Safety Analysis Report, Point Beach Units 1 & 2

5.7 Point Beach Plant Unit 1 Technical Specifications

5.8 Point Beach Plant Unit 2 Technical Specifications

5.9 ASME Boiler and Pressure Vessel Code, Section XI, 1986 Edition

5.10 ASME Standards OMa-1988, Part 6, "Inservice Testing of Pumps in Light-Water Reactor Power Plants."

5.11 ASME Standards OMa-1988, Part 10, "Inservice Testing of Valves in Light-Water Reactor Power Plants."

5.12 ASME Standard OM-1-1981, "Requirements for Inservice Performance Testing of Nuclear Power Plant Pressure Relief Devices."

5.13 ASME OM Code-1995, with 1996 Addenda, "Code of Operation and Maintenance of Nuclear Power Plants."

5.14 NRC Generic Letter 89-04, "Guidance on Developing Acceptable Inservice Testing Programs"

5.15 NUREG-1482, "Guidelines for Inservice Testing at Nuclear Power Plants."

5.16 Point Beach Nuclear Plant Responses to GL 89-04, dated October 3, 1989, March 2, 1990, June 28, 1990, and September 11, 1990.

5.17 NRC minutes of public meetings on GL 89-04, dated October 25, 1989.

5.18 NRC Safety Evaluation Report (SER), dated April 17, 1992, on the Point Beach Nuclear Plant Inservice Testing Program, Third 10-Year Interval.

5.19 NRC SER, dated October 28, 1993, on the Point Beach Nuclear Plant Inservice Testing Program, Third 10-Year Interval.

5.20 NRC SER, dated December 12, 1994, on the Point Beach Nuclear Plant Inservice Testing Program, Third 10-Year Interval.

6.0 PUMP IST PROGRAM

6.1 Pump Selection Criteria and Exemptions

6.1.1 The basic scope of the pump IST Program is defined in Subsection IWP of ASME Section XI. Per paragraph IWP-1100, IST requirements apply to all ASME Code Class 1, 2, and 3 centrifugal and positive displacement pumps which are provided with emergency power that are required to perform a specific function in shutting down the reactor or in mitigating the consequences of an accident.

6.1.2 Fans and compressors are exempt from the ASME Code testing requirements

6.1.3 Drivers are exempt from ASME Code testing requirements except where the pump and driver form an integral unit and the pump bearings are located in the driver. Note that neither ASME Section XI nor the ASME OM Code define "integral unit". The scope of testing requirements for pump drivers is currently under review by the ASME OM Code Committee. Although vibration measurements are taken on pump drivers at PBNP, these measurements are not currently considered to be within the scope of ASME Section XI. However, this issue will be further evaluated pending guidance from the ASME OM Code Committee.

6.1.4 Pumps which do not perform a function within the scope of the ASME Code but are supplied with emergency power solely for operating convenience are exempt from ASME Code testing requirements.

6.2 Allowable Ranges of Test Quantities

The allowable ranges for test parameters as specified in Table IWP-3100-2 will be used for all measurements of pressure, flow, and vibrations except as provided for in specific relief requests. In some cases, the performance of a pump may be adequate to fulfill its safety function even though there may be a value of an operating parameter that falls outside the allowable ranges as set forth in Table IWP-3100-2. Should such a situation arise, an expanded allowable range may be determined, on a case-by-case basis, in accordance with IWP-3210 and ASME Code Interpretation XI-1-79-19. Additionally, when measurements fall outside the allowable ranges, IWP-3230(c) allows corrective action to be either replacement, repair, or an analysis to demonstrate that the condition does not impair pump operability and that the pump will still fulfill its function. Continued operability of a pump with test parameters outside Code allowable ranges shall be supported by an analysis which includes both a pump level and system level evaluation, the cause of the change in pump performance, and an evaluation of all trends indicated by available data.

6.3 Pump Testing Frequency

IWP-3400 requires that pumps be tested nominally every 3 months during normal plant operation. As a general rule, the current PBNP Technical Specifications do not specify operability requirements for systems and components when the reactor is not critical. Additionally, the 1986 Edition of ASME Section XI recommends, but does not require, pump testing during shutdown periods. Although not required by ASME Section XI, pump testing shall be performed quarterly during plant operation and during shutdown periods unless the pump is in a system which is inoperable or not required to be operable. If the quarterly testing frequency is not followed, pump testing shall be performed within the 3 months before the system is returned to operable status per the guidance of NUREG-1482, Section 5.1.1.

6.4 Pump Test Parameters

6.4.1 In accordance with the guidance of NUREG-1482, Section 5.1.2, pump inlet pressure, pump lubricant level or pressure, and pump bearing temperature are no longer required test parameters and have been deleted from the IST Program. Also, discharge pressure is measured in lieu of differential pressure for positive displacement pump tests. Suction pressure of centrifugal pumps is measured only where required to compute differential pressure. Although suction pressure is no longer a required measurement, relief is requested for instances where suction pressure instruments do not meet Code instrument range requirements or calculation methods do not meet Code accuracy requirements for pressure measurements. As allowed by NUREG-1482, Section 5.5.3, service water pump suction pressure is calculated based on intake bay level.

6.4.2 As allowed by NUREG-1482, Section 5.4, pump vibration is monitored in accordance with ASME OMa-1988, Part 6 (OM-6) in lieu of ASME Section XI requirements. The PBNP pump vibration monitoring program meets all the requirements of OM-6, paras. 4.6.1, 4.6.4, 5.2, 6.1, and Table 3a.

6.5 Relief Requests

All relief requests applicable to IST of pumps are contained in Appendix A of this document.

6.6 Pump Test Table

The following table defines the pumps included in the PBNP IST Program and provides pertinent component and test information. The legend below applies to the PBNP Pump Test Table.

6.6.1 Pump Description: The pump name or description.

6.6.2 Pump No.: Unique component tag number.

6.6.3 P&ID: Piping and instrumentation drawing on which the pump is depicted.

6.6.4 Coord.: Location coordinates of the pump on the P&ID.

6.6.5 Test Parameters: This column lists the applicable testing parameters that will be measured or observed. The parameters listed are those required by the Code. Any deviations from Code required measurements are described in the corresponding relief request. The following is a description of applicable parameters:

a. N = Pump speed (only required for variable speed pumps)

b. D/P = Pump differential pressure

c. P = Pump discharge pressure

d. Q = Pump flow rate

e. V = Vibration velocity

6.6.6 Code Class: ASME Code Classification of each pump.

6.6.7 Relief Request: Lists the identifying numbers of any applicable pump relief requests.

6.6.8 Test Procedure: This column lists the applicable pump IST Procedure.

6.6.9 Remarks: Any additional pertinent information is provided in this space.

PUMP NO *PID NO* *COORD*	**PUMP DESCRIPTION** *SYSTEM NAME* *Code Class*	*PUMP* *Type* *Driver*	TEST PARAMETER	RELIEF REQUESTS	TEST PROCEDURE	REMARKS
0P-38A *M-217, Sh.2* *F-3*	**Motor Driven AFW Pump (MDAFWP)** *Auxiliary Feedwater* *3*	*Horiz. Centri.* *Motor*	DP Q V		IT-10/10A/10B	See WE Calculation N 96-0244 for instrument uncertainties
0P-38B *M-217, Sh.2* *C-8*	**Motor Driven AFW Pump (MDAFWP)** *Auxiliary Feedwater* *3*	*Horiz. Centri.* *Motor*	DP Q V		IT-10/10A/10B	See WE Calculation N 96-0244 for instrument uncertainties
1P-29 *M-217, Sh.2* *C-4*	**Turbine Driven AFW Pump (TDAFWP)** *Auxiliary Feedwater* *3*	*Horiz. Centri.* *Turbine*	DP Q V N		IT-08A	See WE Calculation N 96-0244 for instrument uncertainties
2P-29 *M-217, Sh.2* *F-8*	**Turbine Driven AFW Pump (TDAFWP)** *Auxiliary Feedwater* *3*	*Horiz. Centri.* *Turbine*	DP Q V N		IT-09A	See WE Calculation N 96-0244 for instrument uncertainties

PUMP NO *PID NO* *COORD*	**PUMP DESCRIPTION** *SYSTEM NAME* *Code Class*	*PUMP* *Type* *Driver*	TEST PARAMETER	RELIEF REQUESTS	TEST PROCEDURE	REMARKS
1P-11A *110E018, Sh.3* *G-7*	**Component Cooling Water Pump** *Component Cooling Water* *2*	*Horiz. Centri.* *Motor*	DP Q V	PRR-1	IT-12/12A	See WE Calculation N 96-0284 for instrument uncertainties
1P-11B *110E018, Sh.3* *F-7*	**Component Cooling Water Pump** *Component Cooling Water* *2*	*Horiz. Centri.* *Motor*	DP Q V	PRR-1	IT-12/12A	See WE Calculation N 96-0284 for instrument uncertainties
2P-11A *110E029, Sh.3* *G-7*	**Component Cooling Water Pump** *Component Cooling Water* *2*	*Horiz. Centri.* *Motor*	DP Q V	PRR-1	IT-13	See WE Calculation N 96-0284 for instrument uncertainties
2P-11B *110E029, Sh.3* *F-7*	**Component Cooling Water Pump** *Component Cooling Water* *2*	*Horiz. Centri.* *Motor*	DP Q V	PRR-1	IT-13	See WE Calculation N 96-0284 for instrument uncertainties

PUMP NO *PID NO* *COORD*	**PUMP DESCRIPTION** *SYSTEM NAME* *Code Class*	*PUMP* *Type* *Driver*	TEST PARAMETER	RELIEF REQUESTS	TEST PROCEDURE	REMARKS
1P-14A *110E017, Sh.3* *G-5*	**Containment Spray Pump** *Containment Spray* *2*	*Horiz. Centri.* *Motor*	DP Q V		IT-05	See WE Calculation N 96-0233 for instrument uncertainties
1P-14B *110E017, Sh.3* *C-5*	**Containment Spray Pump** *Containment Spray* *2*	*Horiz. Centri.* *Motor*	DP Q V		IT-05	See WE Calculation N 96-0233 for instrument uncertainties
2P-14A *110E035, Sh.3* *G-5*	**Containment Spray Pump** *Containment Spray* *2*	*Horiz. Centri.* *Motor*	DP Q V		IT-06	See WE Calculation N 96-0233 for instrument uncertainties
2P-14B *110E017, Sh.3* *G-5*	**Containment Spray Pump** *Containment Spray* *2*	*Horiz. Centri.* *Motor*	DP Q V		IT-06	See WE Calculation N 96-0233 for instrument uncertainties

PUMP NO *PID NO* *COORD*	PUMP DESCRIPTION *SYSTEM NAME* *Code Class*	*PUMP* *Type* *Driver*	TEST PARAMETER	RELIEF REQUESTS	TEST PROCEDURE	REMARKS
0P-206A *M-219, Sh.2* *D-4*	**EDG G01 Fuel Oil Transfer Pump** *Diesel Fuel Oil* *3*	*Pos. Displ.* *Motor*	Q V P		IT-14	See WE Calculation N 96-0280 for instrument uncertainties
0P-206B *M-219, Sh.3* *E-7*	**EDG G03 Fuel Oil Transfer Pump** *Diesel Fuel Oil* *3*	*Pos. Displ.* *Motor*	Q V P		IT-14	See WE Calculation N 96-0280 for instrument uncertainties
0P-207A *M-219, Sh.2* *D-4*	**EDG G02 Fuel Oil Transfer Pump** *Diesel Fuel Oil* *3*	*Pos. Displ.* *Motor*	Q V P		IT-14	See WE Calculation N 96-0280 for instrument uncertainties
0P-207B *M-219, Sh.3* *E-8*	**EDG G04 Fuel Oil Transfer Pump** *Diesel Fuel Oil* *3*	*Pos. Displ.* *Motor*	Q V P		IT-14	See WE Calculation N 96-0280 for instrument uncertainties

PUMP NO *PID NO* *COORD*	PUMP DESCRIPTION *SYSTEM NAME* *Code Class*	*PUMP* *Type* *Driver*	TEST PARAMETER	RELIEF REQUESTS	TEST PROCEDURE	REMARKS
0P-111A *M-214, Sh.4* *B-9*	**CSR Chilled Water Pump - AUGMENTED** *Heating and Ventilation* *NC*	*Horiz. Centri.* *Motor*	DP Q V	TP-05	IT-15	See WE Calculation N 96-0277 for instrument uncertainties
0P-111B *M-214, Sh.4* *B-9*	**CSR Chilled Water Pump - AUGMENTED** *Heating and Ventilation* *NC*	*Horiz. Centri.* *Motor*	DP Q V	TP-05	IT-15	See WE Calculation N 96-0277 for instrument uncertainties
0P-112A *M-214, Sh.4* *C-9*	**CR Chilled Water Pump - AUGMENTED** *Heating and Ventilation* *NC*	*Horiz. Centri.* *Motor*	DP Q V		IT-15	See WE Calculation N 96-0277 for instrument uncertainties
0P-112B *M-214, Sh.4* *C-9*	**CR Chilled Water Pump - AUGMENTED** *Heating and Ventilation* *NC*	*Horiz. Centri.* *Motor*	DP Q V		IT-15	See WE Calculation N 96-0277 for instrument uncertainties

PUMP NO *PID NO* *COORD*	**PUMP DESCRIPTION** *SYSTEM NAME* *Code Class*	*PUMP* *Type* *Driver*	TEST PARAMETER	RELIEF REQUESTS	TEST PROCEDURE	REMARKS
1P-010A *110E018, Sh.1* *D-6*	**Residual Heat Removal Pump** *Residual Heat Removal* *2*	*Horiz. Centri.* *Motor*	DP Q V	PRR-1	IT-03/03A	See WE Calculation N 96-0229 for instrument uncertainties
1P-010B *110E018, Sh.1* *B-6*	**Residual Heat Removal Pump** *Residual Heat Removal* *2*	*Horiz. Centri.* *Motor*	DP Q V	PRR-1	IT-03/03A	See WE Calculation N 96-0229 for instrument uncertainties
2P-010A *110E029, Sh.1* *D-6*	**Residual Heat Removal Pump** *Residual Heat Removal* *2*	*Horiz. Centri.* *Motor*	DP Q V	PRR-1	IT-04/04A	See WE Calculation N 96-0229 for instrument uncertainties
2P-010B *110E029, Sh.1* *B-6*	**Residual Heat Removal Pump** *Residual Heat Removal* *2*	*Horiz. Centri.* *Motor*	DP Q V	PRR-1	IT-04/04A	See WE Calculation N 96-0229 for instrument uncertainties

PUMP NO *PID NO* *COORD*	**PUMP DESCRIPTION** *SYSTEM NAME* *Code Class*	PUMP *Type* *Driver*	TEST PARAMETER	RELIEF REQUESTS	TEST PROCEDURE	REMARKS
1P-15A *110E017, Sh.2* *F-7*	**Safety Injection Pump** *Safety Injection* *2*	*Horiz. Centri.* *Motor*	DP Q V		IT-01	See WE Calculation N 96-0191, Rev.1 for instrument uncertainties
1P-15B *110E017, Sh.2* *E-7*	**Safety Injection Pump** *Safety Injection* *2*	*Horiz. Centri.* *Motor*	DP Q V		IT-01	See WE Calculation N 96-0191, Rev.1 for instrument uncertainties
2P-15A *110E035, Sh.2* *F-7*	**Safety Injection Pump** *Safety Injection* *2*	*Horiz. Centri.* *Motor*	DP Q V		IT-02	See WE Calculation N 96-0191, Rev.1 for instrument uncertainties
2P-15B *110E035, Sh.2* *D-7*	**Safety Injection Pump** *Safety Injection* *2*	*Horiz. Centri.* *Motor*	DP Q V		IT-02	See WE Calculation N 96-0191, Rev.1 for instrument uncertainties

PUMP NO *PID NO* *COORD*	PUMP DESCRIPTION *SYSTEM NAME* *Code Class*	*PUMP* *Type* *Driver*	TEST PARAMETER	RELIEF REQUESTS	TEST PROCEDURE	REMARKS
0P-32A *M-207, Sh.1* *D-2*	**Service Water Pump** *Service Water* *3*	*Vert. Centri.* *Motor*	DP Q V		IT-07A	See WE Calculation N 96-0246, Rev. 2 for instrument uncertainties
0P-32B *M-207, Sh.1* *D-1*	**Service Water Pump** *Service Water* *3*	*Vert. Centri.* *Motor*	DP Q V		IT-07B	See WE Calculation N 96-0246, Rev. 2 for instrument uncertainties
0P-32C *M-207, Sh.1* *D-1*	**Service Water Pump** *Service Water* *3*	*Vert. Centri.* *Motor*	DP Q V		IT-07C	See WE Calculation N 96-0246, Rev. 2 for instrument uncertainties
0P-32D *M-207, Sh.1* *E-2*	**Service Water Pump** *Service Water* *3*	*Vert. Centri.* *Motor*	DP Q V		IT-07D	See WE Calculation N 96-0246, Rev. 2 for instrument uncertainties

PUMP NO *PID NO* *COORD*	PUMP DESCRIPTION *SYSTEM NAME* *Code Class*	*PUMP* *Type* *Driver*	TEST PARAMETER	RELIEF REQUESTS	TEST PROCEDURE	REMARKS
0P-32E *M-207, Sh.1* *E-1*	**Service Water Pump** *Service Water* *3*	*Vert. Centri.* *Motor*	DP Q V		IT-07E	See WE Calculation N 96-0246, Rev. 2 for instrument uncertainties
0P-32F *M-207, Sh.1* *E-1*	**Service Water Pump** *Service Water* *3*	*Vert. Centri.* *Motor*	DP Q V		IT-07F	See WE Calculation N 96-0246, Rev. 2 for instrument uncertainties
0P-12A *110E018, Sh.4* *D-5*	**Spent Fuel Pool Cooling Pump** *Spent Fuel Pool Cooling* *3*	*Horiz. Centri.* *Motor*	DP Q V	PRR-1	IT-11	See WE Calculation N 96-0272 for instrument uncertainties
0P-12B *110E018, Sh.4* *E-5*	**Spent Fuel Pool Cooling Pump** *Spent Fuel Pool Cooling* *3*	*Horiz. Centri.* *Motor*	DP Q V	PRR-1	IT-11	See WE Calculation N 96-0272 for instrument uncertainties

7.0 VALVE IST PROGRAM

7.1 Valve Selection Criteria and Exemptions

7.1.1 The basic scope of the IST Program for valves is defined in Subsection IWV of ASME Section XI. Paragraph IWV-1100 requires IST of all ASME Code Class 1, 2, and 3 valves (and their actuating and position indicating systems) that are required to perform a specific function in shutting down the reactor to the cold shutdown condition or in mitigating the consequences of an accident. Subsection IWV also specifies that relief valves shall be tested per the requirements of ASME Standard OM-1-1981 (OM-1). The scope of OM-1 includes all pressure relief devices (including vacuum breakers and rupture disks) which provide overpressure protection for systems, parts of systems or components which perform the above functions.

7.1.2 Control valves are exempt from the ASME Code testing requirements as allowed by Section XI, para. IWV-1200. However, per NUREG-1482, Section 4.2.9, control valves that receive safety system actuation signals and/or have required fail-safe positions are required to meet all test requirements for Category B valves (exercise test, stroke time test, position indication test, and fail-safe test).

7.1.3 Dampers are exempt from the ASME Code testing requirements. Valves in safety-related ventilation systems (such as control room or primary containment ventilation butterfly valves) are within the scope of the testing requirements of the 10CFR50 IST requirements if they are ASME Code Class 2 or 3.

7.1.4 Valves that are actuated as a result of a safety system automatic response shall be included in the Program to the extent that the testing shall verify valve operation required as a result of the safety system input. This applies only if valve movement is required to support those functions required as specified by the Code. This requirement extends only to testing defined by the Code and is not intended to imply the need for verifying a valve's response to automatic logic system output.

7.1.5 Valves which perform safety functions are defined as being either active or passive. Valves are stated to have an active safety function if they must actuate or change positions to perform their safety function. Generally, a passive designation is allowed only if a valve need not actuate or change positions to perform its safety function(s); however, per NUREG-1482, Section 2.4.2, a valve need not be considered active if it is only temporarily removed from service or from its safety position for a short period of time while maintaining administrative control over the valve. Leakage rate testing is the only test requirement applicable to passive valves in ASME Section XI. Some valves have safety functions in both the open and closed positions and, per NRC guidance, are tested to both positions. Valves with safety functions in both directions may not have to actuate or change positions to perform their safety function in one of the two directions. For example, a normally open power operated valve in an ECCS injection line which also functions as a containment isolation valve (CIV) may not need to change position to perform its open safety function for emergency core cooling, but must be capable of closure to assure containment integrity. For cases such as these, the applicable valves are identified as having an active safety function in one direction and an inactive safety function in the other direction. By definition, they cannot be called passive valves, nor can they have an active safety function in one direction and a passive safety function in another.

7.1.6 Thermal relief valves provide protection from overpressure due to thermal expansion of fluid for components and portions of systems when they are isolated. Thermal relief valves are not defined in ASME Section XI or the OM Code. The OM-1 Committee position is that overpressure relief devices are within the scope of OM-1 if they provide overpressure protection for components or portions of systems when they are required to be operable to perform functions within the scope of the Code. Thermal relief valves are considered outside the scope of the IST Program if: (1) they are installed in systems, or portions of systems, that are not required for accident mitigation or to achieve safe shutdown or, (2) they protect portions of safety-related systems solely from overpressure due to thermal expansion when isolated, but the applicable system portion would not be isolated during normal operations or accident conditions and, (3) challenge of the thermal relief valve combined with a subsequent failure to reclose would not prevent safety-related components from performing their safety function(s).

7.1.7 All facility pressure isolation valves are identified in this document. Pressure isolation valves (PIVs) are defined as two normally closed valves in series at the reactor coolant system pressure boundary that isolate the reactor coolant system from an attached low pressure system. Event V check valves are a special sub-set of PIVs, defined as two series check valves which perform PIV functions and are located in piping which penetrates containment. The NRC staff guidance in NUREG-1482, Appendix A (in regards to implementation of the staff position on PIV testing contained in Generic Letter 89-04, Attachment 1, Position 4) states that PIV testing should be conducted in accordance with Technical Specifications and any additional commitments made in response to Generic Letter 87-06. Per NUREG-1482, any PIVs not listed in Technical Specifications should at least be tested to verify closure capability. PBNP Technical Specifications contain leak rate testing requirements for PIVs; however, only Event V PIVs are listed in Technical Specifications. The PBNP response to Generic Letter 87-06 identified the following nine valves in each unit which meet the definition for PIVs but were neither listed in Technical Specifications nor leak rate tested per Section XI requirements: 1(2)SI-842A, -842B, 1(2)RH-700, -701,-720, 1(2)RC-503, -541, -598, and -599. The RCS Loop Drain Valves 1(2)RC-503, -541, -598, and -599 are no longer installed. The RHR Suction Valves from the RCS Hot Leg, 1(2)RH-700 and -701, are tested consistent with the Generic Letter 87-06 commitments which is to monitor RCS boundary leakage and verify seat tightness by monitoring downstream RHR system pressure during startup. A system modification would be required to leak rate test these valves per Code requirements. Although no commitment was made in the Generic Letter 87-06 response to test the RHR Cold Leg MOV Isolation Valves, 1(2)RH-720, per ASME Code requirements, Code leak rate testing is being performed on these valves. The SI Accumulator Discharge Check Valves, 1(2)SI-842A&B, are leak rate tested by monitoring accumulator level during quarterly SI pump testing. This is consistent with the GL 87-06 commitment.

7.1.8 Containment isolation valves (CIVs) are seat leakage tested per the Point Beach Containment Leak Rate Testing (CLRT) Program as required by 10CFR50, Appendix J, Option B. All valves included in the Point Beach CLRT Program shall be included in the IST Program as Category A valves. However, as allowed by OM Standard OMa-1987, Part 10 (OM-10), para. 4.2.2.2, the OM-10 acceptance criteria and corrective action requirements do not apply to CIVs which perform no leakage important safety function other than for containment isolation. For these valves, the corrective action requirements of Appendix J and the CLRT Program shall be applied to ensure the cumulative leakage of the containment isolation valves does not exceed the limit defined in Technical Specification 15.4.4.

7.1.9 Active valves which are designated as primary containment isolation valves (CIVs) or boundary valves for primary containment closed systems perform a safety-related function to close. Some CIVs and closed system boundary valves may be exempted from seat leakage testing requirements as allowed by the 10CFR50 Appendix J Program. However, all active CIVs and closed system boundary valves shall be included in the IST Program and shall be exercised and stroke timed in accordance with ASME Code requirements, regardless of Appendix J exemptions.

7.1.10 Reactor coolant system (RCS) pressure boundary valves which are normally open or routinely opened have a safety-related function to close to maintain the integrity of the reactor coolant pressure boundary. Exception to this position is allowed provided that in the event of the postulated failure of downstream components during normal operation in conjunction with failure of the RCS pressure boundary valve to close, the reactor can be shut down and cooled down in an orderly manner assuming makeup is provided by the reactor coolant makeup system (CVCS). This exception is consistent with the requirements of 10CFR50.55a(c)(2) and the guidance of ANS 51.1-1983 (formerly ANSI N18.2).

7.1.11 Active ASME Code Class to non-ASME Code Class pressure boundary isolation valves generally have a safety-related function to close to maintain the integrity of the safety system pressure boundary. Exclusion of these valves from closure testing requirements is acceptable provided that failure of the pressure boundary isolation valve to close, combined with failure of downstream non-ASME Code Class components, would not impact safety system operation, including the potential effect on operability of safety-related components due to environmental concerns such as flooding or release of steam.

7.2 Valve Categories

All valves shall be designated as Category A, Category B, Category C, Category D, (see definitions) or a combination thereof (e.g. - check valves with a leakage important safety function would be classified as Category A and C (A/C) valves).

7.3 Valve Testing Frequency

7.3.1 The valve IST frequency will be as set forth in IWV-3411, IWV-3422, IWV-3511, and IWV-3600. Where Code required quarterly valve tests are impractical or otherwise undesirable, testing may be deferred to cold shutdown periods as permitted by IWV-3412(a). Additionally, if these tests are also impractical to perform during cold shutdown periods, testing may be deferred to refueling outages as allowed by ASME OMa-1988, Part 10 (OM-10), paras. 4.2.1.2(d) and 4.2.1.2(e). Valve testing which is performed during cold shutdowns and refueling outages shall be conducted in accordance with the requirements of OM-10 paras. 4.2.1.2(f), 4.2.1.2(g), 4.2.1.2(h) and the guidance of NUREG-1482, Sections 2.4.5 and 3.1.1. Justifications for deferral of testing to cold shutdowns and refueling outages are provided in Appendices C and D of this document.

7.3.2 As a general rule, the current PBNP Technical Specifications do not specify operability requirements for systems and components when the reactor is not critical. However, valve testing shall be performed as stipulated in Section XI, IWV-3400, during shutdown periods unless the valve is in a system which is inoperable or not required to be operable. If the quarterly testing frequency is not followed, valve testing shall be performed within the 3 months before the system is returned to operable status as required by OM-10, para. 4.2.1.7.

7.4 Valve Stroke Time Testing

7.4.1 In lieu of the IWV-3413 requirement that power operated valve stroke times be compared to the previous stroke time, stroke times will be compared to fixed reference values per NRC staff guidance contained in Generic Letter 89-04, Attachment 1, Position 6 and NUREG-1482, Section 4.2.7.

7.4.2 Stroke time reference values will be determined in accordance with OM-10, para. 3.3, from the results of tests performed under conditions as near as practicable to those expected during subsequent inservice testing. Reference values shall only be established for a valve when it is known to be operating acceptably.

7.4.3 Following and replacement, repair or maintenance which could affect a valve's stroke time, new reference value(s) will be determined or the previous value(s) reconfirmed prior to returning the valve to service as required to OM-10, para. 3.4.

7.1.9 Active valves which are designated as primary containment isolation valves (CIVs) or boundary valves for primary containment closed systems perform a safety-related function to close. Some CIVs and closed system boundary valves may be exempted from seat leakage testing requirements as allowed by the 10CFR50 Appendix J Program. However, all active CIVs and closed system boundary valves shall be included in the IST Program and shall be exercised and stroke timed in accordance with ASME Code requirements, regardless of Appendix J exemptions.

7.1.10 Reactor coolant system (RCS) pressure boundary valves which are normally open or routinely opened have a safety-related function to close to maintain the integrity of the reactor coolant pressure boundary. Exception to this position is allowed provided that in the event of the postulated failure of downstream components during normal operation in conjunction with failure of the RCS pressure boundary valve to close, the reactor can be shut down and cooled down in an orderly manner assuming makeup is provided by the reactor coolant makeup system (CVCS). This exception is consistent with the requirements of 10CFR50.55a(c)(2) and the guidance of ANS 51.1-1983 (formerly ANSI N18.2).

7.1.11 Active ASME Code Class to non-ASME Code Class pressure boundary isolation valves generally have a safety-related function to close to maintain the integrity of the safety system pressure boundary. Exclusion of these valves from closure testing requirements is acceptable provided that failure of the pressure boundary isolation valve to close, combined with failure of downstream non-ASME Code Class components, would not impact safety system operation, including the potential effect on operability of safety-related components due to environmental concerns such as flooding or release of steam.

7.2 Valve Categories

All valves shall be designated as Category A, Category B, Category C, Category D, (see definitions) or a combination thereof (e.g. - check valves with a leakage important safety function would be classified as Category A and C (A/C) valves).

7.3 Valve Testing Frequency

7.3.1 The valve IST frequency will be as set forth in IWV-3411, IWV-3422, IWV-3511, and IWV-3600. Where Code required quarterly valve tests are impractical or otherwise undesirable, testing may be deferred to cold shutdown periods as permitted by IWV-3412(a). Additionally, if these tests are also impractical to perform during cold shutdown periods, testing may be deferred to refueling outages as allowed by ASME OMa-1988, Part 10 (OM-10), paras. 4.2.1.2(d) and 4.2.1.2(e). Valve testing which is performed during cold shutdowns and refueling outages shall be conducted in accordance with the requirements of OM-10 paras. 4.2.1.2(f), 4.2.1.2(g), 4.2.1.2(h) and the guidance of NUREG-1482, Sections 2.4.5 and 3.1.1. Justifications for deferral of testing to cold shutdowns and refueling outages are provided in Appendices C and D of this document.

7.3.2 As a general rule, the current PBNP Technical Specifications do not specify operability requirements for systems and components when the reactor is not critical. However, valve testing shall be performed as stipulated in Section XI, IWV-3400, during shutdown periods unless the valve is in a system which is inoperable or not required to be operable. If the quarterly testing frequency is not followed, valve testing shall be performed within the 3 months before the system is returned to operable status as required by OM-10, para. 4.2.1.7.

7.4 Valve Stroke Time Testing

7.4.1 In lieu of the IWV-3413 requirement that power operated valve stroke times be compared to the previous stroke time, stroke times will be compared to fixed reference values per NRC staff guidance contained in Generic Letter 89-04, Attachment 1, Position 6 and NUREG-1482, Section 4.2.7.

7.4.2 Stroke time reference values will be determined in accordance with OM-10, para. 3.3, from the results of tests performed under conditions as near as practicable to those expected during subsequent inservice testing. Reference values shall only be established for a valve when it is known to be operating acceptably.

7.4.3 Following and replacement, repair or maintenance which could affect a valve's stroke time, new reference value(s) will be determined or the previous value(s) reconfirmed prior to returning the valve to service as required to OM-10, para. 3.4.

7.4.4 Stroke times may be impacted by changes in operating conditions (plant operation versus shutdown periods), seasonal conditions (summer versus winter), or system lineups. Therefore it may be necessary or desirable to establish addition reference values. Additional reference values shall be established in accordance with OM-10, para. 3.5. Whenever additional reference values are established, the reasons for doing so shall be justified and documented in the record of tests.

7.4.5 Stroke time acceptance criteria will be established in accordance with OM-10, para. 4.2.1.8. Limiting values of full-stroke time (LVFST) shall be established in accordance with the guidance of Generic Letter 89-04, Attachment 1, Positions 5. Acceptance criteria and LVFST are calculated based on the reference stroke times as shown below. However, if a design, Technical Specification, FSAR, or accident analysis limit exists which is more limiting, then it shall be used as the LVFST in lieu of the calculated value. Any valve whose reference value is less that or equal to two seconds may be (but is not required to be) designated a "rapid-acting valve" as outlined in Generic Letter 89-04, Attachment 1, Position 6 and allowed by OM-10, para. 4.2.1.8(e).

Actuator Type	Reference Value (RV, sec)	Acceptance Criteria (sec)	LVFST (sec)
Motor	RV>10.0	0.85RV - 1.15RV	≤1.3RV
	4.0≤RV≤10.0	0.75RV - 1.25RV	≤1.5RV
	RV<4.0	RV±1.0	RV+2.0
Other	RV>10.0	0.75RV - 1.25RV	≤1.5RV
	RV≤10.0	0.50RV - 1.50RV	≤2.0RV
Any, Rapid-Acting	RV≤2.0	N/A	2.0

7.4.6 Corrective actions for valve stroke times which exceed the acceptance criteria or limiting values of full-stroke time shall be in accordance with OM-10, para. 4.2.1.9.

7.5 Fail-Safe Testing

Most solenoid and air operated valves fail to either the open or closed positions upon a loss of actuating power due to the design of the actuators. However, only valves that have a safety-related fail-safe function shall be tested in accordance with IWV-3415.

7.6 Check Valve Testing

7.6.1 Full-stroke exercising of check valves to the open and closed positions using system flow shall meet the requirements of IWV-3520 and the guidance of Generic Letter 89-04, Attachment 1, Positions 1 and 2, respectively.

7.6.2 When exercise tests can not practically be performed or there are no means of verifying a full stroke open or closed, check valves may be disassembled and inspected every refueling outage as allowed by OM-10, para. 4.3.2.4(c). Where PBNP has determined that it is burdensome to disassemble and inspect all check valves every refueling outage, a sample disassembly and inspection plan for groups of valves may be employed as outlined in Generic Letter 89-04, Attachment 1, Position 2. Justifications for deferral of check valve testing using disassembly are contained in Appendix D of this document.

7.6.3 Radiography may provide a positive non-intrusive means of verifying check valve full-stroke capability.

7.7 Relief Requests

All relief requests applicable to IST of valves are contained in Appendix B of this document.

7.8 Valve Test Table

The following table defines the valves included in the PBNP IST Program and provides pertinent component and test information. The legend below applies to the PBNP Valve Test Table.

7.8.1 Valve Description: The valve name or description.

7.8.2 Valve No.: Unique component tag number.

7.8.3 P&ID: Piping and instrumentation drawing on which the pump is depicted.

7.8.4 Coord.: Location coordinates of the pump on the P&ID.

7.8.5 Code Class, Cat.: ASME Code Classification of each valve and the Code Valve Category.

7.8.6 Positions: The normal valve position, its safety position and its fail-safe position (if applicable).

7.8.7 Active-Passive: Defines whether the valve performs active (A), passive (P), or inactive (I) safety functions, or no safety function (N) in the open and closed positions.

7.8.8 Req. Test/Freq: The Code required tests for each valve and the frequency at which these tests are performed.

7.8.9 TP/TJ/CSJ/ROJ/RR: Listing for each valve of applicable technical positions, technical justifications, cold shutdown justifications, refueling outage justifications, and/or relief requests.

7.8.10 Test Procedure: This column lists the applicable valve IST Procedure

VALVE TABLE CODES

VALVE TYPE

AP	Angle Globe
BTF	Butterfly
CK	Check
DI	Diaphragm
GA	Gate
GL	Globe
PCV	Pressure Control
RD	Rupture Disk
REG	Regulator
SCK	Stop Check
SRV	Safety/Relief
VB	Vacuum Breaker

VALVE POSITIONS

O	Open
C	Closed
LO	Locked Open
LC	Locked Closed
OC	Open or Closed
PO	Partial Open
TH	Throttled

ACTUATOR TYPE

AO	Air Operator
HO	Hydraulic Operator
SO	Solenoid-Operator
MA	Manual Operator
MO	Motor Operator
SA	Self-Actuated

TEST FREQUENCY

Q	Quarterly
CS	Cold Shutdown
R	Refueling
2Y	Two Years
5Y	Five Years
10Y	Ten Years

TEST REQUIREMENTS*

INSP	Check valve disassembly and inspection.
BT	Power operated valve stroke time test.
CV	Check valve exercise test.
ET	Power operated valve exercise test.
FSM	Manual valve full-stroke exercise.
FST	Fail-safe test.
PIT	Remote position indication verification.
RVT	Safety and relief valve tests.
SLT-1	10CFR50, Appendix J, Type C, valve seat leakage test.
SLT-2	PIV seat leakage test.
SLT-3	Pressure decay seat leakage test of pneumatic accumulator check valves.
SLT-4	Leakage test of SI accumulator check valves by monitoring for accumulator level changes during SI pump testing.
SLT-5	Seat leakage test to identify gross leakage. Specific leakage rate will not be measured but leakage will be determined and evaluated with respect to system operability and the valve's capability to perform its safety function.
SLT-6	Seat leakage test to identify gross leakage. Specific leakage rate will be measured and evaluated.

* An "A" preceding the test requirement signifies a component requiring an Augmented test(s).

VALVE NO PID NO COORD	VALVE DESCRIPTION SYSTEM NAME Code: Class Cat	VALVE Type Size (In.) Actuator	POSITIONS Normal	 Safety	 Failsafe	ACTIVE-PASSIVE Open A/I/P/N	 Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
0AF-00109 *M-217, Sh.1* *D-7*	**MDAFWP P-38A Discharge Check** *Auxiliary Feedwater* *3 C*	*CK* *3* *SA*	*C*	*O*	*N/A*	*A*	*N*	CV-O(Q)		
0AF-00110 *M-217, Sh.1* *F-7*	**MDAFWP P-38B Discharge Check** *Auxiliary Feedwater* *3 C*	*CK* *4* *SA*	*C*	*O*	*N/A*	*A*	*N*	CV-O(Q)		
0AF-00112 *M-217, Sh.1* *D-5*	**MDAFWP P-38A Suction Check from CSTs** *Auxiliary Feedwater* *3 C*	*CK* *4* *SA*	*C*	*C*	*N/A*	*N*	*A*	CV-C(R)	ROJ-01	
0AF-00113 *M-217, Sh.1* *F-5*	**MDAFWP P-38B Suction Check from CSTs** *Auxiliary Feedwater* *3 C*	*CK* *4* *SA*	*C*	*C*	*N/A*	*N*	*A*	CV-C(R)	ROJ-01	
0AF-00133 *M-217, Sh.2* *G-6*	**Instrument Air Supply Check Valve to AF-4012** *Auxiliary Feedwater* *NC C*	*CK* *0.375* *SA*	*O*	*C*	*N/A*	*N*	*A*	ACV-C(Q)		

VALVE NO PID NO COORD	VALVE DESCRIPTION SYSTEM NAME Code: Class Cat	VALVE Type Size (In.) Actuator	POSITIONS Normal	 Safety	 Failsafe	ACTIVE-PASSIVE Open A/I/P/N	 Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
0AF-00142	**Backup Nitrogen Supply Check Valve to AF-4012**							ACV-O(Q)		
M-217, Sh.2	*Auxiliary Feedwater*	*CK* *0.375*	*C*	*O*	*N/A*	*A*	*N*			
F-4	*NC C*	*SA*								
0AF-00145	**Backup Nitrogen Supply Check Valve to AF-4012**							ACV-O(Q)		
M-217, Sh.2	*Auxiliary Feedwater*	*CK* *0.375*	*C*	*O*	*N/A*	*A*	*N*			
F-5	*NC C*	*SA*								
0AF-00153	**Instrument Air Supply Check Valve to AF-4019**							ACV-C(Q)		
M-217, Sh.2	*Auxiliary Feedwater*	*CK* *0.375*	*O*	*C*	*N/A*	*N*	*A*			
E-10	*NC C*	*SA*								
0AF-00162	**Backup Nitrogen Supply Check Valve to AF-4019**							ACV-O(Q)		
M-217, Sh.2	*Auxiliary Feedwater*	*CK* *0.375*	*C*	*O*	*N/A*	*A*	*N*			
B-9	*NC C*	*SA*								
0AF-00165	**Backup Nitrogen Supply Check Valve to AF-4019**							ACV-O(Q)		
M-217, Sh.2	*Auxiliary Feedwater*	*CK* *0.375*	*C*	*O*	*N/A*	*A*	*N*			
B-9	*NC C*	*SA*								

VALVE NO PID NO COORD	VALVE DESCRIPTION SYSTEM NAME Code: Class Cat	VALVE Type Size (In.) Actuator	POSITIONS Normal	 Safety	 Failsafe	ACTIVE-PASSIVE Open A/I/P/N	 Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
0AF-04007 *M-217, Sh.1* *D-6*	**MDAFWP P-38A Recirculation Flow Control Valve** *Auxiliary Feedwater* *3 B*	*GA* *2* *AO*	*C*	*C*	*C*	*N*	*A*	ET(Q) BT-C(Q) FST-C(Q) PIT(2Y)		
0AF-04009 *M-217, Sh.1* *D-5*	**MDAFWP P-38A Service Water Supply Isolation Valve** *Auxiliary Feedwater* *3 B*	*GA* *4* *MO*	*C*	*O*	*AI*	*A*	*N*	ET(Q) BT-O(Q) PIT(2Y)		
0AF-04012 *M-217, Sh.1* *D-7*	**MDAFWP P-38A Discharge Pressure Control Valve** *Auxiliary Feedwater* *3 B*	*GL* *3* *AO*	*C*	*O*	*O*	*A*	*N*	ET(Q) BT-O(Q) PIT(2Y)		
0AF-04014 *M-217, Sh.1* *E-6*	**MDAFWP P-38B Recirculation Flow Control Valve** *Auxiliary Feedwater* *3 B*	*GA* *2* *AO*	*C*	*C*	*C*	*N*	*A*	ET(Q) BT-C(Q) FST-C(Q) PIT(2Y)		
0AF-04016 *M-217, Sh.1* *F-5*	**MDAFWP P-38B Service Water Supply Isolation Valve** *Auxiliary Feedwater* *3 B*	*GA* *4* *MO*	*C*	*O*	*AI*	*A*	*N*	ET(Q) BT-O(Q) PIT(2Y)		

VALVE NO PID NO COORD	VALVE DESCRIPTION SYSTEM NAME Code: Class Cat	VALVE Type Size (In.) Actuator	POSITIONS Normal	 Safety	 Failsafe	ACTIVE-PASSIVE Open A/I/P/N	 Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
0AF-04019 *M-217, Sh.1* *F-7*	**MDAFWP P-38B Discharge Pressure Control Valve** *Auxiliary Feedwater* *3 B*	*GL* *3* *AO*	*C*	*O*	*O*	*A*	*N*	ET(Q) BT-O(Q) PIT(2Y)		
0AF-04020 *M-217, Sh.1* *F-9*	**MDAFWP P-38B Discharge to S/G 2HX-1B** *Auxiliary Feedwater* *3 B*	*GA* *3* *MO*	*C*	*OC*	*AI*	*A*	*A*	ET(Q) BT-O(Q) BT-C(Q) PIT(2Y)		
0AF-04021 *M-217, Sh.1* *E-9*	**MDAFWP P-38B Discharge to S/G 1HX-1B** *Auxiliary Feedwater* *3 B*	*GA* *3* *MO*	*C*	*OC*	*AI*	*A*	*A*	ET(Q) BT-O(Q) BT-C(Q) PIT(2Y)		
0AF-04022 *M-217, Sh.1* *E-9*	**MDAFWP P-38A Discharge to S/G 2HX-1A** *Auxiliary Feedwater* *3 B*	*GA* *3* *MO*	*C*	*OC*	*AI*	*A*	*A*	ET(Q) BT-O(Q) BT-C(Q) PIT(2Y)		
0AF-04023 *M-217, Sh.1* *D-9*	**MDAFWP P-38A Discharge to S/G 1HX-1A** *Auxiliary Feedwater* *3 B*	*GA* *3* *MO*	*C*	*OC*	*AI*	*A*	*A*	ET(Q) BT-O(Q) BT-C(Q) PIT(2Y)		

VALVE NO PID NO COORD	VALVE DESCRIPTION SYSTEM NAME Code: Class Cat	VALVE Type Size (In.) Actuator	POSITIONS Normal	 Safety	 Failsafe	ACTIVE-PASSIVE Open A/I/P/N	 Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
0AF-04027	**MDAFWP P-38B Suction Relief Valve**							RVT(10Y)		
M-217, Sh.2 C-8	Auxiliary Feedwater 3 C	SRV 1 SA	C	OC	N/A	A	A			
0AF-04028	**MDAFWP F-38A Suction Relief Valve**							RVT(10Y)		
M-217, Sh.2 G-4	Auxiliary Feedwater 3 C	SRV 1 SA	C	OC	N/A	A	A			
0AF-04052	**Backup Nitrogen Regulator to AF-4012 Outlet Relief Valve**							ARVT(10Y)		
M-217, Sh.2 F-5	Auxiliary Feedwater NC C	SRV 0.25 SA	C	OC	N/A	A	I			
0AF-04057	**Backup Nitrogen Regulator to AF-4019 Outlet Relief Valve**							ARVT(10Y)		
M-217, Sh.2 B-10	Auxiliary Feedwater NC C	SRV 0.25 SA	C	OC	N/A	A	I			
1AF-00018	**1P-29 Discharge to S/G 1HX-1A**							FSM(CS)	CSJ-02	
M-217, Sh.1 B-9	Auxiliary Feedwater 2 B	GA 3 MA	O	OC	N/A	I	A			

VALVE NO PID NO COORD	VALVE DESCRIPTION SYSTEM NAME Code: Class Cat	VALVE Type Size (In.) Actuator	POSITIONS Normal	 Safety	 Failsafe	ACTIVE-PASSIVE Open A/I/P/N	 Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
1AF-00019 *M-217, Sh.1* *C-9*	**1P-29 Discharge to S/G 1HX-1B** *Auxiliary Feedwater* *2 B*	*GA* *3* *MA*	*O*	*OC*	*N/A*	*I*	*A*	FSM(CS)	CSJ-02	
1AF-00031 *M-217, Sh.1* *A-9*	**P-38A Discharge to S/G 1HX-1A** *Auxiliary Feedwater* *2 B*	*GL* *3* *MA*	*O*	*OC*	*N/A*	*I*	*A*	FSM(CS)	CSJ-02	
1AF-00044 *M-217, Sh.1* *C-9*	**P-38B Discharge to S/G 1HX-1B** *Auxiliary Feedwater* *2 B*	*GL* *3* *MA*	*O*	*OC*	*N/A*	*I*	*A*	FSM(CS)	CSJ-02	
1AF-00100 *M-217, Sh.1* *B-10*	**AFW to Steam Generator 1HX-1A Injection Check Valve** *Auxiliary Feedwater* *2 C*	*CK* *3* *SA*	*C*	*OC*	*N/A*	*A*	*A*	CV-O(Q) CV-C(R)	 ROJ-02	
1AF-00101 *M-217, Sh.1* *C-10*	**AFW to Steam Generator 1HX-1B Injection Check Valve** *Auxiliary Feedwater* *2 C*	*CK* *3* *SA*	*C*	*OC*	*N/A*	*A*	*A*	CV-O(Q) CV-C(R)	 ROJ-02	

VALVE NO PID NO COORD	VALVE DESCRIPTION SYSTEM NAME Code: Class Cat	VALVE Type Size (In.) Actuator	POSITIONS Normal	 Safety	 Failsafe	ACTIVE-PASSIVE Open A/I/P/N	 Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
1AF-00102 *M-217, Sh.1* *A-9*	**MDAFWP P-38A Discharge Check to S/G 1HX-1A** *Auxiliary Feedwater* *2 C*	*CK* *3* *SA*	*C*	*OC*	*N/A*	*A*	*A*	CV-O(Q) CV-C(R)	 ROJ-03	
1AF-00104 *M-217, Sh.1* *C-9*	**MDAFWP P-38B Discharge Check to S/G 1HX-1B** *Auxiliary Feedwater* *2 C*	*CK* *3* *SA*	*C*	*OC*	*N/A*	*A*	*A*	CV-O(Q) CV-C(R)	 ROJ-03	
1AF-00106 *M-217, Sh.1* *B-9*	**TDAFWP 1P-29 Discharge Check to S/G 1HX-1A** *Auxiliary Feedwater* *2 C*	*CK* *3* *SA*	*C*	*OC*	*N/A*	*A*	*A*	CV-O(Q) CV-C(R)	 ROJ-03	
1AF-00107 *M-217, Sh.1* *C-9*	**TDAFWP 1P-29 Discharge Check to S/G 1HX-1B** *Auxiliary Feedwater* *2 C*	*CK* *3* *SA*	*C*	*OC*	*N/A*	*A*	*A*	CV-O(Q) CV-C(R)	 ROJ-03	
1AF-00108 *M-217, Sh.1* *B-7*	**TDAFWP 1P-29 Discharge Check** *Auxiliary Feedwater* *3 C*	*CK* *4* *SA*	*C*	*O*	*N/A*	*A*	*N*	CV-O(Q)		

VALVE NO *PID NO* *COORD*	VALVE DESCRIPTION *SYSTEM NAME* *Code: Class Cat*	*VALVE* *Type* *Size (In.)* *Actuator*	*POSITIONS* *Normal*	 *Safety*	 *Failsafe*	*ACTIVE-PASSIVE* *Open* *A/I/P/N*	 *Close* *A/I/P/N*	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
1AF-00111 *M-217, Sh.1* *C-5*	**TDAFWP 1P-29 Suction Check from CSTs** *Auxiliary Feedwater* *3 C*	*CK* *6* *SA*	*C*	*C*	*N/A*	*N*	*A*	CV-C(R)	ROJ-01	
1AF-04000 *M-217, Sh.1* *C-9*	**1P-29 Discharge to SG 1HX-1B Inlet Isolation Valve** *Auxiliary Feedwater* *3 B*	*GL* *3* *MO*	*TH*	*OC*	*AI*	*I*	*A*	ET(Q) BT-C(Q) PIT(2Y)		
1AF-04001 *M-217, Sh.1* *B-9*	**1P-29 Discharge to SG 1HX-1A Inlet Isolation Valve** *Auxiliary Feedwater* *3 B*	*GL* *3* *MO*	*TH*	*OC*	*AI*	*I*	*A*	ET(Q) BT-C(Q) PIT(2Y)		
1AF-04002 *M-217, Sh.1* *B-6*	**TDAFWP 1P-29 Recirculation Flow Control Valve** *Auxiliary Feedwater* *3 B*	*GA* *2* *AO*	*C*	*C*	*C*	*N*	*A*	ET(Q) BT-C(Q) FST-C(Q) PIT(2Y)		
1AF-04006 *M-217, Sh.1* *C-5*	**TDAFWP 1P-29 Service Water Supply Isolation Valve** *Auxiliary Feedwater* *3 B*	*GA* *6* *MO*	*C*	*O*	*AI*	*A*	*N*	ET(Q) BT-O(Q) PIT(2Y) FSM(CS)	 CSJ-01	

VALVE NO / PID NO / COORD	VALVE DESCRIPTION / SYSTEM NAME / Code: Class Cat	VALVE Type / Size (In.) / Actuator	POSITIONS Normal	Safety	Failsafe	ACTIVE-PASSIVE Open A/I/P/N	Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
1AF-04026	**TDAFWP 1P-29 Suction Relief Valve**							RVT(10Y)		
M-217, Sh.2	*Auxiliary Feedwater*	*SRV* / *1*	*C*	*OC*	*N/A*	*A*	*A*			
D-4	*3 C*	*SA*								
2AF-00032	**P-38A Discharge to S/G 2HX-1A**							FSM(CS)	CSJ-02	
M-217, Sh.1	*Auxiliary Feedwater*	*GL* / *3*	*O*	*OC*	*N/A*	*I*	*A*			
E-9	*2 B*	*MA*								
2AF-00045	**P-38B Discharge to S/G 2HX-1B**							FSM(CS)	CSJ-02	
M-217, Sh.1	*Auxiliary Feedwater*	*GL* / *3*	*O*	*OC*	*N/A*	*I*	*A*			
G-9	*2 B*	*MA*								
2AF-00056	**2P-29 Discharge to S/G 2HX-1A**							FSM(CS)	CSJ-02	
M-217, Sh.1	*Auxiliary Feedwater*	*GA* / *3*	*O*	*OC*	*N/A*	*I*	*A*			
E-9	*2 B*	*MA*								
2AF-00057	**2P-29 Discharge to S/G 2HX-1B**							FSM(CS)	CSJ-02	
M-217, Sh.1	*Auxiliary Feedwater*	*GA* / *3*	*O*	*OC*	*N/A*	*I*	*A*			
G-9	*2 B*	*MA*								

VALVE NO / PID NO / COORD	VALVE DESCRIPTION / SYSTEM NAME / Code: Class Cat	VALVE Type / Size (In.) / Actuator	POSITIONS Normal	Safety	Failsafe	ACTIVE-PASSIVE Open A/I/P/N	Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
2AF-00100	**AFW to Steam Generator 2HX-1A Injection Check Valve**							CV-O(Q)		
M-217, Sh.1	Auxiliary Feedwater	CK	C	OC	N/A	A	A	CV-C(R)	ROJ-02	
F-10	2 C	3 / SA								
2AF-00101	**AFW to Steam Generator 2HX-1B Injection Check Valve**							CV-O(Q)		
M-217, Sh.1	Auxiliary Feedwater	CK	C	OC	N/A	A	A	CV-C(R)	ROJ-02	
G-10	2 C	3 / SA								
2AF-00103	**MDAFWP P-38A Discharge Check to S/G 2HX-1A**							CV-O(Q)		
M-217, Sh.1	Auxiliary Feedwater	CK	C	OC	N/A	A	A	CV-C(R)	ROJ-03	
E-9	2 C	3 / SA								
2AF-00105	**MDAFWP P-38B Discharge Check to S/G 2HX-1B**							CV-O(Q)		
M-217, Sh.1	Auxiliary Feedwater	CK	C	OC	N/A	A	A	CV-C(R)	ROJ-03	
G-9	2 C	3 / SA								
2AF-00106	**TDAFWP 2P-29 Discharge Check to S/G 2HX-1A**							CV-O(Q)		
M-217, Sh.1	Auxiliary Feedwater	CK	C	OC	N/A	A	A	CV-C(R)	ROJ-03	
E-9	2 C	3 / SA								

VALVE NO PID NO COORD	VALVE DESCRIPTION SYSTEM NAME Code: Class Cat	VALVE Type Size (In.) Actuator	POSITIONS Normal	 Safety	 Failsafe	ACTIVE-PASSIVE Open A/I/P/N	 Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
2AF-00107 *M-217, Sh.1* *G-9*	**TDAFWP 2P-29 Discharge Check to S/G 2HX-1B** *Auxiliary Feedwater* *2 C*	*CK* *3* *SA*	*C*	*OC*	*N/A*	*A*	*A*	CV-O(Q) CV-C(R)	 ROJ-03	
2AF-00108 *M-217, Sh.1* *G-7*	**TDAFWP 2P-29 Discharge Check** *Auxiliary Feedwater* *3 C*	*CK* *4* *SA*	*C*	*O*	*N/A*	*A*	*N*	CV-O(Q)		
2AF-00111 *M-217, Sh.1* *G-5*	**TDAFWP 2P-29 Suction Check from CSTs** *Auxiliary Feedwater* *3 C*	*CK* *6* *SA*	*C*	*C*	*N/A*	*N*	*A*	CV-C(R)	ROJ-01	
2AF-04000 *M-217, Sh.1* *F-9*	**2P-29 Discharge to SG 2HX-1B Inlet Isolation Valve** *Auxiliary Feedwater* *3 B*	*GL* *3* *MO*	*TH*	*OC*	*AI*	*I*	*A*	ET(Q) BT-C(Q) PIT(2Y)		
2AF-04001 *M-217, Sh.1* *F-9*	**2P-29 Discharge to SG 2HX-1A Inlet Isolation Valve** *Auxiliary Feedwater* *3 B*	*GL* *3* *MO*	*TH*	*OC*	*AI*	*I*	*A*	ET(Q) BT-C(Q) PIT(2Y)		

VALVE NO PID NO COORD	VALVE DESCRIPTION SYSTEM NAME Code: Class Cat	VALVE Type Size (In.) Actuator	POSITIONS Normal	 Safety	 Failsafe	ACTIVE-PASSIVE Open A/I/P/N	 Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
2AF-04002 M-217, Sh.1 G-6	**TDAFWP 2P-29 Recirculation Flow Control Valve** Auxiliary Feedwater 3 B	GA 2 AO	C	C	C	N	A	ET(Q) BT-C(Q) FST-C(Q) PIT(2Y)		
2AF-04006 M-217, Sh.1 H-5	**TDAFWP 2P-29 Service Water Supply Isolation Valve** Auxiliary Feedwater 3 B	GA 6 MO	C	O	AI	A	N	ET(Q) BT-O(Q) PIT(2Y) FSM(CS)	CSJ-01	
2AF-04026 M-217, Sh.2 G-9	**TDAFWP 2P-29 Suction Relief Valve** Auxiliary Feedwater 3 C	SRV 1 SA	C	OC	N/A	A	A	RVT(10Y)		

VALVE NO / PID NO / COORD	VALVE DESCRIPTION / SYSTEM NAME / Code: Class Cat	VALVE Type / Size (In.) / Actuator	POSITIONS Normal	Safety	Failsafe	ACTIVE-PASSIVE Open A/I/P/N	Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
1CV-00112B	**RWST To Charging Pump Suction Isolation Valve**							ET(CS)	CSJ-03	
								BT-C(CS)	CSJ-03	
684J741 Sh.2	*Chemical and Volume Control*	*GA* *4*	*C*	*C*	*AI*	*N*	*A*	PIT(2Y)		
E-4	*2 B*	*MO*								
1CV-00203	**Letdown Orifice Outlet Relief Valve**							RVT(10Y)		
684J741 Sh.3	*Chemical and Volume Control*	*SRV* *2*	*C*	*OC*	*N/A*	*A*	*I*			
H-7	*2 C*	*SA*								
1CV-00283A	**Charging Pump P-2A Discharge Relief Valve**							RVT(10Y)		
684J741 Sh.2	*Chemical and Volume Control*	*SRV* *0.75*	*C*	*OC*	*N/A*	*A*	*I*			
D-7	*2 C*	*SA*								
1CV-00283B	**Charging Pump P-2B Discharge Relief Valve**							RVT(10Y)		
684J741 Sh.2	*Chemical and Volume Control*	*SRV* *0.75*	*C*	*OC*	*N/A*	*A*	*I*			
C-7	*2 C*	*SA*								
1CV-00283C	**Charging Pump P-2C Discharge Relief Valve**							RVT(10Y)		
684J741 Sh.2	*Chemical and Volume Control*	*SRV* *0.75*	*C*	*OC*	*N/A*	*A*	*I*			
B-7	*2 C*	*SA*								

VALVE NO PID NO COORD	VALVE DESCRIPTION SYSTEM NAME Code: Class Cat	VALVE Type Size (In.) Actuator	POSITIONS Normal	 Safety	 Failsafe	ACTIVE-PASSIVE Open A/I/P/N	 Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
1CV-00285 684J741 Sh.3 E-5	**HX-4 ELHX Outlet Isolation** Chemical and Volume Control 1 B	GL 0.75 MO	C	C	AI	N	A	ET(Q) BT-C(Q) PIT(2Y)		
1CV-00294 684J741 Sh.3 E-3	**RCP SEAL Water Return Pipe Penetration P-11 Thermal Relief Check** Chemical and Volume Control 2 AC	CK 0.375 SA	C	OC	N/A	A	A	CV-PO(R) CV-C(R) SLT-1	ROJ-04 ROJ-04	
1CV-00295 684J741 Sh.3 G-8	**Charging Header Check** Chemical and Volume Control 1 C	CK 3 SA	O	C	N/A	N	A	CV-C(R)	ROJ-06	
1CV-00296 684J741 Sh.3 F-8	**Auxiliary Pressurizer Spray Isolation Valve** Chemical and Volume Control 1 B	GL 2 AO	C	C	C	N	A	ET(CS) FST-C(CS) BT-C(CS) PIT(2Y)	CSJ-04 CSJ-04 CSJ-04	
1CV-00297 684J741 Sh.3 F-8	**Auxiliary Pressurizer Spray Check** Chemical and Volume Control 1 C	CK 2 SA	C	C	N/A	N	A	CV-C(R)	ROJ-06	

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1CV-00304A *684J741 Sh.3* *B-7*	**RCP P-1A Seal Water Injection Check Valve (Inbd)** *Chemical and Volume Control* *1 C*	*CK* *2* *SA*	*O*	*OC*	*N/A*	*I*	*A*	CV-C(R) CV-PO(Q)	ROJ-07	
1CV-00304B *684J741 Sh.3* *B-9*	**RCP P-1B Seal Water Injection Check Valve (Inbd)** *Chemical and Volume Control* *1 C*	*CK* *2* *SA*	*O*	*OC*	*N/A*	*I*	*A*	CV-C(R) CV-PO(Q)	ROJ-07	
1CV-00304C *684J741 Sh.3* *B-7*	**RCP P-1A Seal Water Injection Check Valve (Otbd)** *Chemical and Volume Control* *1 AC*	*CK* *2* *SA*	*O*	*OC*	*N/A*	*I*	*A*	CV-C(R) CV-PO(Q) SLT-1	ROJ-08	
1CV-00304D *684J741 Sh.3* *B-9*	**RCP P-1B Seal Water Injection Check Valve (Otbd)** *Chemical and Volume Control* *1 AC*	*CK* *2* *SA*	*O*	*OC*	*N/A*	*I*	*A*	CV-C(R) CV-PO(Q) SLT-1	ROJ-08	
1CV-00313 *684J741 Sh.2* *E-7*	**RCP Seal Water Return Containment Isolation Valve (Otbd)** *Chemical and Volume Control* *2 A*	*GA* *3* *MO*	*O*	*C*	*AI*	*N*	*A*	ET(CS) BT-C(CS) PIT(2Y) SLT-1	CSJ-05 CSJ-05	

VALVE NO PID NO COORD	VALVE DESCRIPTION SYSTEM NAME Code: Class Cat	VALVE Type Size (In.) Actuator	POSITIONS Normal	 Safety	 Failsafe	ACTIVE-PASSIVE Open A/I/P/N	 Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
1CV-00313A 684J741 Sh.3 E-3	**RCP Seal Water Return Containment Isolation Valve (Inbd)** Chemical and Volume Control 2 A	GL 3 AO	O	C	C	N	A	ET(CS) BT-C(CS) FST-C(CS) PIT(2Y) SLT-1	CSJ-05 CSJ-05 CSJ-05	
1CV-00314 684J741 Sh.3 E-5	**Excess Letdown and Seal Water Return Line Relief Valve** Chemical and Volume Control 2 C	SRV 2 SA	C	O	N/A	A	N	RVT(10Y)		
1CV-00369A 684J741 Sh.2 G-9	**RHR to Letdown Cross-Connect Manual Isolation Valve** Chemical and Volume Control 2 A	GL 2 MA	C	C	N/A	N	P	SLT-1		
1CV-00370 684J741 Sh.3 G-3	**Charging Header Check Valve** Chemical and Volume Control 2 AC	CK 3 SA	O	C	N/A	N	A	CV-C(R) SLT-1	ROJ-05	
1CV-00371 684J741 Sh.2 G-9	**RCS Letdown Containment Isolation Valve (Otbd)** Chemical and Volume Control 2 A	GL 2 AO	O	C	C	N	A	ET(CS) FST-C(CS) BT-C(CS) PIT(2Y) SLT-1	CSJ-06 CSJ-06 CSJ-06	

VALVE NO *PID NO* *COORD*	VALVE DESCRIPTION *SYSTEM NAME* *Code: Class Cat*	*VALVE* *Type* *Size (In.)* *Actuator*	*POSITIONS* *Normal*	 *Safety*	 *Failsafe*	*ACTIVE-PASSIVE* *Open A/I/P/N*	 *Close A/I/P/N*	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
1CV-00371A *684J741 Sh.3* *G-2*	**RCS Letdown Containment Isolation Valve (Inbd)** *Chemical and Volume Control* *2 A*	*GL* *2* *AO*	*O*	*C*	*C*	*N*	*A*	ET(CS) FST-C(CS) BT-C(CS) PIT(2Y) SLT-1	CSJ-06 CSJ-06 CSJ-06	
1CV-00383 *684J741 Sh.3* *A-5*	**Auxiliary Charging Line Check Valve** *Chemical and Volume Control* *1 C*	*CK* *2* *SA*	*C*	*OC*	*N/A*	*A*	*A*	CV-PO(R) CV-C(R)	ROJ-09 ROJ-09	
1CV-01296 *684J741 Sh.3* *A-4*	**Auxiliary Charging Line Containment Isolation Valve** *Chemical and Volume Control* *1 A*	*GL* *2* *AO*	*C*	*OC*	*C*	*A*	*A*	ET(Q) FST-C(Q) BT-O(Q) BT-C(Q) PIT(2Y) SLT-1	 TP-01	
1CV-01298 *684J741 Sh.3* *G-8*	**HX-2 Regen HX Outlet Chg Isol to RC Loop A Cold Leg** *Chemical and Volume Control* *1 B*	*GA* *2* *MO*	*O*	*C*	*AI*	*N*	*A*	ET(CS) BT-C(CS) PIT(2Y)	CSJ-07 CSJ-07	
1CV-01299 *684J741 Sh.3* *F-8*	**Excess Letdown Heat Exchanger HX-4 Inlet Isolation Valve** *Chemical and Volume Control* *1 B*	*GA* *0.75* *MO*	*O*	*C*	*AI*	*N*	*A*	ET(Q) BT-C(Q) PIT(2Y)		

VALVE NO *PID NO* *COORD*	VALVE DESCRIPTION *SYSTEM NAME* *Code: Class Cat*	*VALVE* *Type* *Size (In.)* *Actuator*	*POSITIONS* *Normal*	 *Safety*	 *Failsafe*	*ACTIVE-PASSIVE* *Open* *A/I/P/N*	 *Close* *A/I/P/N*	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
1P-002A-CK *684J741 Sh.2* *D-6*	**Charging Pump P-2A Integral Discharge Check Valve** *Chemical and Volume Control* *2 C*	*CK* *3* *SA*	*O*	*C*	*N/A*	*N*	*A*	CV-C(Q)		
1P-002B-CK *684J741 Sh.2* *C-6*	**Charging Pump P-2B Integral Discharge Check Valve** *Chemical and Volume Control* *2 C*	*CK* *3* *SA*	*O*	*C*	*N/A*	*N*	*A*	CV-C(Q)		
1P-002C-CK *684J741 Sh.2* *B-6*	**Charging Pump P-2C Integral Discharge Check Valve** *Chemical and Volume Control* *2 C*	*CK* *3* *SA*	*O*	*C*	*N/A*	*N*	*A*	CV-C(Q)		
2CV-00112B *685J175 Sh.2* *C-3*	**RWST To Charging Pump Suction Isolation Valve** *Chemical and Volume Control* *2 B*	*GA* *4* *MO*	*C*	*C*	*AI*	*N*	*A*	ET(CS) BT-C(CS) PIT(2Y)	CSJ-03 CSJ-03	
2CV-00203 *685J175 Sh.3* *H-7*	**Letdown Orifice Outlet Relief Valve** *Chemical and Volume Control* *2 C*	*SRV* *2* *SA*	*C*	*OC*	*N/A*	*A*	*I*	RVT(10Y)		

VALVE NO / PID NO / COORD	VALVE DESCRIPTION / SYSTEM NAME / Code: Class Cat	VALVE Type / Size (In.) / Actuator	POSITIONS Normal	Safety	Failsafe	ACTIVE-PASSIVE Open A/I/P/N	Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
2CV-00283A 685J175 Sh.2 D-7	**Charging Pump P-2A Discharge Relief Valve** Chemical and Volume Control 2 C	SRV 0.75 SA	C	OC	N/A	A	I	RVT(10Y)		
2CV-00283B 685J175 Sh.2 C-7	**Charging Pump P-2B Discharge Relief Valve** Chemical and Volume Control 2 C	SRV 0.75 SA	C	OC	N/A	A	I	RVT(10Y)		
2CV-00283C 685J175 Sh.2 B-7	**Charging Pump P-2C Discharge Relief Valve** Chemical and Volume Control 2 C	SRV 0.75 SA	C	OC	N/A	A	I	RVT(10Y)		
2CV-00285 685J175 Sh.3 F-6	**HX-4 ELHX Outlet Isolation** Chemical and Volume Control 1 B	GL 0.75 MO	C	C	AI	N	A	ET(Q) BT-C(Q) PIT(2Y)		
2CV-00294 685J175 Sh.3 E-3	**RCP SEAL Water Return Pipe Penetration P-11 Thermal Relief Check** Chemical and Volume Control 2 AC	CK 0.375 SA	C	OC	N/A	A	A	CV-PO(R) CV-C(R) SLT-1	ROJ-04 ROJ-04	

VALVE NO *PID NO* *COORD*	VALVE DESCRIPTION *SYSTEM NAME* *Code: Class Cat*	*VALVE* *Type* *Size (In.)* *Actuator*	*POSITIONS* *Normal*	 *Safety*	 *Failsafe*	*ACTIVE-PASSIVE* *Open* *A/I/P/N*	 *Close* *A/I/P/N*	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
2CV-00295 *685J175 Sh.3* *G-8*	**Charging Header Check** *Chemical and Volume Control* *1 C*	*CK* *3* *SA*	*O*	*C*	*N/A*	*N*	*A*	CV-C(R)	ROJ-06	
2CV-00296 *685J175 Sh.3* *F-8*	**Auxiliary Pressurizer Spray Isolation Valve** *Chemical and Volume Control* *1 B*	*GL* *2* *AO*	*C*	*C*	*C*	*N*	*A*	ET(CS) FST-C(CS) BT-C(CS) PIT(2Y)	CSJ-04 CSJ-04 CSJ-04	
2CV-00297 *685J175 Sh.3* *F-8*	**Auxiliary Pressurizer Spray Check** *Chemical and Volume Control* *1 C*	*CK* *2* *SA*	*C*	*C*	*N/A*	*N*	*A*	CV-C(R)	ROJ-06	
2CV-00304A *685J175 Sh.3* *B-7*	**RCP P-1A Seal Water Injection Check Valve (Inbd)** *Chemical and Volume Control* *1 C*	*CK* *2* *SA*	*O*	*OC*	*N/A*	*I*	*A*	CV-C(R) CV-PO(Q)	ROJ-07	
2CV-00304B *685J175 Sh.3* *B-9*	**RCP P-1B Seal Water Injection Check Valve (Inbd)** *Chemical and Volume Control* *1 C*	*CK* *2* *SA*	*O*	*OC*	*N/A*	*I*	*A*	CV-C(R) CV-PO(Q)	ROJ-07	

VALVE NO *PID NO* *COORD*	VALVE DESCRIPTION *SYSTEM NAME* *Code: Class Cat*	*VALVE* *Type* *Size (In.)* *Actuator*	*POSITIONS* *Normal*	 *Safety*	 *Failsafe*	*ACTIVE-PASSIVE* *Open* *A/I/P/N*	 *Close* *A/I/P/N*	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
2CV-00304C *685J175 Sh.3* *B-7*	**RCP P-1A Seal Water Injection Check Valve (Otbd)** *Chemical and Volume Control* *1 AC*	*CK* *2* *SA*	*O*	*OC*	*N/A*	*I*	*A*	CV-C(R) CV-PO(Q) SLT-1	ROJ-08	
2CV-00304D *685J175 Sh.3* *B-9*	**RCP P-1B Seal Water Injection Check Valve (Otbd)** *Chemical and Volume Control* *1 AC*	*CK* *2* *SA*	*O*	*OC*	*N/A*	*I*	*A*	CV-C(R) CV-PO(Q) SLT-1	ROJ-08	
2CV-00313 *685J175 Sh.2* *E-7*	**RCP Seal Water Return Containment Isolation Valve (Otbd)** *Chemical and Volume Control* *2 A*	*GA* *3* *MO*	*O*	*C*	*AI*	*N*	*A*	ET(CS) BT-C(CS) PIT(2Y) SLT-1	CSJ-05 CSJ-05	
2CV-00313A *685J175 Sh.3* *E-3*	**RCP Seal Water Return Containment Isolation Valve (Inbd)** *Chemical and Volume Control* *2 A*	*GL* *3* *AO*	*O*	*C*	*C*	*N*	*A*	ET(CS) BT-C(CS) FST-C(CS) PIT(2Y) SLT-1	CSJ-05 CSJ-05 CSJ-05	
2CV-00314 *685J175 Sh.3* *E-5*	**Excess Letdown and Seal Water Return Line Relief Valve** *Chemical and Volume Control* *2 C*	*SRV* *2* *SA*	*C*	*O*	*N/A*	*A*	*N*	RVT(10Y)		

VALVE NO PID NO COORD	VALVE DESCRIPTION SYSTEM NAME Code: Class Cat	VALVE Type Size (In.) Actuator	POSITIONS Normal	 Safety	 Failsafe	ACTIVE-PASSIVE Open A/I/P/N	 Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
2CV-00369A 685J175 Sh.2 G-9	**RHR to Letdown Cross-Connect Manual Isolation Valve** Chemical and Volume Control 2 A	GL 2 MA	C	C	N/A	N	P	SLT-1		
2CV-00370 685J175 Sh.3 G-3	**Charging Header Check Valve** Chemical and Volume Control 2 AC	CK 3 SA	O	C	N/A	N	A	CV-C(R) SLT-1	ROJ-05	
2CV-00371 685J175 Sh.2 G-9	**RCS Letdown Containment Isolation Valve (Otbd)** Chemical and Volume Control 2 A	GL 2 AO	O	C	C	N	A	ET(CS) FST-C(CS) BT-C(CS) PIT(2Y) SLT-1	CSJ-06 CSJ-06 CSJ-06	
2CV-00371A 685J175 Sh.3 G-2	**RCS Letdown Containment Isolation Valve (Inbd)** Chemical and Volume Control 2 A	GL 2 AO	O	C	C	N	A	ET(CS) FST-C(CS) BT-C(CS) PIT(2Y) SLT-1	CSJ-06 CSJ-06 CSJ-06	
2CV-00383 685J175 Sh.3 A-5	**Auxiliary Charging Line Check Valve** Chemical and Volume Control 1 C	CK 2 SA	C	OC	N/A	A	A	CV-PO(R) CV-C(R)	ROJ-09 ROJ-09	

VALVE NO / PID NO / COORD	VALVE DESCRIPTION / SYSTEM NAME / Code: Class Cat	VALVE Type / Size (In.) / Actuator	POSITIONS Normal	Safety	Failsafe	ACTIVE-PASSIVE Open A/I/P/N	Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
2CV-01296 685J175 Sh.3 A-4	**Auxiliary Charging Line Containment Isolation Valve** Chemical and Volume Control 1 A	GL 2 AO	C	OC	C	A	A	ET(Q) FST-C(Q) BT-O(Q) BT-C(Q) PIT(2Y) SLT-1	TP-01	
2CV-01298 685J175 Sh.3 G-8	**HX-2 Regen HX Outlet Chg Isol to RC Loop A Cold Leg** Chemical and Volume Control 1 B	GA 2 MO	O	C	AI	N	A	ET(CS) BT-C(CS) PIT(2Y)	CSJ-07 CSJ-07	
2CV-01299 685J175 Sh.2 F-8	**Excess Letdown Heat Exchanger HX-4 Inlet Isolation Valve** Chemical and Volume Control 1 B	GA 0.75 MO	O	C	AI	N	A	ET(Q) BT-C(Q) PIT(2Y)		
2P-002A-CK 685J175 Sh.2 D-6	**Charging Pump P-2A Integral Discharge Check Valve** Chemical and Volume Control 2 C	CK 3 SA	O	C	N/A	N	A	CV-C(Q)		
2P-002B-CK 685J175 Sh.2 C-6	**Charging Pump P-2B Integral Discharge Check Valve** Chemical and Volume Control 2 C	CK 3 SA	O	C	N/A	N	A	CV-C(Q)		

POINT BEACH NUCLEAR PLANT

INSERVICE TESTING PROGRAM-VALVE TEST TABLE

VALVE NO *PID NO* *COORD*	VALVE DESCRIPTION *SYSTEM NAME* *Code: Class Cat*	*VALVE* *Type* *Size (In.)* *Actuator*	*POSITIONS* *Normal*	 *Safety*	 *Failsafe*	*ACTIVE-PASSIVE* *Open* *A/I/P/N*	 *Close* *A/I/P/N*	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
2P-002C-CK	**Charging Pump P-2C Integral Discharge Check Valve**							CV-C(Q)		
685J175 Sh.2 *B-6*	*Chemical and Volume Control* *2 C*	*CK* *3* *SA*	*O*	*C*	*N/A*	*N*	*A*			

VALVE NO / PID NO / COORD	VALVE DESCRIPTION / SYSTEM NAME / Code: Class Cat	VALVE Type / Size (In.) / Actuator	POSITIONS Normal	POSITIONS Safety	POSITIONS Failsafe	ACTIVE-PASSIVE Open A/I/P/N	ACTIVE-PASSIVE Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
0CC-LW-063 *PBM-230* *H-9*	**CCW Supply to Radwaste** *Component Cooling Water* *2 B*	*BTF* *6* *AO*	*O*	*C*	*C*	*N*	*A*	ET(CS) BT-C(CS) FST-C(CS) PIT(2Y)	CSJ-08 CSJ-08 CSJ-08	
0CC-LW-064 *PBM-230* *B-9*	**CCW Return from Radwaste** *Component Cooling Water* *2 B*	*BTF* *6* *AO*	*O*	*C*	*C*	*N*	*A*	ET(CS) BT-C(CS) FST-C(CS) PIT(2Y)	CSJ-08 CSJ-08 CSJ-08	
1CC-00719 *110E018, Sh.2* *F-8*	**Containment Equipment CCW Supply Header Isolation Valve** *Component Cooling Water* *2 B*	*GA* *6* *MO*	*O*	*C*	*AI*	*N*	*A*	ET(CS) BT-C(CS) PIT(2Y)	CSJ-09 CSJ-09	
1CC-00724A *110E018, Sh.3* *G-6*	**CCW Pump 1P-11A Discharge Check Valve** *Component Cooling Water* *2 C*	*CK* *14* *SA*	*O*	*OC*	*N/A*	*A*	*A*	CV-O(Q) CV-C(Q)		
1CC-00724B *110E018, Sh.3* *F-6*	**CCW Pump 1P-11B Discharge Check Valve** *Component Cooling Water* *2 C*	*CK* *14* *SA*	*O*	*OC*	*N/A*	*A*	*A*	CV-O(Q) CV-C(Q)		

VALVE NO *PID NO* *COORD*	VALVE DESCRIPTION *SYSTEM NAME* *Code: Class Cat*	*VALVE* *Type* *Size (In.)* *Actuator*	*POSITIONS* *Normal*	 *Safety*	 *Failsafe*	*ACTIVE-PASSIVE* *Open* *A/I/P/N*	 *Close* *A/I/P/N*	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
1CC-00738A *110E018, Sh.1* *G-4*	**CCW Supply to RHR 1HX-11A** *Component Cooling Water* *2 B*	*GA* *10* *MO*	*C*	*O*	*AI*	*A*	*N*	ET(Q) BT-O(Q) PIT(2Y)		
1CC-00738B *110E018, Sh.1* *G-3*	**CCW Supply to RHR 1HX-11B** *Component Cooling Water* *2 B*	*GA* *10* *MO*	*C*	*O*	*AI*	*A*	*N*	ET(Q) BT-O(Q) PIT(2Y)		
1CC-00745 *110E018, Sh.2* *G-6*	**Containment Equipment CCW Return Header Check Valve** *Component Cooling Water* *2 C*	*CK* *6* *SA*	*O*	*C*	*N/A*	*N*	*A*	CV-C(R)	ROJ-10	
1CC-00754A *110E018, Sh.2* *D-10*	**RCP 1P-1A CCW Supply Isolation Valve** *Component Cooling Water* *2 B*	*GA* *4* *MO*	*O*	*C*	*AI*	*N*	*A*	ET(CS) BT-C(CS) PIT(2Y)	CSJ-10 CSJ-10	
1CC-00754B *110E018, Sh.2* *D-6*	**RCP 1P-1B CCW Supply Isolation Valve** *Component Cooling Water* *2 B*	*GA* *4* *MO*	*O*	*C*	*AI*	*N*	*A*	ET(CS) BT-C(CS) PIT(2Y)	CSJ-10 CSJ-10	

VALVE NO PID NO COORD	VALVE DESCRIPTION SYSTEM NAME Code: Class Cat	VALVE Type Size (In.) Actuator	POSITIONS Normal	 Safety	 Failsafe	ACTIVE-PASSIVE Open A/I/P/N	 Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
1CC-00755A *110E018, Sh.2* *D-10*	**RCP 1P-1A Cooling Water Supply Check Valve** *Component Cooling Water* *2 AC*	*CK* *4* *SA*	*O*	*OC*	*N/A*	*A*	*A*	CV-C(R) CV-PO(R) SLT-1	ROJ-11 ROJ-11	
1CC-00755B *110E018, Sh.2* *D-6*	**RCP 1P-1B Cooling Water Supply Check Valve** *Component Cooling Water* *2 AC*	*CK* *4* *SA*	*O*	*OC*	*N/A*	*A*	*A*	CV-C(R) CV-PO(R) SLT-1	ROJ-11 ROJ-11	
1CC-00759A *110E018, Sh.2* *B-9*	**RCP 1P-1A Cooling Water Return Isolation Valves** *Component Cooling Water* *2 A*	*GA* *4* *MO*	*O*	*C*	*AI*	*N*	*A*	ET(CS) BT-C(CS) PIT(2Y) SLT-1	CSJ-10 CSJ-10	
1CC-00759B *110E018, Sh.2* *B-4*	**RCP 1P-1B Cooling Water Return Isolation Valves** *Component Cooling Water* *2 A*	*GA* *4* *MO*	*O*	*C*	*AI*	*N*	*A*	ET(CS) BT-C(CS) PIT(2Y) SLT-1	CSJ-10 CSJ-10	
1CC-00763A *110E018, Sh.2* *D-7*	**RCP 1P-1A Cooling Water Return Header Relief Valve** *Component Cooling Water* *2 C*	*SRV* *2* *SA*	*C*	*O*	*N/A*	*A*	*N*	RVT(10Y)		

VALVE NO *PID NO* *COORD*	VALVE DESCRIPTION *SYSTEM NAME* *Code: Class Cat*	*VALVE* *Type* *Size (In.)* *Actuator*	*POSITIONS* *Normal*	 *Safety*	 *Failsafe*	*ACTIVE-PASSIVE* *Open* *A/I/P/N*	 *Close* *A/I/P/N*	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
1CC-00763B *110E018, Sh.2* *D-4*	**RCP 1P-1B Cooling Water Return Header Relief Valve** *Component Cooling Water* *2 C*	*SRV* *2* *SA*	*C*	*O*	*N/A*	*A*	*N*	RVT(10Y)		
1CC-00767 *110E018, Sh.2* *D-3*	**ELHX 1HX-4 CCW Inlet Check Valve** *Component Cooling Water* *2 AC*	*CK* *2* *SA*	*C*	*C*	*N/A*	*N*	*A*	CV-C(R) SLT-1	ROJ-12	
1CC-00768 *110E018, Sh.2* *C-2*	**ELHX 1HX-4 Shell Side Thermal Relief Valves** *Component Cooling Water* *2 C*	*SRV* *0.75* *SA*	*C*	*CC*	*N/A*	*A*	*P*	RVT(10Y)		
1CC-00769 *110E018, Sh.2* *D-1*	**ELHX 1HX-4 Shell Side Cooling Water Outlet Isolation Valve** *Component Cooling Water* *2 A*	*GL* *2* *AO*	*C*	*C*	*C*	*N*	*A*	ET(Q) BT-C(Q) FST-C(Q) SLT-1 PIT(2Y)		
1CC-00779 *110E018, Sh.3* *H-9*	**CCW Surge Tank Relief Valve** *Component Cooling Water* *2 C*	*SRV* *3* *SA*	*C*	*OC*	*N/A*	*A*	*P*	RVT(10Y)		

VALVE NO / PID NO / COORD	VALVE DESCRIPTION / SYSTEM NAME / Code: Class Cat	VALVE Type / Size (In.) / Actuator	POSITIONS Normal	POSITIONS Safety	POSITIONS Failsafe	ACTIVE-PASSIVE Open A/I/P/N	ACTIVE-PASSIVE Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
1CC-00779A 110E018, Sh.3 H-9	**CCW Surge Tank Vacuum Breaker** Component Cooling Water 2 C	VB 1 SA	C	OC	N/A	A	P	RVT(10Y)		
2CC-00719 110E029, Sh.2 G-8	**Containment Equipment CCW Supply Header Isolation Valve** Component Cooling Water 2 B	GA 6 MO	O	C	AI	N	A	ET(CS) BT-C(CS) PIT(2Y)	CSJ-09 CSJ-09	
2CC-00724A 110E029, Sh.3 G-6	**CCW Pump 2P-11A Discharge Check Valve** Component Cooling Water 2 C	CK 14 SA	O	OC	N/A	A	A	CV-O(Q) CV-C(Q)		
2CC-00724B 110E029, Sh.3 F-6	**CCW Pump 2P-11B Discharge Check Valve** Component Cooling Water 2 C	CK 14 SA	O	OC	N/A	A	A	CV-O(Q) CV-C(Q)		
2CC-00738A 110E029, Sh.1 G-4	**CCW Supply to RHR 2HX-11A** Component Cooling Water 2 B	GA 10 MO	C	O	AI	A	N	ET(Q) BT-O(Q) PIT(2Y)		

VALVE NO / PID NO / COORD	VALVE DESCRIPTION / SYSTEM NAME / Code: Class Cat	VALVE Type / Size (In.) / Actuator	POSITIONS Normal	Safety	Failsafe	ACTIVE-PASSIVE Open A/I/P/N	Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
2CC-00738B *110E029, Sh.1* *G-3*	**CCW Supply to RHR 2HX-11B** *Component Cooling Water* *2 B*	*GA* *10* *MO*	*C*	*O*	*AI*	*A*	*N*	ET(Q) BT-O(Q) PIT(2Y)		
2CC-00745 *110E029, Sh.2* *G-6*	**Containment Equipment CCW Return Header Check Valve** *Component Cooling Water* *2 C*	*CK* *6* *SA*	*O*	*C*	*N/A*	*N*	*A*	CV-C(R)	ROJ-10	
2CC-00754A *110E029, Sh.2* *E-7*	**RCP 2P-1A CCW Supply Isolation Valve** *Component Cooling Water* *2 B*	*GA* *4* *MO*	*O*	*C*	*AI*	*N*	*A*	ET(CS) BT-C(CS) PIT(2Y)	CSJ-10 CSJ-10	
2CC-00754B *110E029, Sh.2* *E-6*	**RCP 2P-1B CCW Supply Isolation Valve** *Component Cooling Water* *2 B*	*GA* *4* *MO*	*O*	*C*	*AI*	*N*	*A*	ET(CS) BT-C(CS) PIT(2Y)	CSJ-10 CSJ-10	
2CC-00755A *110E029, Sh.2* *D-9*	**RCP 2P-1A Cooling Water Supply Check Valve** *Component Cooling Water* *2 AC*	*CK* *4* *SA*	*O*	*OC*	*N/A*	*A*	*A*	CV-C(R) CV-PO(R) SLT-1	ROJ-11 ROJ-11	

VALVE NO PID NO COORD	VALVE DESCRIPTION SYSTEM NAME Code: Class Cat	VALVE Type Size (In.) Actuator	POSITIONS Normal	 Safety	 Failsafe	ACTIVE-PASSIVE Open A/I/P/N	 Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
2CC-00755B *110E029, Sh.2* *D-6*	**RCP 2P-1B Cooling Water Supply Check Valve** *Component Cooling Water* *2 AC*	*CK* *4* *SA*	*O*	*OC*	*N/A*	*A*	*A*	CV-C(R) CV-PO(R) SLT-1	ROJ-11 ROJ-11	
2CC-00759A *110E029, Sh.2* *B-9*	**RCP 2P-1A Cooling Water Return Isolation Valves** *Component Cooling Water* *2 A*	*GA* *4* *MO*	*O*	*C*	*AI*	*N*	*A*	ET(CS) BT-C(CS) PIT(2Y) SLT-1	CSJ-10 CSJ-10	
2CC-00759B *110E029, Sh.2* *B-6*	**RCP 2P-1B Cooling Water Return Isolation Valves** *Component Cooling Water* *2 A*	*GA* *4* *MO*	*O*	*C*	*AI*	*N*	*A*	ET(CS) BT-C(CS) PIT(2Y) SLT-1	CSJ-10 CSJ-10	
2CC-00763A *110E029, Sh.2* *D-7*	**RCP 2P-1A Cooling Water Return Header Relief Valve** *Component Cooling Water* *2 C*	*SRV* *2* *SA*	*C*	*O*	*N/A*	*A*	*N*	RVT(10Y)		
2CC-00763B *110E029, Sh.2* *D-4*	**RCP 2P-1B Cooling Water Return Header Relief Valve** *Component Cooling Water* *2 C*	*SRV* *2* *SA*	*C*	*O*	*N/A*	*A*	*N*	RVT(10Y)		

VALVE NO / PID NO / COORD	VALVE DESCRIPTION / SYSTEM NAME / Code: Class Cat	VALVE Type / Size (In.) / Actuator	POSITIONS Normal	Safety	Failsafe	ACTIVE-PASSIVE Open A/I/P/N	Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
2CC-00767	**ELHX 2HX-4 CCW Inlet Check Valve**							CV-C(R) SLT-1	ROJ-12	
110E029, Sh.2	*Component Cooling Water*	*CK* / *2*	*C*	*O*	*N/A*	*N*	*A*			
D-3	*2 AC*	*SA*								
2CC-00768	**ELHX 2HX-4 Shell Side Thermal Relief Valve**							RVT(10Y)		
110E029, Sh.2	*Component Cooling Water*	*SRV* / *0.75*	*C*	*OC*	*N/A*	*A*	*P*			
C-2	*2 C*	*SA*								
2CC-00769	**ELHX 2HX-4 Shell Side Cooling Water Outlet Isolation Valve**							ET(Q) BT-C(Q)		
110E029, Sh.2	*Component Cooling Water*	*GL* / *2*	*C*	*C*	*C*	*N*	*A*	FST-C(Q)		
E-1	*2 A*	*AO*						SLT-1 PIT(2Y)		
2CC-00779	**CCW Surge Tank Relief Valve**							RVT(10Y)		
110E029, Sh.3	*Component Cooling Water*	*SRV* / *3*	*C*	*OC*	*N/A*	*A*	*P*			
G-9	*2 C*	*SA*								
2CC-00779A	**CCW Surge Tank Vacuum Breaker**							RVT(10Y)		
110E029, Sh.3	*Component Cooling Water*	*VB* / *1*	*C*	*OC*	*N/A*	*A*	*P*			
G-9	*2 C*	*SA*								

VALVE NO PID NO COORD	VALVE DESCRIPTION SYSTEM NAME Code: Class Cat	VALVE Type Size (In.) Actuator	POSITIONS Normal	Safety	Failsafe	ACTIVE-PASSIVE Open A/I/P/N	Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
1SI-00836A *110E017, Sh.3* *E-4*	**Spray Additive Tank Discharge Control Valve** *Containment Spray* *2 B*	*GL* *2* *AO*	*C*	*OC*	*O*	*A*	*A*	ET(CS) BT-O(CS) BT-C(CS) FST-O(CS) PIT(2Y)	CSJ-11 CSJ-11 CSJ-11 CSJ-11	
1SI-00836B *110E017, Sh.3* *D-4*	**Spray Additive Tank Discharge Control Valve** *Containment Spray* *2 B*	*GL* *2* *AO*	*C*	*OC*	*O*	*A*	*A*	ET(CS) BT-O(CS) BT-C(CS) FST-O(CS) PIT(2Y)	CSJ-11 CSJ-11 CSJ-11 CSJ-11	
1SI-00840A *110E017, Sh.3* *F-2*	**Spray Additive Tank Vacuum Breaker Valve** *Containment Spray* *2 C*	*VB* *0.75* *SA*	*C*	*O*	*N/A*	*A*	*N*	RVT(10Y)		
1SI-00840B *110E017, Sh.3* *F-2*	**Spray Additive Tank Vacuum Breaker Valve** *Containment Spray* *2 C*	*VB* *0.75* *SA*	*C*	*O*	*N/A*	*A*	*N*	RVT(10Y)		
1SI-00847A *110E017, Sh.3* *E-5*	**Spray Additive Eductor Check Valve** *Containment Spray* *2 C*	*CK* *2* *SA*	*C*	*OC*	*N/A*	*A*	*A*	CV-O(CS) CV-C(R)	CSJ-12 ROJ-20	

VALVE NO PID NO COORD	VALVE DESCRIPTION SYSTEM NAME Code: Class Cat	VALVE Type Size (In.) Actuator	POSITIONS Normal	 Safety	 Failsafe	ACTIVE-PASSIVE Open A/I/P/N	 Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
1SI-00847B *110E017, Sh.3* *D-5*	**Spray Additive Eductor Check Valve** *Containment Spray* *2 C*	*CK* *2* *SA*	*C*	*OC*	*N/A*	*A*	*A*	CV-O(CS) CV-C(R)	CSJ-12 ROJ-20	
1SI-00858A *110E017, Sh.3* *G-2*	**Containment Spray Pump Suction from RWST Check Valve** *Containment Spray* *2 C*	*CK* *6* *SA*	*C*	*O*	*N/A*	*A*	*N*	CV-O(Q) ASLT-6		
1SI-00858B *110E017, Sh.3* *C-2*	**Containment Spray Pump Suction from RWST Check Valve** *Containment Spray* *2 C*	*CK* *6* *SA*	*C*	*O*	*N/A*	*A*	*N*	CV-O(Q) ASLT-6		
1SI-00860A *110E017, Sh.3* *G-7*	**Containment Spray Pump Discharge Isolation Valve** *Containment Spray* *2 B*	*GA* *6* *MO*	*C*	*O*	*AI*	*A*	*N*	ET(Q) BT-O(Q) PIT(2Y)		
1SI-00860B *110E017, Sh.3* *G-7*	**Containment Spray Pump Discharge Isolation Valve** *Containment Spray* *2 B*	*GA* *6* *MO*	*C*	*O*	*AI*	*A*	*N*	ET(Q) BT-O(Q) PIT(2Y)		

VALVE NO PID NO COORD	VALVE DESCRIPTION SYSTEM NAME Code: Class	VALVE Type Size (In.) Actuator	POSITIONS Normal	 Safety	 Failsafe	ACTIVE-PASSIVE Open A/I/P/N	 Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
1SI-00860C 110E017, Sh.3 C-7	**Containment Spray Pump Discharge Isolation Valve** Containment Spray 2 B	GA 6 MO	C	O	AI	A	N	ET(Q) BT-O(Q) PIT(2Y)		
1SI-00860D 110E017, Sh.3 C-7	**Containment Spray Pump Discharge Isolation Valve** Containment Spray 2 B	GA 6 MO	C	O	AI	A	N	ET(Q) BT-O(Q) PIT(2Y)		
1SI-00862A 110E017, Sh.3 G-8	**Containment Spray Pu Discharge Check Valve** Containment Spray 2 AC	CK 6 SA	C	OC	N/A	A	A	CV-O(Q) CV-C(R) SLT-1	 ROJ-19	
1SI-00862B 110E017, Sh.3 C-8	**Containment Spray Pump Discharge Check Valve** Containment Spray 2 AC	CK 6 SA	C	OC	N/A	A	A	CV-O(Q) CV-C(R) SLT-1	 ROJ-19	
1SI-00862G 110E017, Sh.3 G-8	**Containment Spray Train A Test Line Isolation Valve** Containment Spray 2 A	GA 6 MA	C	C	N/A	N	P	SLT-1		

VALVE NO / PID NO / COORD	VALVE DESCRIPTION / SYSTEM NAME / Code: Class Cat	VALVE Type / Size (In.) / Actuator	POSITIONS Normal	POSITIONS Safety	POSITIONS Failsafe	ACTIVE-PASSIVE Open A/I/P/N	ACTIVE-PASSIVE Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
1SI-00862H	**Containment Spray Train B Test Line Isolation Valve**							SLT-1		
110E017, Sh.3	*Containment Spray*	*GA* / *6*	*C*	*C*	*N/A*	*N*	*P*			
D-8	*2 A*	*MA*								
1SI-00864A	**Containment Spray Test/Recirculation Valve**							SLT-1		
110E017, Sh.3	*Containment Spray*	*GL* / *0.75*	*C*	*C*	*N/A*	*N*	*P*			
F-8	*2 A*	*MA*								
1SI-00864B	**Containment Spray Test/Recirculation Valve**							SLT-1		
110E017, Sh.3	*Containment Spray*	*GL* / *0.75*	*C*	*C*	*N/A*	*N*	*P*			
D-8	*2 A*	*MA*								
1SI-00870A	**Containment Spray Pump A Suction From RWST Valve**							ET(Q) BT-C(Q)		
110E017, Sh.3	*Containment Spray*	*GA* / *6*	*O*	*OC*	*AI*	*I*	*A*	PIT(2Y) SLT-6		
G-2	*2 A*	*MO*								
1SI-00870B	**Containment Spray Pump B Suction From RWST Valve**							ET(Q) BT-C(Q)		
110E017, Sh.3	*Containment Spray*	*GA* / *6*	*O*	*OC*	*AI*	*I*	*A*	PIT(2Y) SLT-6		
C-2	*2 A*	*MO*								

VALVE NO PID NO COORD	VALVE DESCRIPTION SYSTEM NAME Code: Class Cat	VALVE Type Size (In.) Actuator	POSITIONS Normal	 Safety	 Failsafe	ACTIVE-PASSIVE Open A/I/P/N	 Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
1SI-00871A *110E017, Sh.3* *F-3*	**Containment Spray Pump A Suction From RHR Valve** *Containment Spray* *2 B*	*GA* *6* *MO*	*C*	*OC*	*AI*	*A*	*A*	ET(Q) BT-O(Q) BT-C(Q) PIT(2Y) ASLT-6		
1SI-00871B *110E017, Sh.3* *B-3*	**Containment Spray Pump B Suction From RHR Valve** *Containment Spray* *2 B*	*GA* *6* *MO*	*C*	*OC*	*AI*	*A*	*A*	ET(Q) BT-O(Q) BT-C(Q) PIT(2Y) ASLT-6		
2SI-00836A *110E035, Sh.3* *E-4*	**Spray Additive Tank Discharge Control Valve** *Containment Spray* *2 B*	*GL* *2* *AO*	*C*	*OC*	*O*	*A*	*A*	ET(CS) BT-O(CS) BT-C(CS) FST-O(CS) PIT(2Y)	CSJ-11 CSJ-11 CSJ-11 CSJ-11	
2SI-00836B *110E035, Sh.3* *D-4*	**Spray Additive Tank Discharge Control Valve** *Containment Spray* *2 B*	*GL* *2* *AO*	*C*	*OC*	*O*	*A*	*A*	ET(CS) BT-O(CS) BT-C(CS) FST-O(CS) PIT(2Y)	CSJ-11 CSJ-11 CSJ-11 CSJ-11	
2SI-00840A *110E035, Sh.3* *F-2*	**Spray Additive Tank Vacuum Breaker Valve** *Containment Spray* *2 C*	*VB* *0.75* *SA*	*C*	*O*	*N/A*	*A*	*N*	RVT(10Y)		

VALVE NO *PID NO* *COORD*	VALVE DESCRIPTION *SYSTEM NAME* *Code: Class Cat*	*VALVE* *Type* *Size (In.)* *Actuator*	*POSITIONS* *Normal*	 *Safety*	 *Failsafe*	*ACTIVE-PASSIVE* *Open* *A/I/P/N*	 *Close* *A/I/P/N*	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
2SI-00840B *110[illegible]35, Sh.3* *[illegible]*	**Spray Additive Tank Vacuum Breaker Valve** *Containment Spray* *2 C*	*VB* *0.75* *SA*	*C*	*O*	*N/A*	*A*	*N*	RVT(10Y)		
2SI-00847A *110E035, Sh.3* *E-5*	**Spray Additive Eductor Check Valve** *Containment Spray* *2 C*	*CK* *2* *SA*	*C*	*OC*	*N/A*	*A*	*A*	CV-O(CS) CV-C(R)	CSJ-12 ROJ-20	
2SI-00847B *110E035, Sh.3* *D-5*	**Spray Additive Eductor Check Valve** *Containment Spray* *2 C*	*CK* *2* *SA*	*C*	*OC*	*N/A*	*A*	*A*	CV-O(CS) CV-C(R)	CSJ-12 ROJ-20	
2SI-00858A *110E035, Sh.3* *G-2*	**Containment Spray Pump Suction from RWST Check Valve** *Containment Spray* *2 C*	*CK* *6* *SA*	*C*	*O*	*N/A*	*A*	*N*	CV-O(Q) ASLT-6		
2SI-00858B *110E035, Sh.3* *C-2*	**Containment Spray Pump Suction from RWST Check Valve** *Containment Spray* *2 C*	*CK* *6* *SA*	*C*	*O*	*N/A*	*A*	*N*	CV-O(Q) ASLT-6		

VALVE NO *PID NO* *COORD*	VALVE DESCRIPTION *SYSTEM NAME* *Code: Class Cat*	*VALVE* *Type* *Size (In.)* *Actuator*	*POSITIONS* *Normal*	 *Safety*	 *Failsafe*	*ACTIVE-PASSIVE* *Open* *A/I/P/N*	 *Close* *A/I/P/N*	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
2SI-00860A *110E035, Sh.3* *G-7*	**Containment Spray Pump Discharge Isolation Valve** *Containment Spray* *2 B*	*GA* *6* *MO*	*C*	*O*	*AI*	*A*	*N*	ET(Q) BT-O(Q) PIT(2Y)		
2SI-00860B *110E035, Sh.3* *G-7*	**Containment Spray Pump Discharge Isolation Valve** *Containment Spray* *2 B*	*GA* *6* *MO*	*C*	*O*	*AI*	*A*	*N*	ET(Q) BT-O(Q) PIT(2Y)		
2SI-00860C *110E035, Sh.3* *C-7*	**Containment Spray Pump Discharge Isolation Valve** *Containment Spray* *2 B*	*GA* *6* *MO*	*C*	*O*	*AI*	*A*	*N*	ET(Q) BT-O(Q) PIT(2Y)		
2SI-00860D *110E035, Sh.3* *C-7*	**Containment Spray Pump Discharge Isolation Valve** *Containment Spray* *2 B*	*GA* *6* *MO*	*C*	*O*	*AI*	*A*	*N*	ET(Q) BT-O(Q) PIT(2Y)		
2SI-00862A *110E035, Sh.3* *G-8*	**Containment Spray Pump Discharge Check Valve** *Containment Spray* *2 AC*	*CK* *6* *SA*	*C*	*OC*	*N/A*	*A*	*A*	CV-O(Q) CV-C(R) SLT-1	 ROJ-19	

VALVE NO *PID NO* *COORD*	VALVE DESCRIPTION *SYSTEM NAME* *Code: Class Cat*	*VALVE* *Type* *Size (In.)* *Actuator*	*POSITIONS* *Normal*	 *Safety*	 *Failsafe*	*ACTIVE-PASSIVE* *Open* *A/I/P/N*	 *Close* *A/I/P/N*	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/RR	REMARKS
2SI-00862B *110E035, Sh.3* *C-8*	**Containment Spray Pump Discharge Check Valve** *Containment Spray* *2 AC*	*CK* *6* *SA*	*C*	*OC*	*N/A*	*A*	*A*	CV-O(Q) CV-C(R) SLT-1	 ROJ-19	
2SI-00862G *110E035, Sh.3* *G-8*	**Containment Spray Train A Test Line Isolation Valve** *Containment Spray* *2 A*	*GA* *6* *MA*	*C*	*C*	*N/A*	*N*	*P*	SLT-1		
2SI-00862H *110E035, Sh.3* *D-8*	**Containment Spray Train B Test Line Isolation Valve** *Containment Spray* *2 A*	*GA* *6* *MA*	*C*	*C*	*N/A*	*N*	*P*	SLT-1		
2SI-00864A *110E035, Sh.3* *F-8*	**Containment Spray Test/Recirculation Valve** *Containment Spray* *2 A*	*GL* *0.75* *MA*	*C*	*C*	*N/A*	*N*	*P*	SLT-1		
2SI-00864B *110E035, Sh.3* *D-8*	**Containment Spray Test/Recirculation Valve** *Containment Spray* *2 A*	*GL* *0.75* *MA*	*C*	*C*	*N/A*	*N*	*P*	SLT-1		

VALVE NO *PID NO* *COORD*	VALVE DESCRIPTION *SYSTEM NAME* *Code: Class Cat*	*VALVE* *Type* *Size (In.)* *Actuator*	*POSITIONS* *Normal*	 *Safety*	 *Failsafe*	*ACTIVE-PASSIVE* *Open* *A/I/P/N*	 *Close* *A/I/P/N*	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
2SI-00870A *110E035, Sh.3* *G-2*	**Containment Spray Pump A Suction From RWST Valve** *Containment Spray* *2 A*	*GA* *6* *MO*	*O*	*OC*	*AI*	*I*	*A*	ET(Q) BT-C(Q) PIT(2Y) SLT-6		
2SI-00870B *110E035, Sh.3* *C-2*	**Containment Spray Pump B Suction From RWST Valve** *Containment Spray* *2 A*	*GA* *6* *MO*	*O*	*OC*	*AI*	*I*	*A*	ET(Q) BT-C(Q) PIT(2Y) SLT-6		
2SI-00871A *110E035, Sh.3* *F-3*	**Containment Spray Pump A Suction From RHR Valve** *Containment Spray* *2 B*	*GA* *6* *MO*	*C*	*OC*	*AI*	*A*	*A*	ET(Q) BT-O(Q) BT-C(Q) PIT(2Y) ASI T-6		
2SI-00871B *110E035, Sh.3* *B-3*	**Containment Spray Pump B Suction From RHR Valve** *Containment Spray* *2 B*	*GA* *6* *MO*	*C*	*OC*	*AI*	*A*	*A*	ET(Q) BT-O(Q) BT-C(Q) PIT(2Y) ASLT-6		

VALVE NO PID NO COORD	VALVE DESCRIPTION SYSTEM NAME Code: Class Cat	VALVE Type Size (In.) Actuator	POSITIONS Normal	 Safety	 Failsafe	ACTIVE-PASSIVE Open A/I/P/N	 Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
1DI-00009	**Demineralized Water Supply to Containment Manual Isolation Valve (Otbd)**							SLT-1		
PBM-231 Sh.2	*Demineralized Water*	*GA 2*	*C*	*C*	*N/A*	*N*	*P*			
C-9	*2 A*	*MA*								
1DI-00011	**Demineralized Water Supply to Containment Manual Isolation Valve (Inbd)**							SLT-1		
PBM-231 Sh.2	*Demineralized Water*	*GA 2*	*C*	*C*	*N/A*	*N*	*P*			
C-10	*2 A*	*MA*								
2DI-00009	**Demineralized Water Supply to Containment Manual Isolation Valve (Otbd)**							SLT-1		
PBM-231 Sh.2	*Demineralized Water*	*GA 2*	*C*	*C*	*N/A*	*N*	*P*			
E-2	*2 A*	*MA*								
2DI-00011	**Demineralized Water Supply to Containment Manual Isolation Valve (Inbd)**							SLT-1		
PBM-231 Sh.2	*Demineralized Water*	*GA 2*	*C*	*C*	*N/A*	*N*	*P*			
E-2	*2 A*	*MA*								

VALVE NO / PID NO / COORD	VALVE DESCRIPTION / SYSTEM NAME / Code: Class Cat	VALVE Type / Size (In.) / Actuator	POSITIONS Normal	Safety	Failsafe	ACTIVE-PASSIVE Open A/I/P/N	Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
0FO-00192	**P-206B G03 EDG FOTP Discharge Check**							CV-O(Q)		
M-219, Sh.3	*Diesel Fuel Oil*	*CK* / *2*	*C*	*O*	*N/A*	*A*	*N*			
F-7	*3 C*	*SA*								
0FO-00193	**P-207B G04 EDG FOTP Discharge Check**							CV-O(Q)		
M-219, Sh.3	*Diesel Fuel Oil*	*CK* / *2*	*C*	*O*	*N/A*	*A*	*N*			
F-8	*3 C*	*SA*								
0FO-03930	**EDG G01 Fuel Oil Day Tank T-31A Inlet Isolation Valve**							ET(Q) BT-O(Q)		
M-219, Sh.1	*Diesel Fuel Oil*	*GA* / *1*	*C*	*O*	*AI*	*A*	*N*	PIT(2Y)		
G-3	*3 B*	*MO*								
0FO-03931	**EDG G02 Fuel Oil Day Tank T-31B Inlet Isolation Valve**							ET(Q) BT-O(Q)		
M-219, Sh.1	*Diesel Fuel Oil*	*GA* / *1*	*C*	*O*	*AI*	*A*	*N*	PIT(2Y)		
G-2	*3 B*	*MO*								
0FO-03982A	**P-206A G-01 EDG FOTP Discharge Unloader**							BT-EE(Q)		
M-219, Sh.2	*Diesel Fuel Oil*	*REG* / *2*	*C*	*OC*	*N/A*	*A*	*I*			
E-3	*3 C*	*SA*								

VALVE NO PID NO COORD	VALVE DESCRIPTION SYSTEM NAME Code: Class Cat	VALVE Type Size (In.) Actuator	POSITIONS Normal	 Safety	 Failsafe	ACTIVE-PASSIVE Open A/I/P/N	 Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
0FO-03982B	**P-206B G-03 EDG FOTP Discharge Unloader**							BT-EE(Q)		
M-219, Sh.3	*Diesel Fuel Oil*	*REG* *2*	*C*	*OC*	*N/A*	*N*	*I*			
E-7	*3 C*	*SA*								
0FO-03983A	**P-207A G-02 EDG FOTP Discharge Unloader**							BT-EE(Q)		
M-219, Sh.2	*Diesel Fuel Oil*	*REG* *2*	*C*	*OC*	*N/A*	*A*	*I*			
E-4	*3 C*	*SA*								
0FO-03983B	**P-207B G-04 EDG FOTP Discharge Unloader**							BT-EE(Q)		
M-219, Sh.3	*Diesel Fuel Oil*	*REG* *2*	*C*	*OC*	*N/A*	*A*	*I*			
E-7	*3 C*	*SA*								

VALVE NO PID NO COORD	VALVE DESCRIPTION SYSTEM NAME Code: Class Cat	VALVE Type Size (In.) Actuator	POSITIONS Normal	 Safety	 Failsafe	ACTIVE-PASSIVE Open A/I/P/N	 Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
0DA-00100	**G-01 EDG K-5A Start Air Comp Discharge Check**							CV-C(Q) SLT-3		
M-209, Sh.12	*EDG Starting Air*	*CK* *1.5*	*C*	*C*	*N/A*	*N*	*A*			
G-9	*3 AC*	*SA*								
0DA-00112	**G-01 EDG K-4A Start Air Comp Discharge Check**							CV-C(Q) SLT-3		
M-209, Sh.12	*EDG Starting Air*	*CK* *1.5*	*C*	*C*	*N/A*	*N*	*A*			
H-5	*3 AC*	*SA*								
0DA-00200	**G-02 EDG K-5B Start Air Comp Discharge Check**							CV-C(Q) SLT-3		
M-209, Sh.12	*EDG Starting Air*	*CK* *1.5*	*C*	*C*	*N/A*	*N*	*A*			
G-9	*3 AC*	*SA*								
0DA-00212	**G-02 EDG K-4B Start Air Comp Discharge Check**							CV-C(Q) SLT-3		
M-209, Sh.12	*EDG Starting Air*	*CK* *1.5*	*C*	*C*	*N/A*	*N*	*A*			
H-5	*3 AC*	*SA*								
0DA-00316	**G-03 EDG T-170A/B Start Air Rcvr Inlet Check (Series)**							CV-C(Q) SLT-3		
M-209, Sh.14	*EDG Starting Air*	*CK* *0.75*	*C*	*C*	*N/A*	*N*	*A*			
G-8	*3 AC*	*SA*								

VALVE NO / PID NO / COORD	VALVE DESCRIPTION / SYSTEM NAME / Code: Class Cat	VALVE Type / Size (In.) / Actuator	POSITIONS Normal	Safety	Failsafe	ACTIVE-PASSIVE Open A/I/P/N	Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
0DA-00318 *M-209, Sh.14* *G-8*	**G-03 EDG T-170A/B Start Air Rcvr Inlet Check (Series)** *EDG Starting Air* *3 AC*	*CK* *0.75* *SA*	*C*	*C*	*N/A*	*N*	*A*	CV-C(Q) SLT-3		
0DA-00323 *M-209, Sh.14* *E-8*	**G-03 EDG T-170C/D Start Air Rcvr Inlet Check (Series)** *EDG Starting Air* *3 AC*	*CK* *0.75* *SA*	*C*	*C*	*N/A*	*N*	*A*	CV-C(Q) SLT-3		
0DA-00325 *M-209, Sh.14* *E-8*	**G-03 EDG T-170C/D Start Air Rcvr Inlet Check (Series)** *EDG Starting Air* *3 AC*	*CK* *0.75* *SA*	*C*	*C*	*N/A*	*N*	*A*	CV-C(Q) SLT-3		
0DA-00416 *M-209, Sh.15* *G-8*	**G-04 EDG T-171A/B Start Air Rcvr Inlet Check (Series)** *EDG Starting Air* *3 AC*	*CK* *0.75* *SA*	*C*	*C*	*N/A*	*N*	*A*	CV-C(Q) SLT-3		
0DA-00418 *M-209, Sh.15* *G-8*	**G-04 EDG T-171A/B Start Air Rcvr Inlet Check (Series)** *EDG Starting Air* *3 AC*	*CK* *0.75* *SA*	*C*	*C*	*N/A*	*N*	*A*	CV-C(Q) SLT-3		

VALVE NO PID NO COORD	VALVE DESCRIPTION SYSTEM NAME Code: Class Cat	VALVE Type Size (In.) Actuator	POSITIONS Normal	 Safety	 Failsafe	ACTIVE-PASSIVE Open A/I/P/N	 Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
0DA-00423 M-209, Sh.15 E-8	**G-04 EDG T-171C/D Start Air Rcvr Inlet Check (Series)** EDG Starting Air 3 AC	CK 0.75 SA	C	C	N/A	N	A	CV-C(Q) SLT-3		
0DA-00425 M-209, Sh.15 E-8	**G-04 EDG T-171C/D Start Air Rcvr Inlet Check (Series)** EDG Starting Air 3 AC	CK 0.75 SA	C	C	N/A	N	A	CV-C(Q) SLT-3		
0DA-03055A M-209, Sh.12 F-10	**G-01 EDG T-60A Start Air Receiver Relief** EDG Starting Air 3 C	SRV 0.5 SA	C	OC	N/A	A	I	RVT(10Y)		
0DA-03055B M-209, Sh.12 D-9	**G-01 EDG T-60B Start Air Receiver Relief** EDG Starting Air 3 C	SRV 0.5 SA	C	OC	N/A	A	I	RVT(10Y)		
0DA-03055C M-209, Sh.12 C-8	**G-01 EDG T-60C Start Air Receiver Relief** EDG Starting Air 3 C	SRV 0.5 SA	C	OC	N/A	A	I	RVT(10Y)		

VALVE NO PID NO COORD	VALVE DESCRIPTION SYSTEM NAME Code: Class Cat	VALVE Type Size (In.) Actuator	POSITIONS Normal	 Safety	 Failsafe	ACTIVE-PASSIVE Open A/I/P/N	 Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
0DA-03055D *M-209, Sh.12* *F-1*	**G-01 EDG T-60D Start Air Receiver Relief** *EDG Starting Air* *3 C*	*SRV* *0.5* *SA*	*C*	*OC*	*N/A*	*A*	*I*	RVT(10Y)		
0DA-03055E *M-209, Sh.12* *D-2*	**G-01 EDG T-60E Start Air Receiver Relief** *EDG Starting Air* *3 C*	*SRV* *0.5* *SA*	*C*	*OC*	*N/A*	*A*	*I*	RVT(10Y)		
0DA-03055F *M-209, Sh.12* *C-3*	**G-01 EDG T-60F Start Air Receiver Relief** *EDG Starting Air* *3 C*	*SRV* *0.5* *SA*	*C*	*OC*	*N/A*	*A*	*I*	RVT(10Y)		
0DA-03056A *M-209, Sh.12* *F-10*	**G-02 EDG T-61A Start Air Receiver Relief** *EDG Starting Air* *3 C*	*SRV* *0.5* *SA*	*C*	*OC*	*N/A*	*A*	*I*	RVT(10Y)		
0DA-03056B *M-209, Sh.12* *D-9*	**G-02 EDG T-61B Start Air Receiver Relief** *EDG Starting Air* *3 C*	*SRV* *0.5* *SA*	*C*	*OC*	*N/A*	*A*	*I*	RVT(10Y)		

VALVE NO *PID NO* *COORD*	VALVE DESCRIPTION *SYSTEM NAME* *Code: Class Cat*	*VALVE* *Type* *Size (In.)* *Actuator*	*POSITIONS* *Normal*	 *Safety*	 *Failsafe*	*ACTIVE-PASSIVE* *Open A/I/P/N*	 *Close A/I/P/N*	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
0DA-03056C *M-209, Sh.12* *C-8*	**G-02 EDG T-61C Start Air Receiver Relief** *EDG Starting Air* *3 C*	*SRV* *0.5* *SA*	*C*	*OC*	*N/A*	*A*	*I*	RVT(10Y)		
0DA-03056D *M-209, Sh.12* *F-1*	**G-02 EDG T-61D Start Air Receiver Relief** *EDG Starting Air* *3 C*	*SRV* *0.5* *SA*	*C*	*OC*	*N/A*	*A*	*I*	RVT(10Y)		
0DA-03056E *M-209, Sh.12* *D-2*	**G-02 EDG T-61E Start Air Receiver Relief** *EDG Starting Air* *3 C*	*SRV* *0.5* *SA*	*C*	*OC*	*N/A*	*A*	*I*	RVT(10Y)		
0DA-03056F *M-209, Sh.12* *C-3*	**G-02 EDG T-61F Start Air Receiver Relief** *EDG Starting Air* *3 C*	*SRV* *0.5* *SA*	*C*	*OC*	*N/A*	*A*	*I*	RVT(10Y)		
0DA-06350A *M-209, Sh.14* *G-6*	**G-03 EDG T-170A Starting Air Receiver Relief** *EDG Starting Air* *3 C*	*SRV* *0.5* *SA*	*C*	*OC*	*N/A*	*A*	*I*	RVT(10Y)		

VALVE NO *PID NO* *COORD*	VALVE DESCRIPTION *SYSTEM NAME* *Code: Class Cat*	*VALVE* *Type* *Size (In.)* *Actuator*	*POSITIONS* *Normal*	 *Safety*	 *Failsafe*	*ACTIVE-PASSIVE* *Open* *A/I/P/N*	 *Close* *A/I/P/N*	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
0DA-06350B	**G-03 EDG T-170B Starting Air Receiver Relief**							RVT(10Y)		
M-209, Sh.14	*EDG Starting Air*	*SRV* *0.5*	*C*	*OC*	*N/A*	*A*	*I*			
G-7	*3 C*	*SA*								
0DA-06350C	**G-03 EDG T-170C Starting Air Receiver Relief**							RVT(10Y)		
M-209, Sh.14	*EDG Starting Air*	*SRV* *0.5*	*C*	*OC*	*N/A*	*A*	*I*			
D-6	*3 C*	*SA*								
0DA-06350D	**G-03 EDG T-170D Starting Air Receiver Relief**							RVT(10Y)		
M-209, Sh.14	*EDG Starting Air*	*SRV* *0.5*	*C*	*OC*	*N/A*	*A*	*I*			
D-7	*3 C*	*SA*								
0DA-06351A	**G-04 EDG T-171A Starting Air Receiver Relief**							RVT(10Y)		
M-209, Sh.15	*EDG Starting Air*	*SRV* *0.5*	*C*	*OC*	*N/A*	*A*	*I*			
G-6	*3 C*	*SA*								
0DA-06351B	**G-04 EDG T-171B Starting Air Receiver Relief**							RVT(10Y)		
M-209, Sh.15	*EDG Starting Air*	*SRV* *0.5*	*C*	*OC*	*N/A*	*A*	*I*			
G-7	*3 C*	*SA*								

VALVE NO PID NO COORD	VALVE DESCRIPTION SYSTEM NAME Code: Class Cat	VALVE Type Size (In.) Actuator	POSITIONS Normal	 Safety	 Failsafe	ACTIVE-PASSIVE Open A/I/P/N	 Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
0DA-06351C	**G-04 EDG T-171C Starting Air Receiver Relief**							RVT(10Y)		
M-209, Sh.15	*EDG Starting Air*	*SRV* *9.5*	*C*	*OC*	*N/A*	*A*	*I*			
D-6	*3 C*	*SA*								
0DA-06351D	**G-04 EDG T-171D Starting Air Receiver Relief**							RVT(10Y)		
M-209, Sh.15	*EDG Starting Air*	*SRV* *0.5*	*C*	*OC*	*N/A*	*A*	*I*			
D-7	*3 C*	*SA*								

VALVE NO *PID NO* *COORD*	VALVE DESCRIPTION *SYSTEM NAME* *Code: Class Cat*	*VALVE* *Type* *Size (In.)* *Actuator*	*POSITIONS* *Normal*	 *Safety*	 *Failsafe*	*ACTIVE-PASSIVE* *Open* *A/I/P/N*	 *Close* *A/I/P/N*	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
1CS-00466 *M-202, Sh.2* *C-7*	**SG 1HX 1A Feedwater Regulator Control Valve** *Feedwater* *NC B*	*GA* *12* *AO*	*O*	*C*	*C*	*N*	*A*	AET(CS) ABT-C(CS) AFST-C(CS) APIT(2Y)	TJ-01 TJ-01 TJ-01	
1CS-00466AA *M-202, Sh.2* *C-9*	**SG 1HX-1A Feedwater Supply Check Valve - Outboard** *Feedwater* *2 C*	*CK* *16* *SA*	*O*	*C*	*N/A*	*N*	*A*	CV-C(CS)	CSJ-13	
1CS-00466BB *M-202, Sh.2* *D-9*	**SG 1HX-1A Feedwater Supply Check Valve - Inboard** *Feedwater* *2 C*	*CK* *16* *SA*	*O*	*C*	*N/A*	*N*	*A*	CV-C(CS)	CSJ-13	
1CS-00476 *M-202, Sh.2* *F-7*	**SG 1HX-1B Feedwater Regulator Control Valve** *Feedwater* *NC B*	*GA* *12* *AO*	*O*	*C*	*C*	*N*	*A*	AET(CS) ABT-C(CS) AFST-C(CS) APIT(2Y)	TJ-01 TJ-01 TJ-01	
1CS-00476AA *M-202, Sh.2* *F-9*	**SG 1HX-1B Feedwater Supply Check Valve - Outboard** *Feedwater* *2 C*	*CK* *16* *SA*	*O*	*C*	*N/A*	*N*	*A*	CV-C(CS)	CSJ-13	

VALVE NO / PID NO / COORD	VALVE DESCRIPTION / SYSTEM NAME / Code: Class Cat	VALVE Type / Size (In.) / Actuator	POSITIONS Normal	Safety	Failsafe	ACTIVE-PASSIVE Open A/I/P/N	Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
1CS-00476BB	**SG 1HX-1B Feedwater Supply Check Valve - Inboard**							CV-C(CS)	CSJ-13	
M-202, Sh.2	*Feedwater*	*CK* / *16*	*O*	*C*	*N/A*	*N*	*A*			
H-9	*2* *C*	*SA*								
1CS-00480	**SG 1HX-1A CS-466 FW Regulator Bypass Control Valve**							AET(CS) ABT-C(CS) AFST-C(CS) APIT(2Y)	TJ-02 TJ-02 TJ-02	
M-202, Sh.2	*Feedwater*	*GA* / *4*	*C*	*C*	*C*	*N*	*A*			
B-7	*NC* *B*	*AO*								
1CS-00481	**SG 1HX-1B CS-476 FW Regulator Bypass Control Valve**							AET(CS) ABT-C(CS) AFST-C(CS) APIT(2Y)	TJ-02 TJ-02 TJ-02	
M-202, Sh.2	*Feedwater*	*GA* / *4*	*C*	*C*	*C*	*N*	*A*			
F-7	*NC* *B*	*AO*								
2CS-00466	**SG 2HX-1A Feedwater Regulator Control Valve**							AET(CS) ABT-C(CS) AFST-C(CS) APIT(2Y)	TJ-01 TJ-01 TJ-01	
M-2202, Sh.2	*Feedwater*	*GA* / *12*	*O*	*C*	*C*	*N*	*A*			
C-4	*NC* *B*	*AO*								
2CS-00466AA	**SG 2HX-1A Feedwater Supply Check Valve - Outboard**							CV-C(CS)	CSJ-13	
M-2202, Sh.2	*Feedwater*	*CK* / *16*	*O*	*C*	*N/A*	*N*	*A*			
C-2	*2* *C*	*SA*								

VALVE NO / PID NO / COORD	VALVE DESCRIPTION / SYSTEM NAME / Code: Class Cat	VALVE Type / Size (In.) / Actuator	POSITIONS Normal	Safety	Failsafe	ACTIVE-PASSIVE Open A/I/P/N	Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
2CS-00466BB	**SG 2HX-1A Feedwater Supply Check Valve - Inboard**							CV-C(CS)	CSJ-13	
M-2202, Sh.2	*Feedwater*	*CK* / *16*	*O*	*C*	*N/A*	*N*	*A*			
D-2	*2 C*	*SA*								
2CS-00476	**SG 2HX-1B Feedwater Regulator Control Valve**							AET(CS)	TJ-01	
		GA						ABT-C(CS)	TJ-01	
M-2202, Sh.2	*Feedwater*	*12*	*O*	*C*	*C*	*N*	*A*	AFST-C(CS)	TJ-01	
F-4	*NC B*	*AO*						APIT(2Y)		
2CS-00476AA	**SG 2HX-1B Feedwater Supply Check Valve - Outboard**							CV-C(CS)	CSJ-13	
M-2202, Sh.2	*Feedwater*	*CK* / *16*	*O*	*C*	*N/A*	*N*	*A*			
F-2	*2 C*	*SA*								
2CS-00476BB	**SG 2HX-1B Feedwater Supply Check Valve - Inboard**							CV-C(CS)	CSJ-13	
M-2202, Sh.2	*Feedwater*	*CK* / *16*	*O*	*C*	*N/A*	*N*	*A*			
H-2	*2 C*	*SA*								
2CS-00480	**SG 2HX-1A CS-466 FW Regulator Bypass Control Valve**							AET(CS)	TJ-02	
		GA						ABT-C(CS)	TJ-02	
M-2202, Sh.2	*Feedwater*	*4*	*C*	*C*	*C*	*N*	*A*	AFST-C(CS)	TJ-02	
B-4	*NC B*	*AO*						APIT(2Y)		

VALVE NO *PID NO* *COORD*	VALVE DESCRIPTION *SYSTEM NAME* *Code: Class Cat*	*VALVE* *Type* *Size (In.)* *Actuator*	*POSITIONS* *Normal*	 *Safety*	 *Failsafe*	*ACTIVE-PASSIVE* *Open* *A/I/P/N*	 *Close* *A/I/P/N*	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
2CS-00481 *M-2202, Sh.2* *F-4*	**SG 2HX-1B CS-476 FW Regulator Bypass Control Valve** *Feedwater* *NC B*	*GA* *4* *AO*	*C*	*C*	*C*	*N*	*A*	AET(CS) ABT-C(CS) AFST-C(CS) APIT(2Y)	TJ-02 TJ-02 TJ-02	

VALVE NO *PID NO* *COORD*	VALVE DESCRIPTION *SYSTEM NAME* *Code: Class Cat*	*VALVE* *Type* *Size (In.)* *Actuator*	*POSITIONS* *Normal*	 *Safety*	 *Failsafe*	*ACTIVE-PASSIVE* *Open A/I/P/N*	 *Close A/I/P/N*	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
0HV-00898A *M-214, Sh.4* *C-9*	**CR Chill Water Pump P-112A Discharge Check Valve** *HVAC* *NC N/A*	*CK* *3* *SA*	*OC*	*OC*	*N/A*	*A*	*A*	ACV-O(Q) ACV-C(Q)		
0HV-00900A *M-214, Sh.4* *C-9*	**CR Chill Water Pump P-112B Discharge Check Valve** *HVAC* *NC N/A*	*CK* *3* *SA*	*OC*	*OC*	*N/A*	*A*	*A*	ACV-O(Q) ACV-C(Q)		
0HV-00914A *M-214, Sh.4* *B-9*	**CSR Chill Water Pump P-111A Discharge Check Valve** *HVAC* *NC N/A*	*CK* *3* *SA*	*OC*	*OC*	*N/A*	*A*	*A*	ACV-O(Q) ACV-C(Q)		
0HV-00916A *M-214, Sh.4* *B-9*	**CSR Chill Water Pump P-111B Discharge Check Valve** *HVAC* *NC N/A*	*CK* *3* *SA*	*OC*	*OC*	*N/A*	*A*	*A*	ACV-O(Q) ACV-C(Q)		
0VNCR-04636 *M-144, Sh.2* *D-4*	**CR Water Duct Heater Outlet Temp Control Valve** *HVAC* *NC N/A*	*GL* *2* *AO*	*TH*	*O*	*O*	*A*	*N*	AFST-O(Q)	TP-02	

VALVE NO PID NO COORD	VALVE DESCRIPTION SYSTEM NAME Code: Class Cat	VALVE Type Size (In.) Actuator	POSITIONS Normal	 Safety	 Failsafe	ACTIVE-PASSIVE Open A/I/P/N	 Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
0VNCR-04639	**CR Chill Water Cooling Coil Outlet Temp Control Valve**							AFST-O(Q)	TP-02	
M-144, Sh.2	*HVAC*	*GL* *3*	*TH*	*O*	*O*	*A*	*N*			
D-6	*NC N/A*	*AO*								
0VNCSR-04638	**CSR Water Duct Heater Outlet Temp Control Valve**							AFST-O(Q)	TP-02	
M-144, Sh.2	*HVAC*	*GL* *1.5*	*TH*	*O*	*O*	*A*	*N*			
H-8	*NC N/A*	*AO*								
0VNCSR-04640	**CSR Chill Water Cooling Coil Outlet Temp Control Valve**							AFST-O(Q)	TP-02	
M-144, Sh.2	*HVAC*	*GL* *3*	*TH*	*O*	*O*	*A*	*N*			
H-7	*NC N/A*	*AO*								
1H2-V-04	**Containment to PACV Line Isolation Valve**							FSM(R) SLT-1	ROJ-21	
M-224	*HVAC*	*DI* *2*	*C*	*OC*	*N/A*	*A*	*A*			
D-6	*2 A*	*MA*								
1H2-V-05	**Containment to PACV Flow Regulating Valve**							FSM(R) SLT-1	ROJ-21	
M-224	*HVAC*	*DI* *1.5*	*C*	*OC*	*N/A*	*A*	*A*			
D-6	*2 A*	*MA*								

VALVE NO PID NO COORD	VALVE DESCRIPTION SYSTEM NAME Code: Class Cat	VALVE Type Size (In.) Actuator	POSITIONS Normal	 Safety	 Failsafe	ACTIVE-PASSIVE Open A/I/P/N	 Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
1H2-V-06 M-224 D-6	**PACV Exhaust Line Drain Valve** HVAC 2 A	GA 0.75 MA	C	C	N/A	N	P	SLT-1		
1H2-V-07 M-224 D-6	**PACV Exhaust Line Drain Valve** HVAC 2 A	GA 0.75 MA	C	C	N/A	N	P	SLT-1		
1H2-V-08 M-224 E-6	**PACV Sample Line Isolation Valve** HVAC 2 A	DI 0.75 MA	C	C	N/A	N	P	SLT-1		
1H2-V-09 M-224 E-6	**PACV Sample Line Isolation Valve** HVAC 2 A	DI 0.75 MA	C	C	N/A	N	P	SLT-1		
1H2-V-12 M-224 C-6	**PACV Service Air Supply Isolation Valve** HVAC 2 A	DI 2 MA	C	OC	N/A	A	A	FSM(R) SLT-1	ROJ-21	

VALVE NO PID NO COORD	VALVE DESCRIPTION SYSTEM NAME Code: Class Cat	VALVE Type Size (In.) Actuator	POSITIONS Normal	 Safety	 Failsafe	ACTIVE-PASSIVE Open A/I/P/N	 Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
1H2-V-13 M-224 C-6	PACV Service Air Supply Isolation Valve HVAC 2 A	DI 2 MA	C	OC	N/A	A	A	FSM(R) SLT-1	ROJ-21	
1H2-V-19 M-224 D-6	H2 Recombiner Supply Isolation Valve HVAC 2 A	DI 2 MA	C	OC	N/A	A	A	FSM(R) SLT-1	ROJ-21	
1H2-V-20 M-224 D-6	H2 Recombiner Supply Isolation Valve HVAC 2 A	DI 2 MA	C	OC	N/A	A	A	FSM(R) SLT-1	ROJ-21	
1H2-V-22 M-224 D-7	H2 Recombiner Return Isolation Valve HVAC 2 A	DI 2 MA	C	OC	N/A	A	A	FSM(R) SLT-1	ROJ-21	
1H2-V-23 M-224 D-7	H2 Recombiner Return Isolation Valve HVAC 2 A	DI 2 MA	C	OC	N/A	A	A	FSM(R) SLT-1	ROJ-21	

VALVE NO *PID NO* *COORD*	VALVE DESCRIPTION *SYSTEM NAME* *Code: Class Cat*	*VALVE* *Type* *Size (In.)* *Actuator*	*POSITIONS* *Normal*	 *Safety*	 *Failsafe*	*ACTIVE-PASSIVE* *Open* *A/I/P/N*	 *Close* *A/I/P/N*	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
1H2-V-26 *M-224* *C-6*	**PACV Service Air Supply Check Valve** *HVAC* *2 C*	*CK* *2* *SA*	*C*	*O*	*N/A*	*A*	*N*	ACV-PO(R)	TJ-03	
1RM-03200A *M-215, Sh.2* *G-2*	**RE-211/212 Rad Monitor Return CIV (Outbd)** *HVAC* *2 A*	*GL* *1* *AO*	*O*	*C*	*C*	*N*	*A*	ET(Q) BT-C(Q) FST-C(Q) PIT(2Y) SLT-1		
1RM-03200AA *M-215, Sh.2* *H-2*	**RE-211/212 Rad Monitor Return Check CIV (Inbd)** *HVAC* *2 AC*	*CK* *1* *SA*	*C*	*C*	*N/A*	*N*	*A*	CV-C(R) SLT-1	ROJ-13	
1RM-03200B *M-215, Sh.2* *G-9*	**RE-211/212 Rad Monitor Supply CIV (Outbd)** *HVAC* *2 A*	*GL* *1* *AO*	*O*	*C*	*C*	*N*	*A*	ET(Q) BT-C(Q) FST-C(Q) PIT(2Y) SLT-1		
1RM-03200C *M-215, Sh.2* *H-9*	**RE-211/212 Rad Monitor Supply CIV (Inbd)** *HVAC* *2 A*	*GL* *1* *AO*	*O*	*C*	*C*	*N*	*A*	ET(Q) BT-C(Q) FST-C(Q) PIT(2Y) SLT-1		

VALVE NO	PID NO	COORD	VALVE DESCRIPTION	SYSTEM NAME	Code: Class	Cat	VALVE Type	Size (In.)	Actuator	POSITIONS Normal	Safety	Failsafe	ACTIVE-PASSIVE Open A/I/P/N	Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
1VNPSE-03212	M-215, Sh.1	H-3	Containment Purge Exhaust CIV (Outbd)	HVAC	2	A	BTF	36	AO	C	C	C	N	A	ET(CS) BT-C(CS) FST-C(CS) PIT(2Y) SLT-1	CSJ-14 CSJ-14 CSJ-14	
1VNPSE-03213	M-215, Sh.1	H-5	Containment Purge Exhaust CIV (Inbd)	HVAC	2	A	BTF	36	AO	C	C	C	N	A	ET(CS) BT-C(CS) FST-C(CS) PIT(2Y) SLT-1	CSJ-14 CSJ-14 CSJ-14	
1VNPSE-03244	M-215, Sh.1	D-2	Containment Purge Supply CIV (Outbd)	HVAC	2	A	BTF	36	AO	C	C	C	N	A	ET(CS) BT-C(CS) FST-C(CS) PIT(2Y) SLT-1	CSJ-14 CSJ-14 CSJ-14	
1VNPSE-03245	M-215, Sh.1	D-3	Containment Purge Supply CIV (Inbd)	HVAC	2	A	BTF	36	AO	C	C	C	N	A	ET(CS) BT-C(CS) FST-C(CS) PIT(2Y) SLT-1	CSJ-14 CSJ-14 CSJ-14	
2H2-V-04	M-224	D-5	Containment to PACV Line Isolation Valve	HVAC	2	A	DI	2	MA	C	OC	N/A	A	A	FSM(R) SLT-1	ROJ-21	

VALVE NO *PID NO* *COORD*	**VALVE DESCRIPTION** *SYSTEM NAME* *Code: Class Cat*	*VALVE* *Type* *Size (In.)* *Actuator*	*POSITIONS* *Normal*	 *Safety*	 *Failsafe*	*ACTIVE-PASSIVE* *Open* *A/I/P/N*	 *Close* *A/I/P/N*	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
2H2-V-05 *M-224* *D-5*	**Containment to PACV Flow Regulating Valve** *HVAC* *2 A*	*DI* *1.5* *MA*	*C*	*OC*	*N/A*	*A*	*A*	FSM(R) SLT-1	ROJ-21	
2H2-V-06 *M-224* *D-4*	**PACV Exhaust Line Drain Valve** *HVAC* *2 A*	*GA* *0.75* *MA*	*C*	*C*	*N/A*	*N*	*P*	SLT-1		
2H2-V-07 *M-224* *D-4*	**PACV Exhaust Line Drain Valve** *HVAC* *2 A*	*GA* *0.75* *MA*	*C*	*C*	*N/A*	*N*	*P*	SLT-1		
2H2-V-08 *M-224* *E-4*	**PACV Sample Line Isolation Valve** *HVAC* *2 A*	*DI* *0.75* *MA*	*C*	*C*	*N/A*	*N*	*P*	SLT-1		
2H2-V-09 *M-224* *E-5*	**PACV Sample Line Isolation Valve** *HVAC* *2 A*	*DI* *0.75* *MA*	*C*	*C*	*N/A*	*N*	*P*	SLT-1		

VALVE NO / PID NO / COORD	VALVE DESCRIPTION / SYSTEM NAME / Code: Class Cat	VALVE Type / Size (In.) / Actuator	POSITIONS Normal	Safety	Failsafe	ACTIVE-PASSIVE Open A/I/P/N	Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
2H2-V-12 M-224 C-4	PACV Service Air Supply Isolation Valve HVAC 2 A	DI 2 MA	C	OC	N/A	A	A	FSM(R) SLT-1	ROJ-21	
2H2-V-13 M-224 C-4	PACV Service Air Supply Isolation Valve HVAC 2 A	DI 2 MA	C	OC	N/A	A	A	FSM(R) SLT-1	ROJ-21	
2H2-V-19 M-224 D-4	H2 Recombiner Supply Isolation Valve HVAC 2 A	DI 2 MA	C	OC	N/A	A	A	FSM(R) SLT-1	ROJ-21	
2H2-V-20 M-224 D-4	H2 Recombiner Supply Isolation Valve HVAC 2 A	DI 2 MA	C	OC	N/A	A	A	FSM(R) SLT-1	ROJ-21	
2H2-V-22 M-224 C-4	H2 Recombiner Return Isolation Valve HVAC 2 A	DI 2 MA	C	OC	N/A	A	A	FSM(R) SLT-1	ROJ-21	

VALVE NO *PID NO* *COORD*	VALVE DESCRIPTION *SYSTEM NAME* *Code: Class Cat*	*VALVE* *Type* *Size (In.)* *Actuator*	*POSITIONS* *Normal*	 *Safety*	 *Failsafe*	*ACTIVE-PASSIVE* *Open* *A/I/P/N*	 *Close* *A/I/P/N*	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
2H2-V-23 *M-224* *C-4*	**H2 Recombiner Return Isolation Valve** *HVAC* *2 A*	*DI* *2* *MA*	*C*	*OC*	*N/A*	*A*	*A*	FSM(R) SLT-1	ROJ-21	
2H2-V-26 *M-224* *C-4*	**PACV Service Air Supply Check Valve** *HVAC* *2 C*	*CK* *2* *SA*	*C*	*O*	*N/A*	*A*	*N*	ACV-PO(R)	TJ-03	
2RM-03200A *M-2215, Sh.2* *G-2*	**RE-211/212 Rad Monitor Return CIV (Outbd)** *HVAC* *2 A*	*GL* *1* *AO*	*O*	*C*	*C*	*N*	*A*	ET(Q) BT-C(Q) FST-C(Q) PIT(2Y) SLT-1		
2RM-03200AA *M-2215, Sh.2* *H-2*	**RE-211/212 Rad Monitor Return Check CIV (Inbd)** *HVAC* *2 AC*	*CK* *1* *SA*	*C*	*C*	*N/A*	*N*	*A*	CV-C(R) SLT-1	ROJ-13	
2RM-03200B *M-2215, Sh.2* *G-9*	**RE-211/212 Rad Monitor Supply CIV (Outbd)** *HVAC* *2 A*	*GL* *1* *AO*	*O*	*C*	*C*	*N*	*A*	ET(Q) BT-C(Q) FST-C(Q) PIT(2Y) SLT-1		

VALVE NO *PID NO* *COORD*	VALVE DESCRIPTION *SYSTEM NAME* *Code: Class Cat*	*VALVE* *Type* *Size (In.)* *Actuator*	*POSITIONS* *Normal*	 *Safety*	 *Failsafe*	*ACTIVE-PASSIVE* *Open* *A/I/P/N*	 *Close* *A/I/P/N*	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
2RM-03200C *M-2215, Sh.2* *H-9*	**RE-211/212 Rad Monitor Supply CIV (Inbd)** *HVAC* *2 A*	*GL* *1* *AO*	*O*	*C*	*C*	*N*	*A*	ET(Q) BT-C(Q) FST-C(Q) PIT(2Y) SLT		
2VNPSE-03212 *M-2215, Sh.1* *F-4*	**Containment Purge Exhaust CIV (Outbd)** *HVAC* *2 A*	*BTF* *36* *AO*	*C*	*C*	*C*	*N*	*A*	ET[illegible] BT-C(CS) FST-C(CS) PIT(2Y) SLT-1	CSJ-14 CSJ-14 CSJ-14	
2VNPSE-03213 *M-2215, Sh.1* *F-5*	**Containment Purge Exhaust CIV (Inbd)** *HVAC* *2 A*	*BTF* *36* *AO*	*C*	*C*	*C*	*N*	*A*	ET(CS) BT-C(CS) FST-C(CS) PIT(2Y) SLT-1	CSJ-14 CSJ-14 CSJ-14	
2VNPSE-03244 *M-2215, Sh.1* *D-3*	**Containment Purge Supply CIV (Outbd)** *HVAC* *2 A*	*BTF* *36* *AO*	*C*	*C*	*C*	*N*	*A*	ET(CS) BT-C(CS) FST-C(CS) PIT(2Y) SLT-1	CSJ-14 CSJ-14 CSJ-14	
2VNPSE-03245 *M-2215, Sh.1* *D-4*	**Containment Purge Supply CIV (Inbd)** *HVAC* *2 A*	*BTF* *36* *AO*	*C*	*C*	*C*	*N*	*A*	ET(CS) BT-C(CS) FST-C(CS) PIT(2Y) SLT-1	CSJ-14 CSJ-14 CSJ-14	

VALVE NO / PID NO / COORD	VALVE DESCRIPTION / SYSTEM NAME / Code: Class Cat	VALVE Type / Size (In.) / Actuator	POSITIONS Normal	POSITIONS Safety	POSITIONS Failsafe	ACTIVE-PASSIVE Open A/I/P/N	ACTIVE-PASSIVE Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
1IA-00644	**1VNPSE-3244 Purge Supply Boot Seal Accumulator Check Valve**							ACV-C(CS) ASLT-3	TJ-04	
M-209, Sh 5	*Instrument Air*	*CK* *0.25*	*C*	*C*	*N/A*	*N*	*A*			
A-5	*NC AC*	*SA*								
1IA-00645	**1VNPSE-3212 Purge Exhaust Boot Seal Accumulator Check Valve**							ACV-C(CS) ASLT-3	TJ-04	
M-209, Sh 5	*Instrument Air*	*CK* *0.25*	*C*	*C*	*N/A*	*N*	*A*			
B-5	*NC AC*	*SA*								
1IA-01182	**Instrument Air Supply to Containment Check Valve (Inbd)**							CV-C(Q) SLT-1		
M-209, Sh 7	*Instrument Air*	*CK* *2*	*O*	*C*	*N/A*	*N*	*A*			
B-3	*2 AC*	*SA*								
1IA-01192	**Instrument Air Supply to Containment Check Valve (Inbd)**							CV-C(Q) SLT-1		
M-209, Sh 7	*Instrument Air*	*CK* *2*	*O*	*C*	*N/A*	*N*	*A*			
B-3	*2 AC*	*SA*								
1IA-01203	**PZR PORV 1RC-430 Nitrogen Inlet Manual Iso Valve**							AFSM(CS)	TJ-06	
M-209, Sh 11	*Instrument Air*	*GA*	*C*	*OC*	*N/A*	*A*	*P*			
F-10	*NC B*	*MA*								

VALVE NO PID NO COORD	VALVE DESCRIPTION SYSTEM NAME Code: Class Cat	VALVE Type Size (In.) Actuator	POSITIONS Normal	 Safety	 Failsafe	ACTIVE-PASSIVE Open A/I/P/N	 Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
1IA-01204	**PZR PORV 1RC-431C Nitrogen Inlet Manual Iso Valve**							AFSM(CS)	TJ-06	
M-209, Sh 11	*Instrument Air*	*GA*	*C*	*OC*	*N/A*	*A*	*P*			
F-10	*NC B*	*MA*								
1IA-01206	**PRZ PORV RC-430 Control/Operator IA Inlet Series Check Valve**							ACV-C(CS)	TP-03	
M-209, Sh 11	*Instrument Air*	*CK*	*O*	*C*	*N/A*	*N*	*A*			
G-9	*NC C*	*SA*								
1IA-01207	**PRZ PORV 1RC-430 Control/Operator IA Inlet Bypass Manual Iso Valve**							AFSM(CS)	TJ-06	
M-209, Sh 11	*Instrument Air*	*GA*	*O*	*C*	*N/A*	*N*	*A*			
G-9	*NC B*	*MA*								
1IA-01209	**PRZ PORV RC-431C Control/Operator IA Inlet Series Check Valve**							ACV-C(CS)	TP-03	
M-209, Sh 11	*Instrument Air*	*CK*	*O*	*C*	*N/A*	*N*	*A*			
G-9	*NC C*	*SA*								
1IA-01210	**PRZ PORV 1RC-431C Control/Operator IA Inlet Bypass Manual Iso Valve**							AFSM(CS)	TJ-06	
M-209, Sh 11	*Instrument Air*	*GA*	*O*	*C*	*N/A*	*N*	*A*			
G-9	*NC B*	*MA*								

VALVE NO *PID NO* *COORD*	VALVE DESCRIPTION *SYSTEM NAME* *Code: Class Cat*	*VALVE* *Type* *Size (In.)* *Actuator*	*POSITIONS* *Normal*	 *Safety*	 *Failsafe*	*ACTIVE-PASSIVE* *Open* *A/I/P/N*	 *Close* *A/I/P/N*	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
1IA-01280 *M-209, Sh 11* *F-6*	**1VNPSE-3245 Purge Supply Boot Seal Accumulator Check Valve** *Instrument Air* *NC AC*	*CK* *0.25* *SA*	*C*	*C*	*N/A*	*N*	*A*	ACV-C(CS) ASLT-3	TJ-04	
1IA-01281 *M-209, Sh 11* *E-6*	**1VNPSE-3213 Purge Exhaust Boot Seal Accumulator Check Valve** *Instrument Air* *NC AC*	*CK* *0.25* *SA*	*C*	*C*	*N/A*	*N*	*A*	ACV-C(CS) ASLT-3	TJ-04	
1IA-01301 *M-209, Sh 11* *G-10*	**PRZ PORV 1RC-430 Nitrogen Inlet Check Valve** *Instrument Air* *NC C*	*CK* *0.5* *SA*	*C*	*O*	*N/A*	*A*	*N*	ACV-O(CS)	TJ-05	
1IA-01302 *M-209, Sh 11* *G-10*	**PRZ PORV 1RC-431C Nitrogen Inlet Check Valve** *Instrument Air* *NC C*	*CK* *0.5* *SA*	*C*	*O*	*N/A*	*A*	*N*	ACV-O(CS)	TJ-05	
1IA-01605 *M-209, Sh 11* *G-9*	**PRZ PORV RC-430 Control/Operator IA Inlet Series Check Valve** *Instrument Air* *NC C*	*CK* *SA*	*O*	*C*	*N/A*	*N*	*A*	ACV-C(CS)	TP-03	

VALVE NO PID NO COORD	VALVE DESCRIPTION SYSTEM NAME Code: Class Cat	VALVE Type Size (In.) Actuator	POSITIONS Normal	 Safety	 Failsafe	ACTIVE-PASSIVE Open A/I/P/N	 Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
1IA-01606	**PRZ PORV RC-431C Control/Operator IA Inlet Series Check Valve**							ACV-C(CS)	TP-03	
M-209, Sh 11	*Instrument Air*	*CK*	*O*	*C*	*N/A*	*N*	*A*			
G-9	*NC C*	*SA*								
1IA-03047	**Instrument Air Header Inlet Control Valve to Containment (Otbd)**							ET(Q) BT-C(Q)		
M-209, Sh 7	*Instrument Air*	*GL* *2*	*O*	*C*	*C*	*N*	*A*	FST-C(Q) PIT(2Y)		
B-3	*2 A*	*AO*						SLT-1		
1IA-03048	**Instrument Air Header Inlet Control Valve to Containment (Otbd)**							ET(Q) BT-C(Q)		
M-209, Sh 7	*Instrument Air*	*GL* *2*	*O*	*C*	*C*	*N*	*A*	FST-C(Q) PIT(2Y)		
B-3	*2 A*	*AO*						SLT-1		
1IA-06308	**PRZ PORV 1RC-430 Nitrogen Inlet Relief Valve**							ARVT(10)		
M-209, Sh 11	*Instrument Air*	*SRV*	*C*	*OC*	*N/A*	*A*	*I*			
F-10	*NC C*	*SA*								
1IA-06309	**PRZ PORV 1RC-431C Nitrogen Inlet Relief Valve**							ARVT(10)		
M-209, Sh 11	*Instrument Air*	*SRV*	*C*	*OC*	*N/A*	*A*	*I*			
F-10	*NC C*	*SA*								

VALVE NO *PID NO* *COORD*	VALVE DESCRIPTION *SYSTEM NAME* *Code: Class Cat*	*VALVE* *Type* *Size (In.)* *Actuator*	*POSITIONS* *Normal*	 *Safety*	 *Failsafe*	*ACTIVE-PASSIVE* *Open* *A/I/P/N*	 *Close* *A/I/P/N*	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
1IA-06310	**PZR PORV 1RC-430 Nitrogen Supply Pressure Regulator**							ABT-EE(CS)	TP-04	
M-209, Sh 11	*Instrument Air*	*GL* *0.25*	*OC*	*OC*	*N/A*	*A*	*A*			
F-10	*NC N/A*	*SA*								
1IA-06311	**PZR PORV 1RC-431C Nitrogen Supply Pressure Regulator**							ABT-EE(CS)	TP-04	
M-209, Sh 11	*Instrument Air*	*GL* *0.25*	*OC*	*OC*	*N/A*	*A*	*A*			
F-10	*NC N/A*	*SA*								
2IA-00876	**2VNPSE-3244 Purge Supply Boot Seal Accumulator Check Valve**							ACV-C(CS) ASLT-3	TJ-04	
M-209, Sh 7	*Instrument Air*	*CK* *0.25*	*C*	*C*	*N/A*	*N*	*A*			
E-9	*NC AC*	*SA*								
2IA-00877	**2VNPSE-3212 Purge Exhaust Boot Seal Accumulator Check Valve**							ACV-C(CS) ASLT-3	TJ-04	
M-209, Sh 7	*Instrument Air*	*CK* *0.25*	*C*	*C*	*N/A*	*N*	*A*			
E-9	*NC AC*	*SA*								
2IA-01314	**Instrument Air Supply to Containment Check Valve (Inbd)**							CV-C(Q) SLT-1		
M-209, Sh 7	*Instrument Air*	*CK* *2*	*O*	*C*	*N/A*	*N*	*A*			
E-3	*2 AC*	*SA*								

VALVE NO / PID NO / COORD	VALVE DESCRIPTION / SYSTEM NAME / Code: Class Cat	VALVE Type / Size (In.) / Actuator	POSITIONS Normal	Safety	Failsafe	ACTIVE-PASSIVE Open A/I/P/N	Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
2IA-01324	**Instrument Air Supply to Containment Check Valve (Inbd)**							CV-C(Q) SLT-1		
M-209, Sh 7	*Instrument Air*	*CK* *2*	*O*	*C*	*N/A*	*N*	*A*			
F-3	*2 AC*	*SA*								
2IA-01332	**PRZ PORV 2RC-430 Nitrogen Inlet Manual Iso Valve**							AFSM(CS)	TJ-06	
M-209, Sh 11	*Instrument Air*	*GA*	*C*	*OC*	*N/A*	*A*	*P*			
F-4	*NC B*	*MA*								
2IA-01333	**PRZ PORV 2RC-431C Nitrogen Inlet Manual Iso Valve**							AFSM(CS)	TJ-06	
M-209, Sh 11	*Instrument Air*	*GA*	*C*	*OC*	*N/A*	*A*	*P*			
G-4	*NC B*	*MA*								
2IA-01335	**PRZ PORV RC-430 Control/Operator IA Inlet Series Check Valve**							ACV-C(CS)	TP-03	
M-209, Sh 11	*Instrument Air*	*CK*	*O*	*C*	*N/A*	*N*	*A*			
F-3	*NC C*	*SA*								
2IA-01336	**PRZ PORV 2RC-430 Control/Operator IA Inlet Bypass Manual Iso Valve**							AFSM(CS)	TJ-06	
M-209, Sh 11	*Instrument Air*	*GA*	*O*	*C*	*N/A*	*N*	*A*			
F-3	*NC B*	*MA*								

VALVE NO / PID NO / COORD	VALVE DESCRIPTION / SYSTEM NAME / Code: Class Cat	VALVE Type / Size (In.) / Actuator	POSITIONS Normal	Safety	Failsafe	ACTIVE-PASSIVE Open A/I/P/N	Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
2IA-01338	**PRZ PORV RC-431C Control/Operator IA Inlet Series Check Valve**							ACV-C(CS)	TP-03	
M-209, Sh 11	*Instrument Air*	*CK*	*O*	*C*	*N/A*	*N*	*A*			
G-3	*NC C*	*SA*								
2IA-01339	**PRZ PORV 2RC-431C Control/Operator IA Inlet Bypass Manual Iso Valve**							AFSM(CS)	TJ-06	
M-209, Sh 11	*Instrument Air*	*GA*	*O*	*C*	*N/A*	*N*	*A*			
F-3	*NC B*	*MA*								
2IA-01401	**2VNPSE-3245 Purge Supply Boot Seal Accumulator Check Valve**							ACV-C(CS) ASLT-3	TJ-04	
M-209, Sh 11	*Instrument Air*	*CK* *0.25*	*C*	*C*	*N/A*	*N*	*A*			
H-2	*NC AC*	*SA*								
2IA-01402	**2VNPSE-3213 Purge Exhaust Boot Seal Accumulator Check Valve**							ACV-C(CS) ASLT-3	TJ-04	
M-209, Sh 11	*Instrument Air*	*CK* *0.25*	*C*	*C*	*N/A*	*N*	*A*			
H-1	*NC AC*	*SA*								
2IA-01418	**PRZ PORV 2RC-430 Nitrogen Inlet Check Valve**							ACV-O(CS)	TJ-05	
M-209, Sh 11	*Instrument Air*	*CK* *0.5*	*C*	*O*	*N/A*	*A*	*N*			
F-3	*NC C*	*SA*								

VALVE NO PID NO COORD	VALVE DESCRIPTION SYSTEM NAME Code: Class Cat	VALVE Type Size (In.) Actuator	POSITIONS Normal	 Safety	 Failsafe	ACTIVE-PASSIVE Open A/I/P/N	 Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
2IA-01419 M-209. Sh 11 G-3	**PRZ PORV 2RC-431C Nitrogen Inlet Check Valve** Instrument Air NC C	CK 0.5 SA	C	O	N/A	A	N	ACV-O(CS)	TJ-05	
2IA-01652 M-209, Sh 11 F-3	**PRZ PORV 2RC-430 Control/Operator IA Inlet Series Check Valve** Instrument Air NC C	CK SA	O	C	N/A	N	A	ACV-C(CS)	TP-03	
2IA-01653 M-209, Sh 11 G-3	**PRZ PORV RC-431C Control/Operator IA Inlet Series Check Valve** Instrument Air NC C	CK SA	O	C	N/A	N	A	ACV-C(CS)	TP-03	
2IA-03047 M-209, Sh 7 E-2	**Instrument Air Header Inlet Control Valve to Containment (Otbd)** Instrument Air 2 A	GL 2 AO	O	C	C	N	A	ET(Q) BT-C(Q) FST-C(Q) PIT(2Y) SLT-1		
2IA-03048 M-209, Sh 7 F-2	**Instrument Air Header Inlet Control Valve to Containment (Otbd)** Instrument Air 2 A	GL 2 AO	O	C	C	N	A	ET(Q) BT-C(Q) FST-C(Q) PIT(2Y) SLT-1		

VALVE NO *PID NO* *COORD*	VALVE DESCRIPTION *SYSTEM NAME* *Code: Class Cat*	*VALVE* *Type* *Size (In.)* *Actuator*	*POSITIONS* *Normal*	 *Safety*	 *Failsafe*	*ACTIVE-PASSIVE* *Open* *A/I/P/N*	 *Close* *A/I/P/N*	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
2IA-06340	**PRZ PORV 2RC-430 Nitrogen Inlet Relief Valve**							ARVT(10)		
M-209, Sh 11	*Instrument Air*	*SRV*	*C*	*OC*	*N/A*	*A*	*I*			
F-4	*NC C*	*SA*								
2IA-06341	**PRZ PORV 2RC-431C Nitrogen Inlet Relief Valve**							ARVT(10)		
M-209, Sh 11	*Instrument Air*	*SRV*	*C*	*OC*	*N/A*	*A*	*I*			
G-4	*NC C*	*SA*								
2IA-06342	**PRZ PORV 2RC-430 Nitrogen Supply Pressure Regulator**							ABT-EE(CS)	TP-04	
M-209, Sh 11	*Instrument Air*	*GL* *0.25*	*OC*	*OC*	*N/A*	*A*	*A*			
F-4	*NC N/A*	*SA*								
2IA-06343	**PRZ PORV 2RC-431C Nitrogen Supply Pressure Regulator**							ABT-EE(CS)	TP-04	
M-209, Sh 11	*Instrument Air*	*GL* *0.25*	*OC*	*OC*	*N/A*	*A*	*A*			
G-4	*NC N/A*	*SA*								

VALVE NO PID NO COORD	VALVE DESCRIPTION SYSTEM NAME Code: Class Cat	VALVE Type Size (In.) Actuator	POSITIONS Normal	 Safety	 Failsafe	ACTIVE-PASSIVE Open A/I/P/N	 Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
1MS-00227	**HX-1A SG MS-2016 Dump to Atmosphere Inlet Isolation Valve**							FSM(CS)	CSJ-23	
M-201, Sh.1 *D-5*	*Main Steam* *2 B*	*GA* *6* *MA*	*O*	*C*	*N/A*	*I*	*A*			
1MS-00228	**HX-1A SG Header Drain and Trap Manual Isolation**							FSM(CS)	CSJ-23	
M-201, Sh.1 *D-7*	*Main Steam* *2 B*	*GA* *2* *MA*	*O*	*C*	*N/A*	*N*	*A*			
1MS-00235	**P-29 AFP/Radwaste Steam Supply Manual Isolation Valve**							FSM(CS)	CSJ-23	
M-201, Sh 1 *E-7*	*Main Steam* *2 B*	*GA* *3* *MA*	*O*	*C*	*N/A*	*I*	*A*			
1MS-00237	**P-29 AFP/Radwaste Steam Supply Manual Isolation Valve**							FSM(CS)	CSJ-23	
M-201, Sh.1 *G-7*	*Main Steam* *2 B*	*GA* *3* *MA*	*O*	*C*	*N/A*	*I*	*A*			
1MS-00238	**HX-1B SG Header Drain and Trap Manual Isolation**							FSM(CS)	CSJ-23	
M-201, Sh.1 *G-7*	*Main Steam* *2 B*	*GA* *2* *MA*	*O*	*C*	*N/A*	*N*	*A*			

VALVE NO PID NO COORD	VALVE DESCRIPTION SYSTEM NAME Code: Class Cat	VALVE Type Size (In.) Actuator	POSITIONS Normal	 Safety	 Failsafe	ACTIVE-PASSIVE Open A/I/P/N	 Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
1MS-00244	**HX-1B SG MS-2015 Dump to Atmosphere Inlet Isolation Valve**							FSM(CS)	CSJ-23	
M-201, Sh.1	*Main Steam*	*GA* *6*	*O*	*C*	*N/A*	*I*	*A*			
H-6	*2 B*	*MA*								
1MS-00265	**HX-1A SG Blowdown Manual Isolation**							FSM(CS)	CSJ-23	
M-201, Sh.1	*Main Steam*	*GA* *2*	*O*	*C*	*N/A*	*N*	*A*			
B-9	*2 B*	*MA*								
1MS-00266	**HX-1B SG Blowdown Manual Isolation**							FSM(CS)	CSJ-23	
M-201, Sh.1	*Main Steam*	*GA* *2*	*O*	*C*	*N/A*	*N*	*A*			
E-9	*2 B*	*MA*								
1MS-02005	**MS Header B Safety Valve**							RVT(5Y)		
M-201, Sh.1	*Main Steam*	*SRV* *6*	*C*	*OC*	*N/A*	*A*	*A*			
H-7	*2 C*	*SA*								
1MS-02006	**MS Header B Safety Valve**							RVT(5Y)		
M-201, Sh.1	*Main Steam*	*SRV* *6*	*C*	*OC*	*N/A*	*A*	*A*			
H-7	*2 C*	*SA*								

VALVE NO *PID NO* *COORD*	VALVE DESCRIPTION *SYSTEM NAME* *Code: Class Cat*	*VALVE* *Type* *Size (In.)* *Actuator*	*POSITIONS* *Normal*	 *Safety*	 *Failsafe*	*ACTIVE-PASSIVE* *Open* *A/I/P/N*	 *Close* *A/I/P/N*	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
1MS-02007 *M-201, Sh.1* *H-6*	**MS Header B Safety Valve** *Main Steam* *2 C*	*SRV* *6* *SA*	*C*	*OC*	*N/A*	*A*	*A*	RVT(5Y)		
1MS-02008 *M-201, Sh.1* *H-6*	**MS Header B Safety Valve** *Main Steam* *2 C*	*SRV* *6* *SA*	*C*	*OC*	*N/A*	*A*	*A*	RVT(5Y)		
1MS-02010 *M-201, Sh.1* *D-7*	**MS Header A Safety Valve** *Main Steam* *2 C*	*SRV* *6* *SA*	*C*	*OC*	*N/A*	*A*	*A*	RVT(5Y)		
1MS-02011 *M-201, Sh.1* *D-7*	**MS Header A Safety Valve** *Main Steam* *2 C*	*SRV* *6* *SA*	*C*	*OC*	*N/A*	*A*	*A*	RVT(5Y)		
1MS-02012 *M-201, Sh.1* *D-6*	**MS Header A Safety Valve** *Main Steam* *2 C*	*SRV* *6* *SA*	*C*	*OC*	*N/A*	*A*	*A*	RVT(5Y)		

VALVE NO *PID NO* *COORD*	VALVE DESCRIPTION *SYSTEM NAME* *Code: Class Cat*	*VALVE* *Type* *Size (In.)* *Actuator*	*POSITIONS* *Normal*	 *Safety*	 *Failsafe*	*ACTIVE-PASSIVE* *Open* *A/I/P/N*	 *Close* *A/I/P/N*	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
1MS-02013 *M-201, Sh.1* *D-6*	**MS Header A Safety Valve** *Main Steam* *2 C*	*SRV* *6* *SA*	*C*	*OC*	*N/A*	*A*	*A*	RVT(5Y)		
1MS-02015 *M-201, Sh.1* *H-6*	**HX-1B SG HDR Atmospheric Steam Dump Control Valve** *Main Steam* *2 B*	*GL* *6* *AO*	*C*	*OC*	*C*	*A*	*A*	ET(Q) BT-O(Q) BT-C(Q) FST-C(Q) PIT(2Y) FSM(CS)		
1MS-02016 *M-201, Sh.1* *E-5*	**HX-1A SG HDR Atmospheric Steam Dump Control Valve** *Main Steam* *2 B*	*GL* *6* *AO*	*C*	*OC*	*C*	*A*	*A*	ET(Q) BT-O(Q) BT-C(Q) FST-C(Q) PIT(2Y) FSM(CS)		
1MS-02017 *M-201, Sh.1* *G-5*	**HX-1B SG Header Main Steam Stop Valve (MSSV)** *Main Steam* *2 B*	*SCK* *30* *AO*	*O*	*C*	*N/A*	*N*	*A*	ET(CS) BT-C(CS) PIT(2Y)	CSJ-16 CSJ-16	
1MS-02017A *M-201, Sh.1* *G-3*	**HX-1B SG Header Nonreturn Check Valve** *Main Steam* *NC C*	*CK* *30* *SA*	*O*	*C*	*N/A*	*N*	*A*	ACV-C(CS)	TJ-07	

VALVE NO PID NO COORD	VALVE DESCRIPTION SYSTEM NAME Code: Class Cat	VALVE Type Size (In.) Actuator	POSITIONS Normal	 Safety	 Failsafe	ACTIVE-PASSIVE Open A/I/P/N	 Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
1MS-02018 M-201, Sh.1 D-5	**HX-1A SG Header Main Steam Stop Valve (MSSV)** Main Steam 2 B	SCK 30 AO	O	C	N/A	N	A	ET(CS) BT-C(CS) PIT(2Y)	CSJ-16 CSJ-16	
1MS-02018A M-201, Sh.1 C-3	**HX-1A SG Header Nonreturn Check Valve** Main Steam NC C	CK 30 SA	O	C	N/A	N	A	ACV-C(CS)	TJ-07	
1MS-02019 M-201, Sh.1 F-4	**HX-1B SG Header Steam Supply to P-29 AFP** Main Steam 2 BC	SCK 3 MO	C	OC	AI	A	A	CV-O(Q) BT-C(Q) BT-O(Q) PIT(2Y)		
1MS-02020 M-201, Sh.1 E-4	**HX-1A SG Header Steam Supply to P-29 AFP** Main Steam 2 BC	SCK 3 MO	C	OC	AI	A	A	CV-O(Q) BT-C(Q) BT-O(Q) PIT(2Y)		
1MS-02083 M-201, Sh.1 B-9	**HX-1A SG Sample Isolation Control Valve** Main Steam 2 B	GA 0.75 AO	O	C	C	N	A	ET(Q) BT-C(Q) FST-C(Q) PIT(2Y) ASLT-1		

VALVE NO *PID NO* *COORD*	VALVE DESCRIPTION *SYSTEM NAME* *Code: Class Cat*	*VALVE* *Type* *Size (In.)* *Actuator*	*POSITIONS* *Normal*	 *Safety*	 *Failsafe*	*ACTIVE-PASSIVE* *Open* *A/I/P/N*	 *Close* *A/I/P/N*	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
1MS-02084 *M-201, Sh.1* *F-9*	**HX-1B SG Sample Isolation Control Valve** *Main Steam* *2 B*	*GA* *0.75* *AO*	*O*	*C*	*C*	*N*	*A*	ET(Q) BT-C(Q) FST-C(Q) PIT(2Y) ASLT-1		
1MS-05958 *M-201, Sh.1* *B-10*	**HX-1B SG Blowdown Isolation Valve** *Main Steam* *2 B*	*GA* *2* *AO*	*O*	*C*	*C*	*N*	*A*	ET(Q) BT-C(Q) FST-C(Q) PIT(2Y) ASLT-1		
1MS-05959 *M-201, Sh.1* *D-10*	**HX-1A SG Blowdown Isolation Valve** *Main Steam* *2 B*	*GA* *2* *AO*	*O*	*C*	*C*	*N*	*A*	ET(Q) BT-C(Q) FST-C(Q) PIT(2Y) ASLT-1		
1RS-SA-09 *M-201, Sh.1* *F-7*	**Unit 1 Steam Supply to Radwaste** *Main Steam* *2 B*	*GA* *3* *AO*	*O*	*C*	*C*	*N*	*A*	ET(Q) BT-C(Q) FST-C(Q) PIT(2Y)		
2MS-00227 *M-2201, Sh.1* *E-5*	**HX-1A SG MS-2016 Dump to Atmosphere Inlet Isolation Valve** *Main Steam* *2 B*	*GA* *6* *MA*	*O*	*C*	*N/A*	*I*	*A*	FSM(CS)	CSJ-23	

VALVE NO / PID NO / COORD	VALVE DESCRIPTION / SYSTEM NAME / Code: Class Cat	VALVE Type / Size (In.) / Actuator	POSITIONS Normal	Safety	Failsafe	ACTIVE-PASSIVE Open A/I/P/N	Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
2MS-00228 M-2201, Sh.1 D-4	**HX-1A SG Header Drain and Trap Manual Isolation** Main Steam 2 B	GA 2 MA	O	C	N/A	N	A	FSM(CS)	CSJ-23	
2MS-00235 M-2201, Sh.1 E-4	**P-29 AFP/Radwaste Steam Supply Manual Isolation Valve** Main Steam 2 B	GA 3 MA	O	C	N/A	I	A	FSM(CS)	CSJ-23	
2MS-00237 M-2201, Sh.1 G-4	**P-29 AFP/Radwaste Steam Supply Manual Isolation Valve** Main Steam 2 B	GA 3 MA	O	C	N/A	I	A	FSM(CS)	CSJ-23	
2MS-00238 M-2201, Sh.1 G-4	**HX-1B SG Header Drain and Trap Manual Isolation** Main Steam 2 B	GA 2 MA	O	C	N/A	N	A	FSM(CS)	CSJ-23	
2MS-00244 M-2201, Sh.1 H-5	**HX-1B SG MS-2015 Dump to Atmosphere Inlet Isolation Valve** Main Steam 2 B	GA 6 MA	O	C	N/A	I	A	FSM(CS)	CSJ-23	

VALVE NO / PID NO / COORD	VALVE DESCRIPTION / SYSTEM NAME / Code: Class Cat	VALVE Type / Size (In.) / Actuator	POSITIONS Normal	POSITIONS Safety	POSITIONS Failsafe	ACTIVE-PASSIVE Open A/I/P/N	ACTIVE-PASSIVE Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
2MS-00265	**HX-1A SG Blowdown Manual Isolation**							FSM(CS)	CSJ-23	
M-2201, Sh.1	*Main Steam*	*GA* *2*	*O*	*C*	*N/A*	*N*	*A*			
B-2	*2 B*	*MA*								
2MS-00266	**HX-1B SG Blowdown Manual Isolation**							FSM(CS)	CSJ-23	
M-2201, Sh.1	*Main Steam*	*GA* *2*	*O*	*C*	*N/A*	*N*	*A*			
E-2	*2 B*	*MA*								
2MS-02005	**MS Header B Safety Valve**							RVT(5Y)		
M-2201, Sh.1	*Main Steam*	*SRV* *6*	*C*	*OC*	*N/A*	*A*	*A*			
H-4	*2 C*	*SA*								
2MS-02006	**MS Header B Safety Valve**							RVT(5Y)		
M-2201, Sh.1	*Main Steam*	*SRV* *6*	*C*	*OC*	*N/A*	*A*	*A*			
H-4	*2 C*	*SA*								
2MS-02007	**MS Header B Safety Valve**							RVT(5Y)		
M-2201, Sh.1	*Main Steam*	*SRV* *6*	*C*	*OC*	*N/A*	*A*	*A*			
H-5	*2 C*	*SA*								

VALVE NO PID NO COORD	VALVE DESCRIPTION SYSTEM NAME Code: Class Cat	VALVE Type Size (In.) Actuator	POSITIONS Normal	 Safety	 Failsafe	ACTIVE-PASSIVE Open A/I/P/N	 Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
2MS-02008 *M-2201, Sh.1* *H-5*	**MS Header B Safety Valve** *Main Steam* *2 C*	*SRV* *6* *SA*	*C*	*OC*	*N/A*	*A*	*A*	RVT(5Y)		
2MS-02010 *M-2201, Sh.1* *E-4*	**MS Header A Safety Valve** *Main Steam* *2 C*	*SRV* *6* *SA*	*C*	*OC*	*N/A*	*A*	*A*	RVT(5Y)		
2MS-02011 *M-2201, Sh.1* *E-4*	**MS Header A Safety Valve** *Main Steam* *2 C*	*SRV* *6* *SA*	*C*	*OC*	*N/A*	*A*	*A*	RVT(5Y)		
2MS-02012 *M-2201, Sh.1* *E-5*	**MS Header A Safety Valve** *Main Steam* *2 C*	*SRV* *6* *SA*	*C*	*OC*	*N/A*	*A*	*A*	RVT(5Y)		
2MS-02013 *M-2201, Sh.1* *E-5*	**MS Header A Safety Valve** *Main Steam* *2 C*	*SRV* *6* *SA*	*C*	*OC*	*N/A*	*A*	*A*	RVT(5Y)		

VALVE NO PID NO COORD	VALVE DESCRIPTION SYSTEM NAME Code: Class Cat	VALVE Type Size (In.) Actuator	POSITIONS Normal	 Safety	 Failsafe	ACTIVE-PASSIVE Open A/I/P/N	 Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
2MS-02015 *M-2201, Sh.1* *H-5*	**HX-1B SG HDR Atmospheric Steam Dump Control Valve** *Main Steam* *2 B*	*GL* *6* *AO*	*C*	*OC*	*C*	*A*	*A*	ET(Q) BT-O(Q) BT-C(Q) FST-C(Q) PIT(2Y) FSM(CS)		
2MS-02016 *M-2201, Sh.1* *E-5*	**HX-1A SG HDR Atmospheric Steam Dump Control Valve** *Main Steam* *2 B*	*GL* *6* *AO*	*C*	*OC*		*A*	*A*	ET(Q) BT-O(Q) BT-C(Q) FST-C(Q) PIT(2Y) FSM(CS)		
2MS-02017 *M-2201, Sh.1* *H-6*	**HX-1B SG Header Main Steam Stop Valve (MSSV)** *Main Steam* *2 B*	*SCK* *30* *AO*	*O*	*C*	*N/A*	*N*	*A*	ET(CS) BT-C(CS) PIT(2Y)	CSJ-16 CSJ-16	
2MS-02017A *M-2201, Sh.1* *G-8*	**HX-1B SG Header Nonreturn Check Valve** *Main Steam* *NC C*	*CK* *30* *SA*	*O*	*C*	*N/A*	*N*	*A*	ACV-C(CS)	TJ-07	
2MS-02018 *M-2201, Sh.1* *D-6*	**HX-1A SG Header Main Steam Stop Valve (MSSV)** *Main Steam* *2 B*	*SCK* *30* *AO*	*O*	*C*	*N/A*	*N*	*A*	ET(CS) BT-C(CS) PIT(2Y)	CSJ-16 CSJ-16	

VALVE NO PID NO COORD	VALVE DESCRIPTION SYSTEM NAME Code: Class Cat	VALVE Type Size (In.) Actuator	POSITIONS Normal	Safety	Failsafe	ACTIVE-PASSIVE Open A/I/P/N	Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
2MS-02018A M-2201, Sh.1 C-8	**HX-1A SG Header Nonreturn Check Valve** Main Steam NC C	CK 30 SA	O	C	N/A	N	A	ACV-C(CS)	TJ-07	
2MS-02019 M-2201, Sh.1 G-7	**HX-1B SG Header Steam Supply to P-29 AFP** Main Steam 2 BC	SCK 3 MO	C	OC	AI	A	A	CV-O(Q) BT-C(Q) BT-O(Q) PIT(2Y)		
2MS-02020 M-2201, Sh.1 F-7	**HX-1A SG Header Steam Supply to P-29 AFP** Main Steam 2 BC	SCK 3 MO	C	OC	AI	A	A	CV-O(Q) BT-C(Q) BT-O(Q) PIT(2Y)		
2MS-02083 M-2201, Sh.1 B-2	**HX-1A SG Sample Isolation Control Valve** Main Steam 2 B	GA 0.75 AO	O	C	C	N	A	ET(Q) BT-C(Q) FST-C(Q) PIT(2Y) ASLT-1		
2MS-02084 M-2201, Sh.1 F-2	**HX-1B SG Sample Isolation Control Valve** Main Steam 2 B	GA 0.75 AO	O	C	C	N	A	ET(Q) BT-C(Q) FST-C(Q) PIT(2Y) ASLT-1		

VALVE NO PID NO COORD	VALVE DESCRIPTION SYSTEM NAME Code: Class Cat	VALVE Type Size (In.) Actuator	POSITIONS Normal	 Safety	 Failsafe	ACTIVE-PASSIVE Open A/I/P/N	 Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
2MS-05958 *M-2201, Sh.1* *E-2*	**HX-1B SG Blowdown Isolation Valve** *Main Steam* *2 B*	*GA* *2* *AO*	*O*	*C*	*C*	*N*	*A*	ET(Q) BT-C(Q) FST-C(Q) PIT(2Y) ASLT-1		
2MS-05959 *M-2201, Sh.1* *B-1*	**HX-1A SG Blowdown Isolation Valve** *Main Steam* *2 B*	*GA* *2* *AO*	*O*	*C*	*C*	*N*	*A*	ET(Q) BT-C(Q) FST-C(Q) PIT(2Y) ASLT-1		
2RS-SA-10 *M-2201, Sh.1* *F-5*	**Unit 2 Steam Supply to Radwaste** *Main Steam* *2 B*	*GA* *3* *AO*	*O*	*C*	*C*	*N*	*A*	ET(Q) BT-C(Q) FST-C(Q) PIT(2Y)		

VALVE NO / PID NO / COORD	VALVE DESCRIPTION / SYSTEM NAME / Code: Class Cat	VALVE Type / Size (In.) / Actuator	POSITIONS Normal	Safety	Failsafe	ACTIVE-PASSIVE Open A/I/P/N	Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
1SC-00951 *541F092, Sh.1* *G-9*	**Pressurizer Steam Space Sample Line Containment Isolation Valve (Inbd)** *Primary Sample System* *1 A*	*GL* *0.375* *AO*	*C*	*C*	*C*	*N*	*A*	ET(Q) BT-C(Q) FST-C(Q) PIT(2Y) SLT-1		
1SC-00953 *541F092, Sh.1* *F-9*	**Pressurizer Liquid Space Sample Line Containment Isolation Valve (Inbd)** *Primary Sample System* *1 A*	*GL* *0.375* *AO*	*C*	*C*	*C*	*N*	*A*	ET(Q) BT-C(Q) FST-C(Q) PIT(2Y) SLT-1		
1SC-00955 *541F092, Sh.1* *E-9*	**RCS Hot Leg Sample Line Containment Isolation Valve (Inbd)** *Primary Sample System* *1 A*	*GL* *0.375* *AO*	*O*	*C*	*C*	*N*	*A*	ET(Q) BT-C(Q) FST-C(Q) PIT(2Y) SLT-1		
1SC-00959 *541F092, Sh.1* *D-9*	**RHR Loop Sample Isolation Valve** *Primary Sample System* *2 A*	*GL* *0.375* *AO*	*C*	*C*	*C*	*N*	*A*	ET(Q) BT-C(Q) FST-C(Q) PIT(2Y) SLT-6		
1SC-00966A *541F092, Sh.1* *G-8*	**Pressurizer Steam Space Sample Line Containment Isolation Valves (Otbd)** *Primary Sample System* *1 A*	*GL* *0.375* *AO*	*C*	*C*	*C*	*N*	*A*	ET(Q) BT-C(Q) FST-C(Q) PIT(2Y) SLT-1		

VALVE NO PID NO COORD	VALVE DESCRIPTION SYSTEM NAME Code: Class Cat	VALVE Type Size (In.) Actuator	POSITIONS Normal	 Safety	 Failsafe	ACTIVE-PASSIVE Open A/I/P/N	 Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
1SC-00966B *541F092, Sh.1* *F-8*	**Pressurizer Liquid Sample Line Containment Isolation Valve (Otbd)** *Primary Sample System* *1 A*	*GL* *0.375* *AO*	*C*	*C*	*C*	*N*	*A*	ET(Q) BT-C(Q) FST-C(Q) PIT(2Y) SLT-1		
1SC-00966C *541F092, Sh.1* *E-8*	**RCS Hot Leg Sample Line Containment Isolation Valve (Otbd)** *Primary Sample System* *1 A*	*GL* *0.375* *AO*	*O*	*C*	*C*	*N*	*A*	ET(Q) BT-C(Q) FST-C(Q) PIT(2Y) SLT-1		
1SC-00991 *541F092, Sh.1* *F-9*	**PZR Liquid Sample Line Penetration P-28B Thermal Relief** *Primary Sample System* *1 C*	*SRV* *0.250* *SA*	*C*	*OC*	*N/A*	*A*	*I*	RVT(5Y)		
2SC-00951 *541F448* *G-9*	**Pressurizer Steam Space Sample Line Containment Isolation Valves (Inbd)** *Primary Sample System* *1 A*	*GL* *0.375* *AO*	*C*	*C*	*C*	*N*	*A*	ET(Q) BT-C(Q) FST-C(Q) PIT(2Y) SLT-1		
2SC-00953 *541F448* *F-9*	**Pressurizer Liquid Space Sample Line Containment Isolation Valve (Inbd)** *Primary Sample System* *1 A*	*GL* *0.375* *AO*	*C*	*C*	*C*	*N*	*A*	ET(Q) BT-C(Q) FST-C(Q) PIT(2Y) SLT-1		

VALVE NO / PID NO / COORD	VALVE DESCRIPTION / SYSTEM NAME / Code: Class Cat	VALVE Type / Size (In.) / Actuator	POSITIONS Normal	Safety	Failsafe	ACTIVE-PASSIVE Open A/I/P/N	Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
2SC-00955 *541F448* *E-9*	**RCS Hot Leg Sample Line Containment Isolation Valve (Inbd)** *Primary Sample System* *1 A*	*GL* *0.375* *AO*	*O*	*C*	*C*	*N*	*A*	ET(Q) BT-C(Q) FST-C(Q) PIT(2Y) SLT-1		
2SC-00959 *541F448* *D-9*	**RHR Loop Sample Isolation Valve** *Primary Sample System* *2 A*	*GL* *0.375* *AO*	*C*	*C*	*C*	*N*	*A*	ET(Q) BT-C(Q) FST-C(Q) PIT(2Y) SLT-6		
2SC-00966A *541F448* *G-8*	**Pressurizer Steam Space Sample Line Containment Isolation Valves (Otbd)** *Primary Sample System* *1 A*	*GL* *0.375* *AO*	*C*	*C*	*C*	*N*	*A*	ET(Q) BT-C(Q) FST-C(Q) PIT(2Y) SLT-1		
2SC-00966B *541F448* *F-8*	**Pressurizer Liquid Sample Line Containment Isolation Valve (Otbd)** *Primary Sample System* *1 A*	*GL* *0.375* *AO*	*C*	*C*	*C*	*N*	*A*	ET(Q) BT-C(Q) FST-C(Q) PIT(2Y) SLT-1		
2SC-00966C *541F448* *E-8*	**RCS Hot Leg Sample Line Containment Isolation Valve (Otbd)** *Primary Sample System* *1 A*	*GL* *0.375* *AO*	*O*	*C*	*C*	*N*	*A*	ET(Q) BT-C(Q) FST-C(Q) PIT(2Y) SLT-1		

VALVE NO *PID NO* *COORD*	VALVE DESCRIPTION *SYSTEM NAME* *Code: Class Cat*	*VALVE* *Type* *Size (In.)* *Actuator*	*POSITIONS* *Normal*	 *Safety*	 *Failsafe*	*ACTIVE-PASSIVE* *Open* *A/I/P/N*	 *Close* *A/I/P/N*	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
2SC-00991	**PZR Liquid Sample Line Penetration P-28B Thermal Relief**							RVT(5Y)		
541F448	*Primary Sample System*	*SRV* *0.250*	*C*	*OC*	*N/A*	*A*	*I*			
F-9	*I C*	*SA*								

VALVE NO *PID NO* *COORD*	VALVE DESCRIPTION *SYSTEM NAME* *Code: Class Cat*	*VALVE* *Type* *Size (In.)* *Actuator*	*POSITIONS* *Normal*	 *Safety*	 *Failsafe*	*ACTIVE-PASSIVE* *Open* *A/I/P/N*	 *Close* *A/I/P/N*	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
1RC-00427 *541F091, Sh.1* *B-9*	**RCS Loop B Cold Leg to CVCS Letdown Control** *Reactor Coolant* *1 B*	*GA* *2* *MO*	*O*	*C*	*AI*	*N*	*A*	ET(CS) BT-C(CS) PIT(2Y)	CSJ-17 CSJ-17	
1RC-00430 *541F091, Sh.1* *G-4*	**T-1 Pressurizer Power-Operated Relief Valve (PORV)** *Reactor Coolant* *1 BC*	*GL* *2* *AO*	*C*	*OC*	*C*	*A*	*A*	ET(CS) BT-O(CS) BT-C(CS) FST-C(CS) PIT(2Y) RVT(5Y)	CSJ-18 CSJ-18 CSJ-18 CSJ-18	
1RC-00431C *541F091, Sh.1* *H-4*	**T-1 Pressurizer Power-Operated Relief Valve (PORV)** *Reactor Coolant* *1 BC*	*GL* *2* *AO*	*C*	*OC*	*C*	*A*	*A*	ET(CS) BT-O(CS) BT-C(CS) FST-C(CS) PIT(2Y) RVT(5Y)	CSJ-18 CSJ-18 CSJ-18 CSJ-18	
1RC-00434 *541F091, Sh.1* *H-5*	**T-1 Pressurizer Safety Valve** *Reactor Coolant* *1 C*	*SRV* *4* *SA*	*C*	*OC*	*N/A*	*A*	*I*	RVT(5Y)	VRR-02	
1RC-00435 *541F091, Sh.1* *H-6*	**T-1 Pressurizer Safety Valve** *Reactor Coolant* *1 C*	*SRV* *4* *SA*	*C*	*OC*	*N/A*	*A*	*I*	RVT(5Y)	VRR-02	

VALVE NO PID NO COORD	VALVE DESCRIPTION SYSTEM NAME Code: Class Cat	VALVE Type Size (In.) Actuator	POSITIONS Normal	 Safety	 Failsafe	ACTIVE-PASSIVE Open A/I/P/N	 Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
1RC-00508 541F091, Sh.2 D-1	**U1C Reactor Makeup Water Supply Containment Isolation Valve (Otbd)** Reactor Coolant 2 A	DI 2 AO	O	C	C	N	A	ET(Q) BT-C(Q) FST-C(Q) PIT(2Y) SLT-1		
1RC-00515 541F091, Sh.1 H-4	**PRZ PORV 1RC-431C Block Valve** Reactor Coolant 1 B	GA 3 MO	O	OC	AI	A	A	ET(Q) BT-O(Q) BT-C(Q) PIT(2Y)		
1RC-00516 541F091, Sh.1 G-4	**PRZ PORV 1RC-430 Block Valve** Reactor Coolant 1 B	GA 3 MO	O	OC	AI	A	A	ET(Q) BT-O(Q) BT-C(Q) PIT(2Y)		
1RC-00523A 541F091, Sh.2 C-8	**R-1 RV Level Indicator Thermal Relief** Reactor Coolant 1 C	SRV 0.25 SA	C	O	N/A	A	I	RVT(5Y)		
1RC-00528 541F091, Sh.2 E-2	**T-2 PRT Nitrogen Inlet Containment Isolation Check (Inbd)** Reactor Coolant 2 AC	CK 0.75 SA	C	OC	N/A	A	A	CV-C(R) CV-PO(R) SLT-1	ROJ-14 ROJ-14	

VALVE NO / PID NO / COORD	VALVE DESCRIPTION / SYSTEM NAME / Code: Class Cat	VALVE Type / Size (In.) / Actuator	POSITIONS Normal	Safety	Failsafe	ACTIVE-PASSIVE Open A/I/P/N	Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
1RC-00529 541F091, Sh.2 D-2	**T-2 PRT Reactor Makeup Water Inlet Containment Isolation Check (Inbd)** Reactor Coolant 2 AC	CK 2 SA	C	OC	N/A	A	A	CV-C(R) CV-PO(R) SLT-1	ROJ-15 ROJ-15	
1RC-00538 541F091, Sh.2 E-2	**T-2 PRT Gas Analyzer System Containment Isolation Vlv (Inbd)** Reactor Coolant 2 A	GA 0.375 AO	C	C	C	N	A	ET(Q) BT-C(Q) FST-C(Q) PIT(2Y) SLT-1		
1RC-00539 541F091, Sh.2 E-2	**T-2 PRT Gas Analyzer System Containment Isolation Vlv (Otbd)** Reactor Coolant 2 A	GA 0.375 AO	C	C	C	N	A	ET(Q) BT-C(Q) FST-C(Q) PIT(2Y) SLT-1		
1RC-00545D 541F091, Sh.2 E-5	**HX-1A SG Cold Leg Channelhead Vent Line Thermal Relief** Reactor Coolant 1 C	SRV 0.25 SA	C	O	N/A	A	I	RVT(5Y)		
1RC-00546D 541F091, Sh.2 D-5	**HX-1B SG Hot Leg Channelhead Vent Line Thermal Relief** Reactor Coolant 1 C	SRV 0.25 SA	C	O	N/A	A	I	RVT(5Y)		

VALVE NO / PID NO / COORD	VALVE DESCRIPTION / SYSTEM NAME / Code: Class Cat	VALVE Type / Size (In.) / Actuator	POSITIONS Normal	Safety	Failsafe	ACTIVE-PASSIVE Open A/I/P/N	Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
1RC-00547D	**HX-1A SG Hot Leg Channelhead Vent Line Thermal Relief**							RVT(5Y)		
541F091, Sh.2	Reactor Coolant	SRV 0.25	C	O	N/A	A	I			
E-7	I C	SA								
1RC-00548D	**HX-1B SG Cold Leg Channelhead Vent Line Thermal Relief**							RVT(5Y)		
541F091, Sh.2	Reactor Coolant	SRV 0.25	C	O	N/A	A	I			
D-5	I C	SA								
1RC-00557	**RMW to T-2 PRT Spray Nozzles Inlet**							AET(Q)	TP-01	
								ABT-O(Q)		
541F091, Sh.2	Reactor Coolant	DI 2	C	O	C	A	N	APIT(2Y)		
D-2	NC N/A	AO								
1RC-00570A	**Reactor Vessel Head Vent Solenoid Valve**							ET(CS)	CSJ-19	
								BT-O(CS)	CSJ-19	
541F091, Sh.2	Reactor Coolant	GA 1	C	OC	C	A	A	BT-C(CS)	CSJ-19	
F-4	I B	SO						FST-C(CS)	CSJ-19	
								PIT(2Y)		
1RC-00570B	**Reactor Vessel Head Vent Solenoid Valve**							ET(CS)	CSJ-19	
								BT-O(CS)	CSJ-19	
541F091, Sh.2	Reactor Coolant	GA 1	C	OC	C	A	A	BT-C(CS)	CSJ-19	
F-4	I B	SO						FST-C(CS)	CSJ-19	
								PIT(2Y)		

VALVE NO PID NO COORD	VALVE DESCRIPTION SYSTEM NAME Code: Class Cat	VALVE Type Size (In.) Actuator	POSITIONS Normal	 Safety	 Failsafe	ACTIVE-PASSIVE Open A/I/P/N	 Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
1RC-00575A 541F091, Sh.2 F-4	**RV/T-1 PZR Vent Header to T-2 PRT Solenoid** Reactor Coolant 1 B	GA 1 SO	C	OC	C	A	A	ET(CS) BT-O(CS) BT-C(CS) FST-C(CS) PIT(2Y)	CSJ-19 CSJ-19 CSJ-19 CSJ-19	
1RC-00575B 541F091, Sh.2 G-4	**RV/T-1 PZR Gas Vent Header to Containment Atmosphere Solenoid Valve** Reactor Coolant 1 B	GA 1 SO	C	OC	C	A	A	ET(CS) BT-O(CS) BT-C(CS) FST-C(CS) PIT(2Y)	CSJ-19 CSJ-19 CSJ-19 CSJ-19	
1RC-00580A 541F091, Sh.2 G-4	**PZR Vent Isolation Solenoid Valve** Reactor Coolant 1 B	GA 1 SO	C	OC	C	A	A	ET(CS) BT-O(CS) BT-C(CS) FST-C(CS) PIT(2Y)	CSJ-19 CSJ-19 CSJ-19 CSJ-19	
1RC-00580B 541F091, Sh.2 G-4	**PZR Vent Isolation Solenoid Valve** Reactor Coolant 1 B	GA 1 SO	C	OC	C	A	A	ET(CS) BT-O(CS) BT-C(CS) FST-C(CS) PIT(2Y)	CSJ-19 CSJ-19 CSJ-19 CSJ-19	
1RC-00595 541F091, Sh.2 E-2	**PRT Nitrogen Regulator Manual Containment Isolation Vlv (Otbd)** Reactor Coolant 2 A	DI 0.75 MA	C	C	N/A	N	P	SLT-1		

VALVE NO / PID NO / COORD	VALVE DESCRIPTION / SYSTEM NAME / Code: Class Cat	VALVE Type / Size (In.) / Actuator	POSITIONS Normal	Safety	Failsafe	ACTIVE-PASSIVE Open A/I/P/N	Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
2RC-00427 541F445, Sh.1 B-9	**RCS Loop B Cold Leg to CVCS Letdown Control** Reactor Coolant I B	GA 2 MO	O	C	AI	N	A	ET(CS) BT-C(CS) PIT(2Y)	CSJ-17 CSJ-17	
2RC-00430 541F445, Sh.1 H-4	**T-1 Pressurizer Power-Operated Relief Valve (PORV)** Reactor Coolant I BC	GL 2 AO	C	OC	C	A	A	ET(CS) BT-O(CS) BT-C(CS) FST-C(CS) PIT(2Y) RVT(5Y)	CSJ-18 CSJ-18 CSJ-18 CSJ-18	
2RC-00431C 541F445, Sh.1 H-4	**T-1 Pressurizer Power-Operated Relief Valve (PORV)** Reactor Coolant I BC	GL 2 AO	C	OC	C	A	A	ET(CS) BT-O(CS) BT-C(CS) FST-C(CS) PIT(2Y) RVT(5Y)	CSJ-18 CSJ-18 CSJ-18 CSJ-18	
2RC-00434 541F445, Sh.1 H-6	**T-1 Pressurizer Safety Valve** Reactor Coolant I C	SRV 4 SA	C	OC	N/A	A	I	RVT(5Y)	VRR-02	
2RC-00435 541F445, Sh.1 H-5	**T-1 Pressurizer Safety Valve** Reactor Coolant I C	SRV 4 SA	C	OC	N/A	A	I	RVT(5Y)	VRR-02	

VALVE NO PID NO COORD	VALVE DESCRIPTION SYSTEM NAME Code: Class Cat	VALVE Type Size (In.) Actuator	POSITIONS Normal	 Safety	 Failsafe	ACTIVE-PASSIVE Open A/I/P/N	 Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
2RC-00508 541F445, Sh.2 D-1	**U2C Reactor Makeup Water Supply Containment Isolation Valve (Otbd)** Reactor Coolant 2 A	DI 2 AO	O	C	C	N	A	ET(Q) BT-C(Q) FST-C(Q) PIT(2Y) SLT-1		
2RC-00515 541F445, Sh.1 G-4	**PRZ PORV 2RC-431C Block Valve** Reactor Coolant 1 B	GA 3 MO	O	OC	AI	A	A	ET(Q) BT-O(Q) BT-C(Q) PIT(2Y)		
2RC-00516 541F445, Sh.1 G-4	**PRZ PORV 2RC-430 Block Valve** Reactor Coolant 1 B	GA 3 MO	O	OC	AI	A	A	ET(Q) BT-O(Q) BT-C(Q) PIT(2Y)		
2RC-00528 541F445, Sh.2 E-2	**T-2 PRT Nitrogen Inlet Containment Isolation Check (Inbd)** Reactor Coolant 2 AC	CK 0.75 SA	C	OC	N/A	A	A	CV-C(R) CV-PO(R) SLT-1	ROJ-14 ROJ-14	
2RC-00529 541F445, Sh.2 D-2	**T-2 PRT Reactor Makeup Water Inlet Containment Isolation Check (Inbd)** Reactor Coolant 2 AC	CK 2 SA	C	OC	N/A	A	A	CV-C(R) CV-PO(R) SLT-1	ROJ-15 ROJ-15	

VALVE NO PID NO COORD	VALVE DESCRIPTION SYSTEM NAME Code: Class Cat	VALVE Type Size (In.) Actuator	POSITIONS Normal	 Safety	 Failsafe	ACTIVE-PASSIVE Open A/I/P/N	 Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
2RC-00538 *541F445, Sh.2* *E-2*	**T-2 PRT Gas Analyzer System Containment Isolation Vlv (Inbd)** *Reactor Coolant* *2 A*	*GA* *0.375* *AO*	*C*	*C*	*C*	*N*	*A*	ET(Q) BT-C(Q) FST-C(Q) PIT(2Y) SLT-1		
2RC-00539 *541F445, Sh.2* *E-2*	**T-2 PRT Gas Analyzer System Containment Isolation Vlv (Otbd)** *Reactor Coolant* *2 A*	*GA* *0.375* *AO*	*C*	*C*	*C*	*N*	*A*	ET(Q) BT-C(Q) FST-C(Q) PIT(2Y) SLT-1		
2RC-00557 *541F445, Sh.2* *D-2*	**RMW to T-2 PRT Spray Nozzles Inlet** *Reactor Coolant* *NC N/A*	*DI* *2* *AO*	*C*	*O*	*C*	*A*	*N*	AET(Q) ABT-O(Q) APIT(2Y)	TP-01	
2RC-00570A *541F445, Sh.2* *F-4*	**Reactor Vessel Head Vent Solenoid Valve** *Reactor Coolant* *1 B*	*GA* *1* *SO*	*C*	*OC*	*C*	*A*	*A*	ET(CS) BT-O(CS) BT-C(CS) FST-C(CS) PIT(2Y)	CSJ-19 CSJ-19 CSJ-19 CSJ-19	
2RC-00570B *541F445, Sh.2* *F-4*	**Reactor Vessel Head Vent Solenoid Valve** *Reactor Coolant* *1 B*	*GA* *1* *SO*	*C*	*OC*	*C*	*A*	*A*	ET(CS) BT-O(CS) BT-C(CS) FST-C(CS) PIT(2Y)	CSJ-19 CSJ-19 CSJ-19 CSJ-19	

VALVE NO / PID NO / COORD	VALVE DESCRIPTION / SYSTEM NAME / Code: Class Cat	VALVE Type / Size (In.) / Actuator	POSITIONS Normal	Safety	Failsafe	ACTIVE-PASSIVE Open A/I/P/N	Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
2RC-00575A 541F445, Sh.2 F-4	**RV/T-1 PZR Vent Header to T-2 PRT Solenoid** Reactor Coolant 1 B	GA 1 SO	C	OC	C	A	A	ET(CS) BT-O(CS) BT-C(CS) FST-C(CS) PIT(2Y)	CSJ-19 CSJ-19 CSJ-19 CSJ-19	
2RC-00575B 541F445, Sh.2 G-4	**RV/T-1 PZR Gas Vent Header to Containment Atmosphere Solenoid Valve** Reactor Coolant 1 B	GA 1 SO	C	OC	C	A	A	ET(CS) BT-O(CS) BT-C(CS) FST-C(CS) PIT(2Y)	CSJ-19 CSJ-19 CSJ-19 CSJ-19	
2RC-00580A 541F445, Sh.2 G-4	**PZR Vent Isolation Solenoid Valve** Reactor Coolant 1 B	GA 1 SO	C	OC	C	A	A	ET(CS) BT-O(CS) BT-C(CS) FST-C(CS) PIT(2Y)	CSJ-19 CSJ-19 CSJ-19 CSJ-19	
2RC-00580B 541F445, Sh.2 G-4	**PZR Vent Isolation Solenoid Valve** Reactor Coolant 1 B	GA 1 SO	C	OC	C	A	A	ET(CS) BT-O(CS) BT-C(CS) FST-C(CS) PIT(2Y)	CSJ-19 CSJ-19 CSJ-19 CSJ-19	
2RC-00595 541F445, Sh.2 E-2	**PRT Nitrogen Regulator Manual Containment Isolation (Otbd)** Reactor Coolant 2 A	DI 0.75 MA	C	C	N/A	N	P	SLT-1		

VALVE NO / PID NO / COORD	VALVE DESCRIPTION / SYSTEM NAME / Code: Class Cat	VALVE Type / Size (In.) / Actuator	POSITIONS Normal	Safety	Failsafe	ACTIVE-PASSIVE Open A/I/P/N	Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
1RH-00624 *110E018, Sh 1* *G-7*	**RHR Heat Exchanger HX-11A Outlet Control** *Residual Heat Removal* *2 B*	*BTF* *8* *AO*	*O*	*O*	*O*	*A*	*N*	ET(Q) BT-O(Q) FST-O(Q) PIT(2Y)		
1RH-00625 *110E018, Sh. 1* *H-7*	**RHR Heat Exchanger HX-11B Outlet Control** *Residual Heat Removal* *2 B*	*BTF* *8* *AO*	*O*	*O*	*O*	*A*	*N*	ET(Q) BT-O(Q) FST-O(Q) PIT(2Y)		
1RH-00626 *110E018, Sh 1* *E-7*	**RHR Heat Exchanger HX-11A/B Bypass Flow Control** *Residual Heat Removal* *2 B*	*BTF* *6* *AO*	*C*	*C*	*C*	*N*	*A*	ET(Q) BT-C(Q) FST-C(Q) PIT(2Y)		
1RH-00700 *110E018, Sh. 1* *A-10*	**RCS Loop A Hot Leg to P-10A/B RHR Pump Suction Header** *Residual Heat Removal* *1 B*	*GA* *10* *MO*	*C*	*OC*	*AI*	*A*	*A*	ET(CS) BT-O(CS) BT-C(CS) PIT(2Y) ASLT-5	CSJ-20 CSJ-20 CSJ-20	
1RH-00701 *110E018, Sh 1* *A-10*	**RCS Loop A Hot Leg to P-10A/B RHR Pump Suction Header** *Residual Heat Removal* *1 B*	*GA* *10* *MO*	*C*	*OC*	*AI*	*A*	*A*	ET(CS) BT-O(CS) BT-C(CS) PIT(2Y) ASLT-5	CSJ-20 CSJ-20 CSJ-20	

VALVE NO PID NO COORD	VALVE DESCRIPTION SYSTEM NAME Code: Class Cat	VALVE Type Size (In.) Actuator	POSITIONS Normal	 Safety	 Failsafe	ACTIVE-PASSIVE Open A/I/P/N	 Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
1RH-00702 *110E018, Sh 1* *C-10*	**RHR Return To Letdown Check Valve** *Residual Heat Removal* *2 C*	*CK* *0.75* *SA*	*C*	*OC*	*N/A*	*A*	*A*	CV-PO(CS) CV-C(Q)	CSJ-29	
1RH-00704A *110E018, Sh. 1* *C-7*	**P-10A RHR Pump Suction Manual Isolation for SDC** *Residual Heat Removal* *2 B*	*GA* *8* *MA*	*C*	*OC*	*N/A*	*A*	*A*	FSM(CS)	CSJ-24	
1RH-00704B *110E018, Sh 1* *B-7*	**P-10B RHR Pump Suction Manual Isolation for SDC** *Residual Heat Removal* *2 B*	*GA* *8* *MA*	*C*	*OC*	*N/A*	*A*	*A*	FSM(CS)	CSJ-24	
1RH-00706A *110E018, Sh 1* *G-7*	**RHR Train A Test Line Manual Isolation** *Residual Heat Removal* *2 A*	*GA* *6* *MA*	*C*	*C*	*N/A*	*N*	*P*	SLT-6		
1RH-00706B *110E018, Sh. 1* *H-7*	**RHR Train B Test Line Manual Isolation** *Residual Heat Removal* *2 A*	*GA* *6* *MA*	*C*	*C*	*N/A*	*N*	*P*	SLT-6		

VALVE NO PID NO COORD	VALVE DESCRIPTION SYSTEM NAME Code: Class Cat	VALVE Type Size (In.) Actuator	POSITIONS Normal	 Safety	 Failsafe	ACTIVE-PASSIVE Open A/I/P/N	 Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
1RH-00710A *110E018, Sh. 1* *D-5*	**RHR Pump P-10A Discharge Check** *Residual Heat Removal* *2 C*	*CK* *8* *SA*	*C*	*OC*	*N/A*	*A*	*A*	CV-O(Q) CV-C(CS)	 CSJ-21	
1RH-00710B *110E018, Sh 1* *B-5*	**RHR Pump P-10B Discharge Check** *Residual Heat Removal* *2 C*	*CK* *8* *SA*	*C*	*OC*	*N/A*	*A*	*A*	CV-O(Q) CV-C(CS)	 CSJ-21	
1RH-00713A *110E018, Sh. 1* *D-4*	**RHR Pump P-10A/B Discharge Crossconnect** *Residual Heat Removal* *2 B*	*GA* *8* *MA*	*C*	*OC*	*N/A*	*A*	*I*	FSM(CS)	CSJ-25	
1RH-00713B *110E018, Sh. 1* *D-3*	**RHR Pump P-10A/B Discharge Crossconnect** *Residual Heat Removal* *2 B*	*GA* *8* *MA*	*C*	*OC*	*N/A*	*A*	*I*	FSM(CS)	CSJ-25	
1RH-00716C *110E018, Sh. 1* *G-8*	**RHR Heat Exchangers HX-11A/B Outlet Crossconnect** *Residual Heat Removal* *2 B*	*GA* *8* *MA*	*C*	*OC*	*N/A*	*A*	*I*	FSM(CS)	CSJ-25	

VALVE NO PID NO COORD	VALVE DESCRIPTION SYSTEM NAME Code: Class Cat	VALVE Type Size (In.) Actuator	POSITIONS Normal	 Safety	 Failsafe	ACTIVE-PASSIVE Open A/I/P/N	 Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
1RH-00716D *110E018, Sh. 1* *G-8*	**RHR Heat Exchangers HX-11A/B Outlet Crossconnect** *Residual Heat Removal* *2 B*	*GA* *8* *MA*	*C*	*OC*	*N/A*	*A*	*I*	FSM(CS)	CSJ-25	
1RH-00718A *110E018, Sh. 1* *C-7*	**P-10A RHR Pump Suction Check** *Residual Heat Removal* *2 C*	*CK* *8* *SA*	*C*	*O*	*N/A*	*A*	*N*	CV-O(CS)	CSJ-22	
1RH-00718B *110E018, Sh. 1* *B-7*	**P-10B RHR Pump Suction Check** *Residual Heat Removal* *2 C*	*CK* *8* *SA*	*C*	*O*	*N/A*	*A*	*N*	CV-O(CS)	CSJ-22	
1RH-00720 *110E018, Sh. 1* *C-10*	**RHR SDC Return To RCS Isolation Valve** *Residual Heat Removal* *1 B*	*GA* *10* *MO*	*C*	*OC*	*AI*	*A*	*A*	ET(CS) BT-O(CS) BT-C(CS) PIT(2Y) ASLT-2	CSJ-20 CSJ-20 CSJ-20	
1RH-00861B *110E018, Sh 1* *B-10*	**RHR Pump P-10A/B Suction Header Relief to T-2 PRT** *Residual Heat Removal* *2 C*	*SRV* *0.75* *SA*	*C*	*OC*	*N/A*	*A*	*I*	RVT(10Y)		

VALVE NO PID NO COORD	VALVE DESCRIPTION SYSTEM NAME Code: Class Cat	VALVE Type Size (In.) Actuator	POSITIONS Normal	 Safety	 Failsafe	ACTIVE-PASSIVE Open A/I/P/N	 Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
1RH-00861C	**RHR Pump P-10A/B Suction Header Relief to Cont Floor Drain**							RVT(10Y)		
110E018, Sh 1	*Residual Heat Removal*	*SRV* *3*	*C*	*OC*	*N/A*	*A*	*I*			
A-10	*2 C*	*SA*								
1SI-00850A	**RHR Pump P-10A Suction from Sump B Isolation**							ET(Q) BT-O(Q)		
110E017, Sh. 1	*Residual Heat Removal*	*GA* *10*	*C*	*O*	*AI*	*A*	*N*	PIT(2Y)		
A-3	*2 B*	*HO*								
1SI-00850B	**RHR Pump P-10B Suction from Sump B Isolation**							ET(Q) BT-O(Q)		
110E017, Sh. 1	*Residual Heat Removal*	*GA* *10*	*C*	*O*	*AI*	*A*	*N*	PIT(2Y)		
A-6	*2 B*	*HO*								
1SI-00851A	**RHR Pump P-10A Suction Isolation from Containment Sump B**							ET(Q) BT-O(Q)		
110E017, Sh. 2	*Residual Heat Removal*	*GA* *10*	*C*	*OC*	*AI*	*A*	*A*	BT-C(Q) PIT(2Y)		
C-4	*2 B*	*MO*						ASLT-6		
1SI-00851B	**RHR Pump P-10B Suction Isolation from Containment Sump B**							ET(Q) BT-O(Q)		
110E017, Sh. 2	*Residual Heat Removal*	*GA* *10*	*C*	*OC*	*AI*	*A*	*A*	BT-C(Q) PIT(2Y)		
B-4	*2 B*	*MO*						ASLT-6		

VALVE NO *PID NO* *COORD*	VALVE DESCRIPTION *SYSTEM NAME* *Code: Class Cat*	*VALVE* *Type* *Size (In.)* *Actuator*	*POSITIONS* *Normal*	 *Safety*	 *Failsafe*	*ACTIVE-PASSIVE* *Open* *A/I/P/N*	 *Close* *A/I/P/N*	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
1SI-00852A *110E018, Sh. 1* *C-10*	**Low Head SI Core Deluge Isolation** *Residual Heat Removal* *2 B*	*GA* *6* *MO*	*C*	*O*	*AI*	*A*	*N*	ET(Q) BT-O(Q) PIT(2Y)		
1SI-00852B *110E018, Sh 1* *H-10*	**Low Head SI Core Deluge Isolation** *Residual Heat Removal* *2 B*	*GA* *6* *MO*	*C*	*O*	*AI*	*A*	*N*	ET(Q) BT-O(Q) PIT(2Y)		
1SI-00853A *110E017, Sh. 1* *B-7*	**Low Head SI Core Deluge Check** *Residual Heat Removal* *1 AC*	*CK* *6* *SA*	*C*	*OC*	*N/A*	*A*	*A*	CV-O(CS) CV-C(CS) SLT-2	CSJ-26 CSJ-26	
1SI-00853B *110E017, Sh. 1* *B-7*	**Low Head SI Core Deluge Check** *Residual Heat Removal* *1 AC*	*CK* *6* *SA*	*C*	*OC*	*N/A*	*A*	*A*	CV-O(CS) CV-C(CS) SLT-2	CSJ-26 CSJ-26	
1SI-00853C *110E017, Sh. 1* *B-9*	**Core Deluge/ Low Head Safety Injection Check** *Residual Heat Removal* *1 AC*	*CK* *6* *SA*	*C*	*OC*	*N/A*	*A*	*A*	CV-O(CS) CV-C(CS) SLT-2	CSJ-27 CSJ-27	

VALVE NO PID NO COORD	VALVE DESCRIPTION SYSTEM NAME Code: Class Cat	VALVE Type Size (In.) Actuator	POSITIONS Normal	 Safety	 Failsafe	ACTIVE-PASSIVE Open A/I/P/N	 Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
1SI-00853D *110E017, Sh. 1* *B-9*	**Core Deluge/ Low Head Safety Injection Check** *Residual Heat Removal* *1 AC*	*CK* *6* *SA*	*C*	*OC*	*N/A*	*A*	*A*	CV-O(CS) CV-C(CS) SLT-2	CSJ-27 CSJ-27	
1SI-00854A *110E017, Sh. 2* *D-3*	**T-13 RWST Outlet to P-10A RHR Pump Suction Header Check** *Residual Heat Removal* *2 C*	*CK* *10* *SA*	*C*	*OC*	*N/A*	*A*	*A*	CV-O(Q) CV-C(R) ASLT-6	 ROJ-26	
1SI-00854B *110E017, Sh. 2* *C-3*	**T-13 RWST Outlet to P-10B RHR Pump Suction Header Check** *Residual Heat Removal* *2 C*	*CK* *10* *SA*	*C*	*OC*	*N/A*	*A*	*A*	CV-O(Q) CV-C(R) ASLT-6	 ROJ-26	
1SI-00856A *110E017, Sh. 2* *D-3*	**T-13 RWST Outlet to P-10A RHR Pump Suction Header Isolation** *Residual Heat Removal* *2 A*	*GA* *10* *MO*	*O*	*OC*	*AI*	*I*	*A*	ET(Q) BT-C(Q) PIT(2Y) SLT-6		
1SI-00856B *110E017, Sh. 2* *C-3*	**T-13 RWST Outlet to P-10B RHR Pump Suction Header Isolation** *Residual Heat Removal* *2 A*	*GA* *10* *MO*	*O*	*OC*	*AI*	*I*	*A*	ET(Q) BT-C(Q) PIT(2Y) SLT-6		

VALVE NO PID NO COORD	VALVE DESCRIPTION SYSTEM NAME Code: Class Cat	VALVE Type Size (In.) Actuator	POSITIONS Normal	 Safety	 Failsafe	ACTIVE-PASSIVE Open A/I/P/N	 Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
1SI-00857A 110E017, Sh. 2 E-6	**RHR Heat Exchanger HX-11A Outlet to P-15A SI Pump Suction** Residual Heat Removal 2 B	GA 6 MA	C	OC	N/A	A	I	FSM(Q)		
1SI-00857B 110E017, Sh. 2 E-6	**RHR Heat Exchanger HX-11B Outlet to P-15B SI Pump Suction** Residual Heat Removal 2 B	GA 6 MA	C	OC	N/A	A	I	FSM(Q)		
1SI-00861A 110E017, Sh. 1 E-4	**Low Head SI Header "B" Relief** Residual Heat Removal 2 C	SRV 0.75 SA	C	OC	N/A	A	I	RVT(10Y)		
2RH-00624 110E029, Sh. 1 G-8	**RHR Heat Exchanger HX-11A Outlet Control** Residual Heat Removal 2 B	BTF 8 AO	O	O	O	A	N	ET(Q) BT-O(Q) FST-O(Q) PIT(2Y)		
2RH-00625 110E029, Sh 1 G-8	**RHR Heat Exchanger HX-11B Outlet Control** Residual Heat Removal 2 B	BTF 8 AO	O	O	O	A	N	ET(Q) BT-O(Q) FST-O(Q) PIT(2Y)		

VALVE NO / PID NO / COORD	VALVE DESCRIPTION / SYSTEM NAME / Code: Class Cat	VALVE Type / Size (In.) / Actuator	POSITIONS Normal	POSITIONS Safety	POSITIONS Failsafe	ACTIVE-PASSIVE Open A/I/P/N	ACTIVE-PASSIVE Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
2RH-00626 110E029, Sh. 1 E-7	**RHR Heat Exchanger HX-11A/B Bypass Flow Control** Residual Heat Removal 2 B	BTF 6 AO	C	C	C	N	A	ET(Q) BT-C(Q) FST-C(Q) PIT(2Y)		
2RH-00700 110E029, Sh. 1 A-10	**RCS Loop A Hot Leg to P-10A/B RHR Pump Suction Header** Residual Heat Removal 1 B	GA 10 MO	C	OC	AI	A	A	ET(CS) BT-O(CS) BT-C(CS) PIT(2Y) ASLT-5	CSJ-20 CSJ-20 CSJ-20	
2RH-00701 110E029, Sh 1 A-10	**RCS Loop A Hot Leg to P-10A/B RHR Pump Suction Header** Residual Heat Removal 1 B	GA 10 MO	C	OC	AI	A	A	ET(CS) BT-O(CS) BT-C(CS) PIT(2Y) ASLT-5	CSJ-20 CSJ-20 CSJ-20	
2RH-00702 110E029, Sh 1 C-10	**RHR Return To Letdown Check Valve** Residual Heat Removal 2 C	CK 0.75 SA	C	OC	N/A	A	A	CV-PO(CS) CV-C(Q)	CSJ-29	
2RH-00704A 110E029, Sh 1 C-7	**P-10A RHR Pump Suction Manual Isolation for SDC** Residual Heat Removal 2 B	GA 8 MA	C	OC	N/A	A	A	FSM(CS)	CSJ-24	

VALVE NO *PID NO* *COORD*	VALVE DESCRIPTION *SYSTEM NAME* *Code: Class Cat*	VALVE *Type* *Size (In.)* *Actuator*	POSITIONS *Normal*	 *Safety*	 *Failsafe*	ACTIVE-PASSIVE *Open A/I/P/N*	 *Close A/I/P/N*	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
2RH-00704B *110E029, Sh. 1* *B-7*	**P-10B RHR Pump Suction Manual Isolation for SDC** *Residual Heat Removal* *2 B*	*GA* *8* *MA*	*C*	*OC*	*N/A*	*A*	*A*	FSM(CS)	CSJ-24	
2RH-00706A *110E029, Sh. 1* *G-6*	**RHR Train A Test Line Manual Isolation** *Residual Heat Removal* *2 A*	*GA* *6* *MA*	*C*	*C*	*N/A*	*N*	*P*	SLT-6		
2RH-00706B *110E029, Sh. 1* *G-6*	**RHR Train B Test Line Manual Isolation** *Residual Heat Removal* *2 A*	*GA* *6* *MA*	*C*	*C*	*N/A*	*N*	*P*	SLT-6		
2RH-00710A *110E029, Sh 1* *D-5*	**RHR Pump P-10A Discharge Check** *Residual Heat Removal* *2 C*	*CK* *8* *SA*	*C*	*OC*	*N/A*	*A*	*A*	CV-O(Q) CV-C(CS)	 CSJ-21	
2RH-00710B *110E029, Sh. 1* *B-5*	**RHR Pump P-10B Discharge Check** *Residual Heat Removal* *2 C*	*CK* *8* *SA*	*C*	*OC*	*N/A*	*A*	*A*	CV-O(Q) CV-C(CS)	 CSJ-21	

VALVE NO PID NO COORD	VALVE DESCRIPTION SYSTEM NAME Code: Class Cat	VALVE Type Size (In.) Actuator	POSITIONS Normal	 Safety	 Failsafe	ACTIVE-PASSIVE Open A/I/P/N	 Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
2RH-00713A	**RHR Pump P-10A/B Discharge Crossconnect**							FSM(CS)	CSJ-25	
110E029, Sh. 1	*Residual Heat Removal*	*GA*	*C*	*OC*	*N/A*	*A*	*I*			
D-4	*2 B*	*8*								
		MA								
2RH-00713B	**RHR Pump P-10A/B Discharge Crossconnect**							FSM(CS)	CSJ-25	
110E029, Sh. 1	*Residual Heat Removal*	*GA*	*C*	*OC*	*N/A*	*A*	*I*			
D-3	*2 B*	*8*								
		MA								
2RH-00716C	**RHR Heat Exchangers HX-11A/B Outlet Crossconnect**							FSM(CS)	CSJ-25	
110E029, Sh. 1	*Residual Heat Removal*	*GA*	*C*	*OC*	*N/A*	*A*	*I*			
G-8	*2 B*	*8*								
		MA								
2RH-00716D	**RHR Heat Exchangers HX-11A/B Outlet Crossconnect**							FSM(CS)	CSJ-25	
110E029, Sh. 1	*Residual Heat Removal*	*GA*	*C*	*OC*	*N/A*	*A*	*I*			
G-8	*2 B*	*8*								
		MA								
2RH-00718A	**P-10A RHR Pump Suction Check**							CV-O(CS)	CSJ-22	
110E029, Sh. 1	*Residual Heat Removal*	*CK*	*C*	*O*	*N/A*	*A*	*N*			
C-7	*2 C*	*8*								
		SA								

VALVE NO PID NO COORD	VALVE DESCRIPTION SYSTEM NAME Code: Class Cat	VALVE Type Size (In.) Actuator	POSITIONS Normal	 Safety	 Failsafe	ACTIVE-PASSIVE Open A/I/P/N	 Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
2RH-00718B *110E029, Sh. 1* *B-7*	**P-10B RHR Pump Suction Check** *Residual Heat Removal* *2 C*	*CK* *8* *SA*	*C*	*O*	*N/A*	*A*	*N*	CV-O(CS)	CSJ-22	
2RH-00720 *110E029, Sh 1* *C-10*	**RHR SDC Return To RCS Isolation Valve** *Residual Heat Removal* *1 B*	*GA* *10* *MO*	*C*	*OC*	*AI*	*A*	*A*	ET(CS) BT-O(CS) BT-C(CS) PIT(2Y) ASLT-2	CSJ-20 CSJ-20 CSJ-20	
2RH-00861B *110E029, Sh. 1* *B-10*	**RHR Pump P-10A/B Suction Header Relief to T-2 PRT** *Residual Heat Removal* *2 C*	*SRV* *0.75* *SA*	*C*	*OC*	*N/A*	*A*	*I*	RVT(10Y)		
2RH-00861C *110E029, Sh 1* *A-10*	**RHR Pump P-10A/B Suction Header Relief to Cont Floor Drain** *Residual Heat Removal* *2 C*	*SRV* *3* *SA*	*C*	*OC*	*N/A*	*A*	*I*	RVT(10Y)		
2SI-00850A *110E035, Sh 1* *A-3*	**RHR Pump P-10A Suction from Sump B Isolation** *Residual Heat Removal* *2 B*	*GA* *10* *HO*	*C*	*O*	*AI*	*A*	*N*	ET(Q) BT-O(Q) PIT(2Y)		

VALVE NO / PID NO / COORD	VALVE DESCRIPTION / SYSTEM NAME / Code: Class Cat	VALVE Type / Size (In.) / Actuator	POSITIONS Normal	Safety	Failsafe	ACTIVE-PASSIVE Open A/I/P/N	Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
2SI-00850B 110E035, Sh. 1 A-6	**RHR Pump P-10B Suction from Sump B Isolation** Residual Heat Removal 2 B	GA 10 HO	C	O	AI	A	N	ET(Q) BT-O(Q) PIT(2Y)		
2SI-00851A 110E035, Sh. 1 C-2	**RHR Pump P-10A Suction Isolation from Containment Sump B** Residual Heat Removal 2 B	GA 10 MO	C	OC	AI	A	A	ET(Q) BT-O(Q) BT-C(Q) PIT(2Y) ASLT-6		
2SI-00851B 110E035, Sh. 1 C-2	**RHR Pump P-10B Suction Isolation from Containment Sump B** Residual Heat Removal 2 B	GA 10 MO	C	OC	AI	A	A	ET(Q) BT-O(Q) BT-C(Q) PIT(2Y) ASLT-6		
2SI-00852A 110E035, Sh 1 B-6	**Low Head SI Core Deluge Isolation** Residual Heat Removal 2 B	GA 6 MO	C	O	AI	A	N	ET(Q) BT-O(Q) PIT(2Y)		
2SI-00852B 110E035, Sh 1 B-6	**Low Head SI Core Deluge Isolation** Residual Heat Removal 2 B	GA 6 MO	C	O	AI	A	N	ET(Q) BT-O(Q) PIT(2Y)		

VALVE NO P!D NO COORD	VALVE DESCRIPTION SYSTEM NAME Code: Class Cat	VALVE Type Size (In.) Actuator	POSITIONS Normal	 Safety	 Failsafe	ACTIVE-PASSIVE Open A/I/P/N	 Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
2SI-00853A 110E035, Sh 1 B-7	**Low Head S: Core Deluge Check** Residual Heat Removal 1 AC	CK 6 SA	C	OC	N/A	A	A	CV-O(CS) CV-C(CS) SLT-2	CSJ-26 CSJ-26	
2SI-00853B 110E035, Sh 1 B-7	**Low Head SI Core Deluge Check** Residual Heat Removal 1 AC	CK 6 SA	C	OC	N/A	A	A	CV-O(CS) CV-C(CS) SLT-2	CSJ-26 CSJ-26	
2SI-00853C 110E035, Sh 1 B-9	**Core Deluge/ Low Head Safety Injection Check** Residual Heat Removal 1 AC	CK 6 SA	C	OC	N/A	A	A	CV-O(CS) CV-C(CS) SLT-2	CSJ-27 CSJ-27	
2SI-00853D 110E035, Sh 1 B-9	**Core Deluge/ Low Head Safety Injection Check** Residual Heat Removal 1 AC	CK 6 SA	C	OC	N/A	A	A	CV-O(CS) CV-C(CS) SLT-2	CSJ-27 CSJ-27	
2SI-00854A 110E035, Sh 2 C-4	**T-13 RWST Outlet to P-10A RHR Pump Suction Header Check** Residual Heat Removal 2 C	CK 10 SA	C	OC	N/A	A	A	CV-O(Q) CV-C(R) ASLT-6		

VALVE NO PID NO COORD	VALVE DESCRIPTION SYSTEM NAME Code: Class Cat	VALVE Type Size (In.) Actuator	POSITIONS Normal	 Safety	 Failsafe	ACTIVE-PASSIVE Open A/I/P/N	 Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
2SI-00854B *110E035, Sh 2* *B-4*	**T-13 RWST Outlet to P-10B RHR Pump Suction Header Check** *Residual Heat Removal* *2 C*	*CK* *10* *SA*	*C*	*OC*	*N/A*	*A*	*A*	CV-O(Q) CV-C(R) ASLT-6		
2SI-00856A *110E035, Sh 2* *C-3*	**T-13 RWST Outlet to P-10A RHR Pump Suction Header Isolation** *Residual Heat Removal* *2 A*	*GA* *10* *MO*	*O*	*OC*	*AI*	*I*	*A*	ET(Q) BT-C(Q) PIT(2Y) SLT-6		
2SI-00856B *110E035, Sh 2* *B-3*	**T-13 RWST Outlet to P-10B RHR Pump Suction Header Isolation** *Residual Heat Removal* *2 A*	*GA* *10* *MO*	*O*	*OC*	*AI*	*I*	*A*	ET(Q) BT-C(Q) PIT(2Y) SLT-6		
2SI-00857A *110E035, Sh 2* *E-6*	**RHR Heat Exchanger HX-11A Outlet to P-15A SI Pump Suction** *Residual Heat Removal* *2 B*	*GA* *6* *MA*	*C*	*OC*	*N/A*	*A*	*I*	FSM(Q)		
2SI-00857B *110E035, Sh 2* *D-6*	**RHR Heat Exchanger HX-11B Outlet to P-15B SI Pump Suction** *Residual Heat Removal* *2 B*	*GA* *6* *MA*	*C*	*OC*	*N/A*	*A*	*I*	FSM(Q)		

VALVE NO *PID NO* *COCRD*	VALVE DESCRIPTION *SYSTEM NAME* *Code: Class Cat*	*VALVE* *Type* *Size (In.)* *Actuator*	*POSITIONS* *Normal*	 *Safety*	 *Failsafe*	*ACTIVE-PASSIVE* *Open* *A/I/P/N*	 *Close* *A/I/P/N*	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
2SI-00861A	**Low Head SI Header "B" Relief**							RVT(10Y)		
110E035, Sh 1	*Residual Heat Removal*	*SRV* *0.75*	*C*	*OC*	*N/A*	*A*	*I*			
B-4	*2 C*	*SA*								

VALVE NO PID NO COORD	VALVE DESCRIPTION SYSTEM NAME Code: Class Cat	VALVE Type Size (In.) Actuator	POSITIONS Normal	 Safety	 Failsafe	ACTIVE-PASSIVE Open A/I/P/N	 Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
1SI-00825A *110E017, Sh.2* *F-4*	**RWST To Safety Injection Pump Suction Valve** *Safety Injection* *2 B*	*GA* *12* *MO*	*O*	*O*	*AI*	*P*	*N*	AET(Q) ABT-C(Q) APIT(2Y)		
1SI-00825B *110E017, Sh.2* *E-4*	**RWST To Safety Injection Pump Suction Valve** *Safety Injection* *2 B*	*GA* *12* *MO*	*O*	*O*	*AI*	*P*	*N*	AET(Q) ABT-C(Q) APIT(2Y)		
1SI-00829A *110E017, Sh.2* *F-9*	**SI Header Manual Cross-Connect Valve** *Safety Injection* *2 B*	*GA* *4* *MA*	*C*	*OC*	*N/A*	*A*	*I*	FSM(Q)		
1SI-00829B *110E017, Sh.2* *F-9*	**SI Header Manual Cross-Connect Valve** *Safety Injection* *2 B*	*GA* *4* *MA*	*C*	*OC*	*N/A*	*A*	*I*	FSM(Q)		
1SI-00829D *110E017, Sh.2* *G-7*	**SI Pump Test Line Isolation Valve** *Safety Injection* *2 A*	*GA* *4* *MA*	*C*	*C*	*N/A*	*N*	*P*	SLT-6		

VALVE NO *PID NO* *COORD*	VALVE DESCRIPTION *SYSTEM NAME* *Code: Class Cat*	*VALVE* *Type* *Size (In.)* *Actuator*	*POSITIONS* *Normal*	 *Safety*	 *Failsafe*	*ACTIVE-PASSIVE* *Open* *A/I/P/N*	 *Close* *A/I/P/N*	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
1SI-00830A *110E017, Sh.1* *H-6*	**SI Accumulator Tank 1T-34A Relief Valve** *Safety Injection* *2 C*	*SRV* *1* *SA*	*C*	*OC*	*N/A*	*A*	*I*	RVT(10Y)		
1SI-00830B *110E017, Sh.1* *D-6*	**SI Accumulator Tank 1T-34B Relief Valve** *Safety Injection* *2 C*	*SRV* *1* *SA*	*C*	*OC*	*N/A*	*A*	*I*	RVT(10Y)		
1SI-00834D *110E017, Sh.1* *H-3*	**SI Accumulator Nitrogen Supply Check Valve** *Safety Injection* *2 AC*	*CK* *1* *SA*	*C*	*OC*	*N/A*	*A*	*A*	CV-PO(R) CV-C(R) SLT-1	ROJ-17 ROJ-17	
1SI-00841A *110E017, Sh.1* *F-7*	**SI Accumulator 1T-34A Discharge Isolation Valve** *Safety Injection* *2 B*	*GA* *10* *MO*	*O*	*O*	*AI*	*P*	*N*	APIT(2Y)		
1SI-00841B *110E017, Sh.1* *B-7*	**SI Accumulator 1T-34B Discharge Isolation Valve** *Safety Injection* *2 B*	*GA* *10* *MO*	*O*	*O*	*AI*	*P*	*N*	APIT(2Y)		

VALVE NO PID NO COORD	VALVE DESCRIPTION SYSTEM NAME Code: Class Cat	VALVE Type Size (In.) Actuator	POSITIONS Normal	 Safety	 Failsafe	ACTIVE-PASSIVE Open A/I/P/N	 Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
1SI-00842A *110E017, Sh.1* *F-7*	**SI Accumulator 1T-34A Discharge Check Valve** *Safety Injection* *1 AC*	*CK* *10* *SA*	*C*	*OC*	*N/A*	*A*	*A*	CV-PO(CS) CV-C(Q) INSP SLT-4	ROJ-24 VRR-01	
1SI-00842B *110E017, Sh.1* *B-7*	**SI Accumulator 1T-34B Discharge Check Valve** *Safety Injection* *1 AC*	*CK* *10* *SA*	*C*	*OC*	*N/A*	*A*	*A*	CV-PO(CS) CV-C(Q) INSP SLT-4	ROJ-24 VRR-01	
1SI-00845A *110E017, Sh.1* *F-7*	**SI Pump P-15A To RCS Loop A Cold Leg Injection Check Valve** *Safety Injection* *1 AC*	*CK* *2* *SA*	*C*	*OC*	*N/A*	*A*	*A*	CV-PO(CS) CV-O(R) CV-C(R) SLT-2	ROJ-18 ROJ-18 ROJ-18	
1SI-00845B *110E017, Sh.1* *E-7*	**SI Pump P-15A To RCS Loop B Cold Leg Injection Check Valve** *Safety Injection* *1 AC*	*CK* *2* *SA*	*C*	*OC*	*N/A*	*A*	*A*	CV-PO(CS) CV-O(R) CV-C(R) SLT-2	ROJ-18 ROJ-18 ROJ-18	
1SI-00845C *110E017, Sh.1* *E-7*	**SI Pump P-15B To RCS Core Deluge Injection Check Valve** *Safety Injection* *1 AC*	*CK* *2* *SA*	*C*	*OC*	*N/A*	*A*	*A*	CV-PO(CS) CV-O(R) CV-C(R) SLT-2	ROJ-18 ROJ-18 ROJ-18	

VALVE NO PID NO COORD	VALVE DESCRIPTION SYSTEM NAME Code: Class Cat	VALVE Type Size (In.) Actuator	POSITIONS Normal	 Safety	 Failsafe	ACTIVE-PASSIVE Open A/I/P/N	 Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
1SI-00845D *110E017, Sh.1* *F-7*	**SI Pump P-15B To RCS Core Deluge Injection Check Valve** *Safety Injection* *1 AC*	*CK* *2* *SA*	*C*	*OC*	*N/A*	*A*	*A*	CV-PO(CS) CV-O(R) CV-C(R) SLT-2	ROJ-18 ROJ-18 ROJ-18	
1SI-00845E *110E017, Sh.1* *F-7*	**SI Pump P-15B To RCS Loop A Cold Leg Injection Check Valve** *Safety Injection* *1 AC*	*CK* *2* *SA*	*C*	*OC*	*N/A*	*A*	*A*	CV-PO(CS) CV-O(R) CV-C(R) SLT-2	ROJ-18 ROJ-18 ROJ-18	
1SI-00845F *110E017, Sh.1* *E-7*	**SI Pump P-15B To RCS Loop B Cold Leg Injection Check Valve** *Safety Injection* *1 AC*	*CK* *2* *SA*	*C*	*OC*	*N/A*	*A*	*A*	CV-PO(CS) CV-O(R) CV-C(R) SLT-2	ROJ-18 ROJ-18 ROJ-18	
1SI-00846 *110E017, Sh.1* *H-2*	**SI Accumulator Nitrogen Supply Control Valve** *Safety Injection* *2 A*	*GL* *1* *AO*	*C*	*C*	*C*	*N*	*A*	ET(Q) BT-C(Q) FST-C(Q) PIT(2Y) SLT-1		
1SI-00866A *110E017, Sh.1* *F-1*	**SI Pump 1P-15A Discharge to RCS Cold Leg Isolation Valve** *Safety Injection* *2 B*	*GA* *4* *MO*	*O*	*OC*	*AI*	*A*	*A*	ET(Q) BT-C(Q) BT-O(Q) PIT(2Y)		

VALVE NO *PID NO* *COORD*	VALVE DESCRIPTION *SYSTEM NAME* *Code: Class Cat*	*VALVE* *Type* *Size (In.)* *Actuator*	*POSITIONS* *Normal*	*Safety*	*Failsafe*	*ACTIVE-PASSIVE* *Open A/I/P/N*	*Close A/I/P/N*	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
1SI-00866B *110E017, Sh.1* *F-1*	**SI Pump 1P-15B Discharge to RCS Cold Leg and Core Deluge Isolation Valve** *Safety Injection* *2 B*	*GA* *4* *MO*	*O*	*OC*	*AI*	*A*	*A*	ET(Q) BT-C(Q) BT-O(Q) PIT(2Y)		
1SI-00867A *110E017, Sh.1* *F-9*	**SI Loop A Cold Leg Injection Check Valve** *Safety Injection* *1 AC*	*CK* *10* *SA*	*C*	*OC*	*N/A*	*A*	*A*	CV-PO(CS) CV-C(CS) INSP SLT-2	ROJ-24 ROJ-24 VRR-01	
1SI-00867B *110E017, Sh.1* *B-9*	**SI Loop B Cold Leg Injection Check Valve** *Safety Injection* *1 AC*	*CK* *10* *SA*	*C*	*OC*	*N/A*	*A*	*A*	CV-PO(CS) CV-C(CS) CV-O(R) SLT-2	ROJ-23 ROJ-23 ROJ-23	
1SI-00875A *110E017, Sh.1* *F-4*	**SI Pump P-15B Discharge to SI Test Line Check Valve** *Safety Injection* *2 C*	*CK* *0.75* *SA*	*C*	*OC*	*N/A*	*A*	*A*	CV-PO(CS) CV-C(R)	ROJ-27 ROJ-27	
1SI-00875B *110E017, Sh.1* *F-4*	**SI Pump P-15A Discharge to SI Test Line Check Valve** *Safety Injection* *2 C*	*CK* *0.75* *SA*	*C*	*OC*	*N/A*	*A*	*A*	CV-PO(CS) CV-C(R)	ROJ-27 ROJ-27	

VALVE NO PID NO COORD	VALVE DESCRIPTION SYSTEM NAME Code: Class Cat	VALVE Type Size (In.) Actuator	POSITIONS Normal	 Safety	 Failsafe	ACTIVE-PASSIVE Open A/I/P/N	 Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
1SI-00876A 110E017, Sh.2 E-8	**SI Pump P-15A Minimum Flow Line Manual Isolation Valve** Safety Injection 2 B	GL 2 MA	O	OC	N/A	I	A	FSM(Q)		
1SI-00876B 110E017, Sh.2 E-8	**SI Pump P-15B Minimum Flow Line Manual Isolation Valve** Safety Injection 2 B	GL 2 MA	O	OC	N/A	I	A	FSM(Q)		
1SI-00878A 110E017, Sh.1 F-7	**SI Pump P-15B to RPV Injection Isolation Valve** Safety Injection 2 B	GL 2 MO	C	OC	AI	A	A	ET(Q) BT-C(Q) BT-O(Q) PIT(2Y)		
1SI-00878B 110E017, Sh.1 E-7	**SI Pump P-15A to Loop B Cold Leg Injection Isolation Valve** Safety Injection 2 B	GL 2 MO	O	O	AI	A	N	AET(Q) ABT-O(Q) APIT(2Y)		
1SI-00878C 110E017, Sh.1 E-7	**SI Pump P-15B to RPV Injection Isolation Valve** Safety Injection 2 B	GL 2 MO	C	OC	AI	A	A	ET(Q) BT-C(Q) BT-O(Q) PIT(2Y)		

VALVE NO / PID NO / COORD	VALVE DESCRIPTION / SYSTEM NAME / Code: Class Cat	VALVE Type / Size (In.) / Actuator	POSITIONS Normal	POSITIONS Safety	POSITIONS Failsafe	ACTIVE-PASSIVE Open A/I/P/N	ACTIVE-PASSIVE Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
1SI-00878D	**SI Pump P-15A to Loop A Cold Leg Injection Isolation Valve**							AET(Q) ABT-O(Q) APIT(2Y)		
110E017, Sh.1	*Safety Injection*	*GL* *2*	*O*	*O*	*AI*	*A*	*N*			
F-7	*2 B*	*MO*								
1SI-00879A	**SI Pump Test Line Manual Containment Isolation Valve**							SLT-1		
110E017, Sh.1	*Safety Injection*	*GL* *0.75*	*C*	*C*	*N/A*	*N*	*P*			
E-2	*2 A*	*MA*								
1SI-00879B	**SI Pump Test Line Manual Containment Isolation Valve**							SLT-1		
110E017, Sh.2	*Safety Injection*	*GL* *0.75*	*C*	*C*	*N/A*	*N*	*P*			
D-10	*2 A*	*MA*								
1SI-00887	**SI Test Line Relief Valve**							RVT(10Y)		
110E017, Sh.1	*Safety Injection*	*SRV* *0.75*	*C*	*OC*	*N/A*	*A*	*I*			
E-2	*2 C*	*SA*								
1SI-00889A	**SI Pump 1P-15A Discharge Check Valve**							CV-O(Q) ACV-C(R)	 ROJ-22	
110E017, Sh.2	*Safety Injection*	*CK* *6*	*C*	*OC*	*N/A*	*A*	*A*			
F-8	*2 C*	*SA*								

VALVE NO PID NO COORD	VALVE DESCRIPTION SYSTEM NAME Code: Class Cat	VALVE Type Size (In.) Actuator	POSITIONS Normal	 Safety	 Failsafe	ACTIVE-PASSIVE Open A/I/P/N	 Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
1SI-00889B *110E017, Sh.2* *F-8*	**SI Pump 1P-15B Discharge Check Valve** *Safety Injection* *2 C*	*CK* *6* *SA*	*C*	*OC*	*N/A*	*A*	*A*	CV-O(Q) CV-C(R)	 ROJ-22	
1SI-00891A *110E017, Sh.2* *E-8*	**SI Pump 1P-15A Minimum Flow Check Valve** *Safety Injection* *2 C*	*CK* *2* *SA*	*C*	*O*	*N/A*	*A*	*N*	CV-O(Q)		
1SI-00891B *110E017, Sh.2* *E-8*	**SI Pump 1P-15B Minimum Flow Check Valve** *Safety Injection* *2 C*	*CK* *2* *SA*	*C*	*O*	*N/A*	*A*	*N*	CV-O(Q)		
1SI-00896A *110E017, Sh.2* *F-6*	**SI Pump P-15A Suction from RWST Isolation Valve** *Safety Injection* *2 A*	*GA* *6* *MO*	*O*	*OC*	*AI*	*I*	*A*	ET(Q) BT-C(Q) SLT-6 PIT(2Y)		
1SI-00896B *110E017, Sh.2* *F-6*	**SI Pump P-15B Suction from RWST Isolation Valve** *Safety Injection* *2 A*	*GA* *6* *MO*	*O*	*OC*	*AI*	*I*	*A*	ET(Q) BT-C(Q) SLT-6 PIT(2Y)		

VALVE NO PID NO COORD	VALVE DESCRIPTION SYSTEM NAME Code: Class Cat	VALVE Type Size (In.) Actuator	POSITIONS Normal	 Safety	 Failsafe	ACTIVE-PASSIVE Open A/I/P/N	 Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
1SI-00897A *110E017, Sh.2* *E-2*	**SI Test Line Return Valve (Series)** *Safety Injection* *2 A*	*GL* *2* *AO*	*O*	*OC*	*N/A*	*I*	*A*	ET(CS) BT-C(CS) SLT-6 PIT(2Y)	CSJ-28 CSJ-28	
1SI-00897B *110E017, Sh.2* *E-2*	**SI Test Line Return Valve (Series)** *Safety Injection* *2 A*	*GL* *2* *AO*	*O*	*OC*	*N/A*	*I*	*A*	ET(CS) BT-C(CS) SLT-6 PIT(2Y)	CSJ-28 CSJ-28	
1SI-00957 *110E017, Sh.1* *H-3*	**SI Accumulator Nitrogen Vent Control Valve** *Safety Injection* *2 B*	*GL* *1* *AO*	*C*	*O*	*C*	*A*	*N*	ET(Q) BT-O(Q) PIT (2Y)		
2SI-00825A *110E035, Sh.2* *E-4*	**RWST To Safety Injection Pump Suction Valve** *Safety Injection* *2 B*	*GA* *12* *MO*	*O*	*O*	*AI*	*P*	*N*	AET(Q) ABT-C(Q) APIT(2Y)		
2SI-00825B *110E035, Sh.2* *E-4*	**RWST To Safety Injection P p Suction Valve** *Safety Injection* *2 B*	*GA* *12* *MO*	*O*	*O*	*AI*	*P*	*N*	AET(Q) ABT-C(Q) APIT(2Y)		

VALVE NO PID NO COORD	VALVE DESCRIPTION SYSTEM NAME Code: Class Cat	VALVE Type Size (In.) Actuator	POSITIONS Normal	 Safety	 Failsafe	ACTIVE-PASSIVE Open A/I/P/N	 Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
2SI-00829A 110E035, Sh.2 F-9	**SI Header Manual Cross-Connect Valve** Safety Injection 2 B	GA 4 MA	C	OC	N/A	A	I	FSM(Q)		
2SI-00829B 110E035, Sh.2 E-9	**SI Header Manual Cross-Connect Valve** Safety Injection 2 B	GA 4 MA	C	OC	N/A	A	I	FSM(Q)		
2SI-00829D 110E035, Sh.2 H-6	**SI Pump Test Line Isolation Valve** Safety Injection 2 A	GA 4 MA	C	C	N/A	N	P	SLT-6		
2SI-00830A 110E035, Sh.1 H-6	**SI Accumulator Tank 2T-34A Relief Valve** Safety Injection 2 C	SRV 1 SA	C	OC	N/A	A	I	RVT(10Y)		
2SI-00830B 110E035, Sh.1 E-6	**SI Accumulator Tank 2T-34B Relief Valve** Safety Injection 2 C	SRV 1 SA	C	OC	N/A	A	I	RVT(10Y)		

VALVE NO / PID NO / COORD	VALVE DESCRIPTION / SYSTEM NAME / Code: Class Cat	VALVE Type / Size (In.) / Actuator	POSITIONS Normal	POSITIONS Safety	POSITIONS Failsafe	ACTIVE-PASSIVE Open A/I/P/N	ACTIVE-PASSIVE Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
2SI-00834D *110E035, Sh.1* *H-2*	**SI Accumulator Nitrogen Supply Check Valve** *Safety Injection* *2 AC*	*CK* *1* *SA*	*C*	*OC*	*N/A*	*A*	*A*	CV-PO(R) CV-C(R) SLT-1	ROJ-17 ROJ-17	
2SI-00841A *110E035, Sh.1* *F-5*	**SI Accumulator 2T-34A Discharge Isolation Valve** *Safety Injection* *2 B*	*GA* *10* *MO*	*O*	*O*	*AI*	*P*	*N*	APIT(2Y)		
2SI-00841B *110E035, Sh.1* *C-5*	**SI Accumulator 2T-34B Discharge Isolation Valve** *Safety Injection* *2 B*	*GA* *10* *MO*	*O*	*O*	*AI*	*P*	*N*	APIT(2Y)		
2SI-00842A *110E035, Sh.1* *F-7*	**SI Accumulator 2T-34A Discharge Check Valve** *Safety Injection* *1 AC*	*CK* *10* *SA*	*C*	*OC*	*N/A*	*A*	*A*	CV-PO(CS) CV-C(Q) INSP SLT-4	ROJ-24 VRR-01	
2SI-00842B *110E035, Sh.1* *C-7*	**SI Accumulator 2T-34B Discharge Check Valve** *Safety Injection* *1 AC*	*CK* *10* *SA*	*C*	*OC*	*N/A*	*A*	*A*	CV-PO(CS) CV-C(Q) INSP SLT-4	ROJ-24 VRR-01	

VALVE NO / PID NO / COORD	VALVE DESCRIPTION / SYSTEM NAME / Code: Class Cat	VALVE Type / Size (In.) / Actuator	POSITIONS Normal	Safety	Failsafe	ACTIVE-PASSIVE Open A/I/P/N	Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
2SI-00845A 110E035, Sh.1 F-7	**SI Pump P-15A To RCS Loop A Cold Leg Injection Check Valve** Safety Injection 1 AC	CK 2 SA	C	OC	N/A	A	A	CV-PO(CS) CV-O(R) CV-C(R) SLT-2	ROJ-18 ROJ-18 ROJ-18	
2SI-00845B 110E035, Sh.1 C-7	**SI Pump P-15A To RCS Loop B Cold Leg Injection Check Valve** Safety Injection 1 AC	CK 2 SA	C	OC	N/A	A	A	CV-PO(CS) CV-O(R) CV-C(R) SLT-2	ROJ-18 ROJ-18 ROJ-18	
2SI-00845C 110E035, Sh.1 E-7	**SI Pump P-15B To RCS Core Deluge Injection Check Valve** Safety Injection 1 AC	CK 2 SA	C	OC	N/A	A	A	CV-PO(CS) CV-O(R) CV-C(R) SLT-2	ROJ-18 ROJ-18 ROJ-18	
2SI-00845D 110E035, Sh.1 B-7	**SI Pump P-15B To RCS Core Deluge Injection Check Valve** Safety Injection 1 AC	CK 2 SA	C	OC	N/A	A	A	CV-PO(CS) CV-O(R) CV-C(R) SLT-2	ROJ-18 ROJ-18 ROJ-18	
2SI-00845E 110E035, Sh.1 C-7	**SI Pump P-15B To RCS Loop A Cold Leg Injection Check Valve** Safety Injection 1 AC	CK 2 SA	C	OC	N/A	A	A	CV-PO(CS) CV-O(R) CV-C(R) SLT-2	ROJ-18 ROJ-18 ROJ-18	

VALVE NO PID NO COORD	VALVE DESCRIPTION SYSTEM NAME Code: Class Cat	VALVE Type Size (In.) Actuator	POSITIONS Normal	 Safety	 Failsafe	ACTIVE-PASSIVE Open A/I/P/N	 Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
2SI-00845F 110E035, Sh.1 E-8	**SI Pump P-15B To RCS Loop B Cold Leg Injection Check Valve** Safety Injection 1 AC	CK 2 SA	C	OC	N/A	A	A	CV-PO(CS) CV-O(R) CV-C(R) SLT-2	ROJ-18 ROJ-18 ROJ-18	
2SI-00846 110E035, Sh.1 H-1	**SI Accumulator Nitrogen Supply Control Valve** Safety Injection 2 A	GL 1 AO	C	C	C	N	A	ET(Q) BT-C(Q) FST-C(Q) PIT(2Y) SLT-1		
2SI-00866A 110E035, Sh.1 F-1	**SI Pump 2P-15A Discharge to RCS Cold Leg Isolation Valve** Safety Injection 2 B	GA 4 MO	O	OC	AI	A	A	ET(Q) BT-C(Q) BT-O(Q) PIT(2Y)		
2SI-00866B 110E035, Sh.1 F-1	**SI Pump 2P-15B Discharge to RCS Cold Leg and Core Deluge Isolation Valve** Safety Injection 2 B	GA 4 MO	O	OC	AI	A	A	ET(Q) BT-C(Q) BT-O(Q) PIT(2Y)		
2SI-00867A 110E035, Sh.1 F-9	**SI Loop A Cold Leg Injection Check Valve** Safety Injection 1 AC	CK 10 SA	C	OC	N/A	A	A	CV-PO(CS) CV-C(CS) INSP SLT-2	ROJ-24 ROJ-24 VRR-01	

VALVE NO / PID NO / COORD	VALVE DESCRIPTION / SYSTEM NAME / Code: Class Cat	VALVE Type / Size (In.) / Actuator	POSITIONS Normal	Safety	Failsafe	ACTIVE-PASSIVE Open A/I/P/N	Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
2SI-00867B *110E035, Sh.1* *C-9*	**SI Loop B Cold Leg Injection Check Valve** *Safety Injection* *1 AC*	*CK* *10* *SA*	*C*	*OC*	*N/A*	*A*	*A*	CV-PO(CS) CV-C(CS) CV-O(R) SLT-2	ROJ-23 ROJ-23 ROJ-23	
2SI-00875A *110E035, Sh.1* *E-3*	**SI Pump P-15B Discharge to SI Test Line Check Valve** *Safety Injection* *2 C*	*CK* *0.75* *SA*	*C*	*OC*	*N/A*	*A*	*A*	CV-PO(CS) CV-C(R)	ROJ-27 ROJ-27	
2SI-00875B *110E035, Sh.1* *E-3*	**SI Pump P-15A Discharge to SI Test Line Check Valve** *Safety Injection* *2 C*	*CK* *0.75* *SA*	*C*	*OC*	*N/A*	*A*	*A*	CV-PO(CS) CV-C(R)	ROJ-27 ROJ-27	
2SI-00876A *110E035, Sh.2* *D-8*	**SI Pump P-15A Minimum Flow Line Manual Isolation Valve** *Safety Injection* *2 B*	*GL* *2* *MA*	*O*	*OC*	*N/A*	*I*	*A*	FSM(Q)		
2SI-00876B *110E035, Sh.2* *D-8*	**SI Pump P-15B Minimum Flow Line Manual Isolation Valve** *Safety Injection* *2 B*	*GL* *2* *MA*	*O*	*OC*	*N/A*	*I*	*A*	FSM(Q)		

VALVE NO PID NO COORD	VALVE DESCRIPTION SYSTEM NAME Code: Class Cat	VALVE Type Size (In.) Actuator	POSITIONS Normal	 Safety	 Failsafe	ACTIVE-PASSIVE Open A/I/P/N	 Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
2SI-00878A 110E035, Sh.1 B-7	**SI Pump P-15B to RPV Injection Isolation Valve** Safety Injection 2 B	GL 2 MO	C	OC	AI	A	A	ET(Q) BT-C(Q) BT-O(Q) PIT(2Y)		
2SI-00878B 110E035, Sh.1 B-7	**SI Pump P-15A to Loop B Cold Leg Injection Isolation Valve** Safety Injection 2 B	GL 2 MO	O	O	AI	A	N	AET(Q) ABT-O(Q) APIT(2Y)		
2SI-00878C 110E035, Sh.1 E-7	**SI Pump P-15B to RPV Injection Isolation Valve** Safety Injection 2 B	GL 2 MO	C	OC	AI	A	A	ET(Q) BT-C(Q) BT-O(Q) PIT(2Y)		
2SI-00878D 110E035, Sh.1 F-7	**SI Pump P-15A to Loop A Cold Leg Injection Isolation Valve** Safety Injection 2 B	GL 2 MO	O	O	AI	A	N	AET(Q) ABT-O(Q) APIT(2Y)		
2SI-00879A 110E035, Sh.1 D-2	**SI Pump Test Line Manual Containment Isolation Valve** Safety Injection 2 A	GL 0.75 MA	C	C	N/A	N	P	SLT-1		

VALVE NO PID NO COORD	VALVE DESCRIPTION SYSTEM NAME Code: Class Cat	VALVE Type Size (In.) Actuator	POSITIONS Normal	 Safety	 Failsafe	ACTIVE-PASSIVE Open A/I/P/N	 Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
2SI-00879B 110E035, Sh.2 C-10	**SI Pump Test Line Manual Containment Isolation Valve** Safety Injection 2 A	GL 0.75 MA	C	C	N/A	N	P	SLT-1		
2SI-00887 110E035, Sh.1 E-2	**SI Test Line Relief Valve** Safety Injection 2 C	SRV 0.75 SA	C	OC	N/A	A	I	RVT(10Y)		
2SI-00889A 110E035, Sh.2 F-8	**SI Pump 2P-15A Discharge Check Valve** Safety Injection 2 C	CK 6 SA	C	OC	N/A	A	A	CV-O(Q) ACV-C(R)	 ROJ-22	
2SI-00889B 110E035, Sh.2 D-8	**SI Pump 2P-15B Discharge Check Valve** Safety Injection 2 C	CK 6 SA	C	OC	N/A	A	A	CV-O(Q) CV-C(R)	 ROJ-22	
2SI-00891A 110E035, Sh.2 D-8	**SI Pump 2P-15A Minimum Flow Check Valve** Safety Injection 2 C	CK 2 SA	C	O	N/A	A	N	CV-O(Q)		

VALVE NO / PID NO / COORD	VALVE DESCRIPTION / SYSTEM NAME / Code: Class Cat	VALVE Type / Size (In.) / Actuator	POSITIONS Normal	POSITIONS Safety	POSITIONS Failsafe	ACTIVE-PASSIVE Open A/I/P/N	ACTIVE-PASSIVE Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
2SI-00891B 110E035, Sh.2 D-8	**SI Pump 2P-15B Minimum Flow Check Valve** Safety Injection 2 C	CK 2 SA	C	O	N/A	A	N	CV-O(Q)		
2SI-00896A 110E035, Sh.2 F-6	**SI Pump P-15A Suction from RWST Isolation Valve** Safety Injection 2 A	GA 6 MO	O	OC	AI	I	A	ET(Q) BT-C(Q) SLT-6 PIT(2Y)		
2SI-00896B 110E035, Sh.2 D-6	**SI Pump P-15B Suction from RWST Isolation Valve** Safety Injection 2 A	GA 6 MO	O	OC	AI	I	A	ET(Q) BT-C(Q) SLT-6 PIT(2Y)		
2SI-00897A 110E035, Sh.2 E-2	**SI Test Line Return Valve (Series)** Safety Injection 2 A	GL 2 AO	O	OC	N/A	I	A	ET(CS) BT-C(CS) SLT-6 PIT(2Y)	CSJ-28 CSJ-28	
2SI-00897B 110E035, Sh.2 D-2	**SI Test Line Return Valve (Series)** Safety Injection 2 A	GL 2 AO	O	OC	N/A	I	A	ET(CS) BT-C(CS) SLT-6 PIT(2Y)	CSJ-28 CSJ-28	

VALVE NO PID NO COORD	VALVE DESCRIPTION SYSTEM NAME Code: Class Cat	VALVE Type Size (In.) Actuator	POSITIONS Normal	 Safety	 Failsafe	ACTIVE-PASSIVE Open A/I/P/N	 Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
2SI-00957 *110E035, Sh.1* *H-3*	**SI Accumulator Nitrogen Vent Control Valve** *Safety Injection* *2 N/A*	*GL* *1* *AO*	*C*	*O*	*C*	*A*	*N*	ET(Q) BT-O(Q) PIT (2Y)		

VALVE NO PID NO COORD	VALVE DESCRIPTION SYSTEM NAME Code: Class Cat	VALVE Type Size (In.) Actuator	POSITIONS Normal	 Safety	 Failsafe	ACTIVE-PASSIVE Open A/I/P/N	 Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
1SA-00017	**Service Air Supply to Containment Manual Isolation Valve (Otbd)**							SLT-1		
M-209, Sh. 2	*Service Air*	*GA* *4*	*C*	*C*	*N/A*	*N*	*P*			
F-8	*2 A*	*MA*								
1SA-00027	**Service Air Supply to Containment Manual Isolation Valve (Inbd)**							SLT-1		
M-209, Sh. 2	*Service Air*	*GA* *2*	*C*	*C*	*N/A*	*N*	*P*			
F-8	*2 A*	*MA*								
2SA-00017	**Service Air Supply to Containment Manual Isolation Valve (Otbd)**							SLT-1		
M-209, Sh. 2	*Service Air*	*GA* *4*	*C*	*C*	*N/A*	*N*	*P*			
F-3	*2 A*	*MA*								
2SA-00027	**Service Air Supply to Containment Manual Isolation Valve (Inbd)**							SLT-1		
M-209, Sh. 2	*Service Air*	*GA* *2*	*C*	*C*	*N/A*	*N*	*P*			
F-3	*2 A*	*MA*								

VALVE NO *PID NO* *COORD*	VALVE DESCRIPTION *SYSTEM NAME* *Code: Class Cat*	*VALVE* *Type* *Size (In.)* *Actuator*	*POSITIONS* *Normal*	 *Safety*	 *Failsafe*	*ACTIVE-PASSIVE* *Open A/I/P/N*	 *Close A/I/P/N*	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
0FP-00296A *M-208, Sh.2* *E-6*	**Fire Water to TDAFWP Cooling Water Supply Check Valve** *Service Water* *3 C*	*CK* *1.5* *SA*	*C*	*C*	*N/A*	*N*	*A*	CV-C(R)	ROJ-25	
0FP-00304A *M-208, Sh.2* *E-5*	**Fire Water to TDAFWP Cooling Water Supply Check Valve** *Service Water* *3 C*	*CK* *1.5* *SA*	*C*	*C*	*N/A*	*N*	*A*	CV-C(R)	ROJ-25	
0SW-00032A *M-207, Sh.1* *D-2*	**SW Pump P-32A Discharge Check Valve** *Service Water* *3 C*	*CK* *16* *SA*	*O*	*OC*	*N/A*	*A*	*A*	CV-O(Q) CV-C(Q)		
0SW-00032B *M-207, Sh.1* *D-2*	**SW Pump P-32B Discharge Check Valve** *Service Water* *3 C*	*CK* *6* *SA*	*O*	*OC*	*N/A*	*A*	*A*	CV-O(Q) CV-C(Q)		
0SW-00032C *M-207, Sh.1* *D-1*	**SW Pump P-32C Discharge Check Valve** *Service Water* *3 C*	*CK* *16* *SA*	*O*	*OC*	*N/A*	*A*	*A*	CV-O(Q) CV-C(Q)		

VALVE NO / *PID NO* / *COORD*	VALVE DESCRIPTION / *SYSTEM NAME* / *Code: Class Cat*	*VALVE* *Type* *Size (In.)* *Actuator*	*POSITIONS* *Normal*	*Safety*	*Failsafe*	*ACTIVE-PASSIVE* *Open A/I/P/N*	*Close A/I/P/N*	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
0SW-00032D *M-207, Sh.1* *E-2*	**SW Pump P-32D Discharge Check Valve** *Service Water* *3 C*	*CK* *16* *SA*	*O*	*OC*	*N/A*	*A*	*A*	CV-O(Q) CV-C(Q)		
0SW-00032E *M-207, Sh.1* *E-2*	**SW Pump P-32E Discharge Check Valve** *Service Water* *3 C*	*CK* *16* *SA*	*O*	*OC*	*N/A*	*A*	*A*	CV-O(Q) CV-C(Q)		
0SW-00032F *M-207, Sh.1* *E-1*	**SW Pump P-32F Discharge Check Valve** *Service Water* *3 C*	*CK* *16* *SA*	*O*	*OC*	*N/A*	*A*	*A*	CV-O(Q) CV-C(Q)		
0SW-00112A *M-207, Sh.1A* *G-9*	**SW to AFP 2P-29 Inlet Check** *Service Water* *3 C*	*CK* *1* *SA*	*C*	*O*	*N/A*	*A*	*N*	CV-PO(Q) INSP	ROJ-16	
0SW-00135A *M-207, Sh.1A* *C-9*	**SW to AFP 1P-29 Inlet Check** *Service Water* *3 C*	*CK* *1* *SA*	*C*	*O*	*N/A*	*A*	*N*	CV-PO(Q) INSP	ROJ-16	

VALVE NO / PID NO / COORD	VALVE DESCRIPTION / SYSTEM NAME / Code: Class Cat	VALVE Type / Size (In.) / Actuator	POSITIONS Normal	Safety	Failsafe	ACTIVE-PASSIVE Open A/I/P/N	Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
0SW-00315	**CC HX-12C Outlet Manual Isolation Valve**							FSM(CS)	CSJ-32	
M-207, Sh.3	Service Water	GL 12	C	O	N/A	A	N			
E-6	3 B	MA								
0SW-00360	**CC HX-12B Outlet Manual Isolation Valve**							FSM(CS)	CSJ-32	
M-207, Sh.3	Service Water	GL 12	C	O	N/A	A	N			
E-7	3 B	MA								
0SW-00396A	**HX-105A/B PAB Battery Room Cooler South Header Inlet Check**							CV-O(Q)		
M-207, Sh.3	Service Water	CK 2	O	O	N/A	A	N			
H-7	3 C	SA								
0SW-00397A	**HX-105A/B PAB Battery Room Cooler North Header Inlet Check**							CV-O(Q)		
M-207, Sh.3	Service Water	CK 2	O	O	N/A	A	N			
H-7	3 C	SA								
0SW-02816	**SW to Service Bldg. HVAC Supply Isolation Valve**							ET(Q) BT-C(Q)		
M-207, Sh.3	Service Water	A 6	O	C	AI	N	A	PIT(2Y)		
B-4	3 B	MO								

VALVE NO PID NO COORD	VALVE DESCRIPTION SYSTEM NAME Code: Class Cat	VALVE Type Size (In.) Actuator	POSITIONS Normal	 Safety	 Failsafe	ACTIVE-PASSIVE Open A/I/P/N	 Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
0SW-02817 M-2207, Sh.1 C-7	**SW to Water Treatment Area Supply Isolation Valve** Service Water 3 B	GA 6 MO	O	C	AI	N	A	ET(Q) BT-C(Q) PIT(2Y)		
0SW-02818 M-207, Sh.1A F-6	**SW to Cable Spreading Room A/C Condenser Supply Valve** Service Water 3 B	GA 3 MO	O	O	AI	A	N	AET(Q) ABT-O(Q) APIT(2Y)		
0SW-02819 M-207, Sh.1A D-6	**SW to Control Room A/C Condenser Supply Valve** Service Water 3 B	GA 3 MO	O	O	AI	A	N	AET(Q) ABT-O(Q) APIT(2Y)		
0SW-02838 M-207, Sh.1A D-2	**SW to EDG Heat Exchangers HX-55B1 & B2 Outlet Control Valve** Service Water 3 B	GL 4 AO	C	O	O	A	N	ET(Q) BT-O(Q) FST-O(Q) PIT(2Y)		
0SW-02839 M-207, Sh.1A C-2	**SW to EDG Heat Exchangers HX-55A1 & A2 Outlet Control Valve** Service Water 3 B	GL 4 AO	C	O	O	A	N	ET(Q) BT-O(Q) FST-O(Q) PIT(2Y)		

VALVE NO / PID NO / COORD	VALVE DESCRIPTION / SYSTEM NAME / Code: Class Cat	VALVE Type / Size (In.) / Actuator	POSITIONS Normal	Safety	Failsafe	ACTIVE-PASSIVE Open A/I/P/N	Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
0SW-02869	**SW North Header to West Header Isolation Valve**							AET(Q)		
								ABT-C(Q)		
M-207, Sh.1	*Service Water*	*BTF* *24*	*O*	*OC*	*AI*	*P*	*A*	APIT(2Y)		
H-10	*3 B*	*MO*								
0SW-02870	**SW South Header to West Header Isolation Valve**							AET(Q)		
								ABT-C(Q)		
M-207, Sh.1	*Service Water*	*BTF* *24*	*O*	*OC*	*AI*	*P*	*A*	APIT(2Y)		
A-9	*3 B*	*MO*								
0SW-02890	**North SW Header to South SW Supply Header Crossconnect Isolation Valve**							AET(Q)		
								ABT-C(Q)		
M-207, Sh.1	*Service Water*	*BTF* *24*	*O*	*OC*	*AI*	*P*	*A*	APIT(2Y)		
F-3	*3 B*	*MO*								
0SW-02891	**South SW Header to North SW Supply Header Crossconnect Isolation Valve**							AET(Q)		
								ABT-C(Q)		
M-207, Sh.1	*Service Water*	*BTF* *24*	*O*	*OC*	*AI*	*P*	*A*	APIT(2Y)		
E-3	*3 B*	*MO*								
0SW-02911	**SW North Header Zurn Strainer Auto Backwash Valves**							ET(Q)		
								BT-C(Q)		
M-207, Sh.1	*Service Water*	*GA*	*OC*	*C*	*C*	*N*	*A*	FST-C(Q)		
G-2	*3 B*	*AO*						PIT(2Y)		

VALVE NO / PID NO / COORD	VALVE DESCRIPTION / SYSTEM NAME / Code: Class Cat	VALVE Type / Size (In.) / Actuator	POSITIONS Normal	POSITIONS Safety	POSITIONS Failsafe	ACTIVE-PASSIVE Open A/I/P/N	ACTIVE-PASSIVE Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
0SW-02912 *M-207, Sh.1* *D-2*	**SW South Header Zurn Strainer Auto Backwash Valves** *Service Water* *3 B*	*GA* *AO*	*OC*	*C*	*C*	*N*	*A*	ET(Q) BT-C(Q) FST-C(Q) PIT(2Y)		
0SW-02930A *M-207, Sh.3* *B-7*	**SFP Heat Exchanger HX-13A Outlet Isolation Valve** *Service Water* *3 B*	*BTF* *8* *MO*	*O*	*OC*	*AI*	*A*	*A*	ET(Q) BT-C(Q) BT-O(Q) PIT(2Y)		
0SW-02930B *M-207, Sh.3* *C-7*	**SFP Heat Exchanger HX-13B Outlet Isolation Valve** *Service Water* *3 B*	*BTF* *8* *MO*	*O*	*OC*	*AI*	*A*	*A*	ET(Q) BT-C(Q) BT-O(Q) PIT(2Y)		
0SW-LW-61 *M-207, Sh.3* *G-4*	**SW to 1HX-150/2HX-150/HX-142/143 Inlet Temp Control Valve** *Service Water* *3 B*	*BTF* *8* *AO*	*O*	*C*	*C*	*N*	*A*	ET(Q) BT-C(Q) FST-C(Q) PIT(2Y)		
0SW-LW-62 *M-207, Sh.3* *G-3*	**SW from 1HX-150/2HX-150/HX-142/143 Outlet Temp Control Valve** *Service Water* *NC B*	*BTF* *8* *AO*	*O*	*C*	*C*	*N*	*A*	AET(Q) ABT-C(Q) AFST-C(Q) APIT(2Y)		

VALVE NO / PID NO / CCORD	VALVE DESCRIPTION / SYSTEM NAME / Code: Class Cat	VALVE Type / Size (In.) / Actuator	POSITIONS Normal	Safety	Failsafe	ACTIVE-PASSIVE Open A/I/P/N	Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
1MS-02090	**SW to TDAFWP 1P-29 Cooling Water Supply Isolation Valve**							ET(Q)		
M-207, Sh.1A	*Service Water*	*GA 0.75*	*C*	*O*	*O*	*A*	*N*	FST-O(Q) BT-O(Q)		
B-10	*3 B*	*SO*						PIT(2Y)		
1SW-00015A	**Containment Accident Recirc Fan Cooler HX-15A1-A8 Inlet Check**							CV-O(Q)		
M-207, Sh.4	*Service Water*	*CK 8*	*O*	*O*	*N/A*	*A*	*N*			
C-9	*3 C*	*SA*								
1SW-00015B	**Containment Accident Recirc Fan Cooler HX-15B1-B8 Inlet Check**							CV-O(Q)		
M-207, Sh.4	*Service Water*	*CK 8*	*O*	*O*	*N/A*	*A*	*N*			
C-3	*3 C*	*SA*								
1SW-00015C	**Containment Accident Recirc Fan Cooler HX-15C1-C8 Inlet Check**							CV-O(Q)		
M-207, Sh.4	*Service Water*	*CK 8*	*O*	*O*	*N/A*	*A*	*N*			
C-7	*3 C*	*SA*								
1SW-00015D	**Containment Accident Recirc Fan Cooler HX-15D1-D8 Inlet Check**							CV-O(Q)		
M-207, Sh.4	*Service Water*	*CK 8*	*O*	*O*	*N/A*	*A*	*N*			
C-5	*3 C*	*SA*								

VALVE NO PID NO COORD	VALVE DESCRIPTION SYSTEM NAME Code: Class Cat	VALVE Type Size (In.) Actuator	POSITIONS Normal	 Safety	 Failsafe	ACTIVE-PASSIVE Open A/I/P/N	 Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
1SW-00182	**Containment Recirc Heat Exchanger HX-15C SW Outlet Manual Isolation**							FSM(CS)	CSJ-31	
M-207, Sh.4 G-7	Service Water 3 B	GL 8 MA	TH	OC	N/A	I	A			
1SW-00183	**Containment Recirc Heat Exchanger HX-15C SW Return to RE-216**							FSM(CS)	CSJ-31	
M-207, Sh.4 G-7	Service Water 3 B	GA 0.5 MA	O	C	N/A	N	A			
1SW-00185	**Containment Recirc Heat Exchanger HX-15A SW Outlet Manual Isolation**							FSM(CS)	CSJ-31	
M-207, Sh.4 G-9	Service Water 3 B	GL 8 MA	TH	OC	N/A	I	A			
1SW-00186	**Containment Recirc Heat Exchanger HX-15A SW Return to RE-216**							FSM(CS)	CSJ-31	
M-207, Sh.4 G-8	Service Water 3 B	GA 0.5 MA	O	C	N/A	N	A			
1SW-00188	**Containment Recirc Heat Exchanger HX-15B SW Outlet Manual Isolation**							FSM(CS)	CSJ-31	
M-207, Sh.4 G-3	Service Water 3 B	GL 8 MA	TH	OC	N/A	I	A			

VALVE NO / PID NO / COORD	VALVE DESCRIPTION / SYSTEM NAME / Code: Class Cat	VALVE Type / Size (In.) / Actuator	POSITIONS Normal	Safety	Failsafe	ACTIVE-PASSIVE Open A/I/P/N	Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
1SW-00189	**Containment Recirc Heat Exchanger HX-15B SW Return to RE-216**							FSM(CS)	CSJ-31	
M-207, Sh.4	*Service Water*	*GA* *0.5*	*O*	*C*	*N/A*	*N*	*A*			
G-2	*3 B*	*MA*								
1SW-00191	**Containment Recirc Heat Exchanger HX-15D SW Outlet Manual Isolation**							FSM(CS)	CSJ-31	
M-207, Sh.4	*Service Water*	*GL* *8*	*TH*	*OC*	*N/A*	*I*	*A*			
G-5	*3 B*	*MA*								
1SW-00192	**Containment Recirc Heat Exchanger HX-15D SW Return to RE-216**							FSM(CS)	CSJ-31	
M-207, Sh.4	*Service Water*	*GA* *0.5*	*O*	*C*	*N/A*	*N*	*A*			
G-4	*3 B*	*MA*								
1SW-00203	**Cavity Cooling Coil HX-30A SW Inlet Isolation**							FSM(CS)	CSJ-31	
M-207, Sh.4	*Service Water*	*GA* *2*	*O*	*C*	*N/A*	*N*	*A*			
B-1	*3 B*	*MA*								
1SW-00205	**Cavity Cooling Coil HX-30B SW Inlet Isolation**							FSM(CS)	CSJ-31	
M-207, Sh.4	*Service Water*	*GA* *2*	*O*	*C*	*N/A*	*N*	*A*			
B-1	*3 B*	*MA*								

VALVE NO PID NO COORD	VALVE DESCRIPTION SYSTEM NAME Code: Class Cat	VALVE Type Size (In.) Actuator	POSITIONS Normal	 Safety	 Failsafe	ACTIVE-PASSIVE Open A/I/P/N	 Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
1SW-00207	**Containment Recirc Heat Exchanger HX-15D SW Inlet Isolation**							FSM(CS)	CSJ-31	
M-207, Sh.4	*Service Water*	*GA* *8*	*O*	*OC*	*N/A*	*I*	*A*			
B-5	*3 B*	*MA*								
1SW-00209	**Containment Recirc Heat Exchanger HX-15C SW Inlet Isolation**							FSM(CS)	CSJ-31	
M-207, Sh.4	*Service Water*	*GA* *8*	*O*	*OC*	*N/A*	*I*	*A*			
B-7	*3 B*	*MA*								
1SW-00212	**Cavity Cooling Coil HX-30A SW Outlet Isolation**							FSM(CS)	CSJ-31	
M-207, Sh.4	*Service Water*	*GL* *2*	*O*	*C*	*N/A*	*N*	*A*			
F-2	*3 B*	*MA*								
1SW-00214	**Cavity Cooling Coil HX-30B SW Outlet Isolation**							FSM(CS)	CSJ-31	
M-207, Sh.4	*Service Water*	*GL* *2*	*O*	*C*	*N/A*	*N*	*A*			
F-1	*3 B*	*MA*								
1SW-00215	**Containment Recirc Heat Exchanger HX-15B SW Inlet Isolation**							FSM(CS)	CSJ-31	
M-207, Sh.4	*Service Water*	*GA* *8*	*O*	*OC*	*N/A*	*I*	*A*			
B-3	*3 B*	*MA*								

VALVE NO PID NO COORD	VALVE DESCRIPTION SYSTEM NAME Code: Class Cat	VALVE Type Size (In.) Actuator	POSITIONS Normal	 Safety	 Failsafe	ACTIVE-PASSIVE Open A/I/P/N	 Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
1SW-00217 M-207, Sh.4 B-9	**Containment Recirc Heat Exchanger HX-15A SW Inlet Isolation** Service Water 3 B	GA 8 MA	O	OC	N/A	I	A	FSM(CS)	CSJ-31	
1SW-00322 M-207, Sh.3 E-9	**CC HX-12A Outlet Manual Isolation Valve** Service Water 3 B	GL 12 MA	C	O	N/A	A	N	FSM(CS)	CSJ-32	
1SW-02880 M-207, Sh.2 G-5	**Unit 1 Turbine Bldg Service Inlet Isolation** Service Water 3 B	GA 6 MO	O	C	AI	N	A	ET(CS) BT-C(CS) PIT(2Y)	CSJ-30 CSJ-30	
1SW-02907 M-207, Sh.4 G-7	**HX-15A-D Containment Recirc HX Emergency FCV** Service Water NC B	GA 12 MO	C	O	AI	A	N	AET(Q) ABT-O(Q) APIT(2Y)		
1SW-02908 M-207, Sh.4 G-8	**HX-15A-D Containment Recirc HX Emergency FCV** Service Water NC B	GA 12 MO	C	O	AI	A	N	AET(Q) ABT-O(Q) APIT(2Y)		

VALVE NO PID NO COORD	VALVE DESCRIPTION SYSTEM NAME Code: Class Cat	VALVE Type Size (In.) Actuator	POSITIONS Normal	 Safety	 Failsafe	ACTIVE-PASSIVE Open A/I/P/N	 Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
1SW-02959	**Cont Recirc Heat Exchanger HX-15A Outlet Relief**							RVT(10Y)		
M-207, Sh.4	*Service Water*	*SRV* *1* *SA*	*C*	*OC*	*N/A*	*A*	*I*			
F-9	*3 C*									
1SW-02963	**Cont Recirc Heat Exchanger HX-15B Outlet Relief**							RVT(10Y)		
M-207, Sh.4	*Service Water*	*SRV* *1* *SA*	*C*	*OC*	*N/A*	*A*	*I*			
F-3	*3 C*									
1SW-02967	**Cont Recirc Heat Exchanger HX-15C Outlet Relief**							RVT(10Y)		
M-207, Sh.4	*Service Water*	*SRV* *1* *SA*	*C*	*OC*	*N/A*	*A*	*I*			
F-7	*3 C*									
1SW-02971	**Cont Recirc Heat Exchanger HX-15D Outlet Relief**							RVT(10Y)		
M-207, Sh.4	*Service Water*	*SRV* *1* *SA*	*C*	*OC*	*N/A*	*A*	*I*			
F-5	*3 C*									
1SW-04300	**Cavity Cooling Coil HX-30A Outlet Relief**							RVT(10Y)		
M-207, Sh.4	*Service Water*	*SRV* *1* *SA*	*C*	*OC*	*N/A*	*A*	*I*			
F-2	*3 C*									

VALVE NO / PID NO / COORD	VALVE DESCRIPTION / SYSTEM NAME / Code: Class Cat	VALVE Type / Size (In.) / Actuator	POSITIONS Normal	POSITIONS Safety	POSITIONS Failsafe	ACTIVE-PASSIVE Open A/I/P/N	ACTIVE-PASSIVE Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
1SW-04301	**Cavity Cooling Coil HX-30B Outlet Relief**							RVT(10Y)		
M-207, Sh.4	*Service Water*	*SRV*	*C*	*OC*	*N/A*	*A*	*I*			
F-1	*3 C*	*1*								
		SA								
2MS-02090	**SW to TDAFWP 2P-29 Cooling Water Supply Isolation Valve**							ET(Q)		
M-207, Sh.1A	*Service Water*	*GA*	*C*	*O*	*O*	*A*	*N*	FST-O(Q)		
G-10	*3 B*	*0.75*						BT-O(Q)		
		SO						PIT(2Y)		
2SW-00015A	**Containment Accident Recirc Fan Cooler HX-15A1-A8 Inlet Check**							CV-O(Q)		
M-2207, Sh.2	*Service Water*	*CK*	*O*	*O*	*N/A*	*A*	*N*			
G-5	*3 C*	*8*								
		SA								
2SW-00015B	**Containment Accident Recirc Fan Cooler HX-15B1-B8 Inlet Check**							CV-O(Q)		
M-2207, Sh.2	*Service Water*	*CK*	*O*	*O*	*N/A*	*A*	*N*			
G-8	*3 C*	*8*								
		SA								
2SW-00015C	**Containment Accident Recirc Fan Cooler HX-15C1-C8 Inlet Check**							CV-O(Q)		
M-2207, Sh.2	*Service Water*	*CK*	*O*	*O*	*N/A*	*A*	*N*			
G-3	*3 C*	*8*								
		SA								

VALVE NO PID NO COORD	VALVE DESCRIPTION SYSTEM NAME Code: Class Cat	VALVE Type Size (In.) Actuator	POSITIONS Normal	 Safety	 Failsafe	ACTIVE-PASSIVE Open A/I/P/N	 Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
2SW-00015D	**Containment Accident Recirc Fan Cooler HX-15D1-D8 Inlet Check**							CV-O(Q)		
M-2207, Sh.2	*Service Water*	*CK* *8*	*O*	*O*	*N/A*	*A*	*N*			
G-10	*3 C*	*SA*								
2SW-00228	**Containment Recirc Heat Exchanger HX-15C SW Inlet Isolation**							FSM(CS)	CSJ-31	
M-2207, Sh.2	*Service Water*	*GA* *8*	*O*	*OC*	*N/A*	*I*	*A*			
H-8	*3 B*	*MA*								
2SW-00230	**Containment Recirc Heat Exchanger HX-15D SW Inlet Isolation**							FSM(CS)	CSJ-31	
M-2207, Sh.2	*Service Water*	*GA* *8*	*O*	*OC*	*N/A*	*I*	*A*			
H-5	*3 B*	*MA*								
2SW-00232	**Cavity Cooling Coil HX-30A SW Outlet Isolation**							FSM(CS)	CSJ-31	
M-2207, Sh.2	*Service Water*	*GL* *2*	*O*	*C*	*N/A*	*N*	*A*			
D-1	*3 B*	*MA*								
2SW-00233	**Cavity Cooling Coil HX-30A SW Inlet Isolation**							FSM(CS)	CSJ-31	
M-2207, Sh.2	*Service Water*	*GA* *2*	*O*	*C*	*N/A*	*N*	*A*			
H-2	*3 B*	*MA*								

VALVE NO *PID NO* *COORD*	VALVE DESCRIPTION *SYSTEM NAME* *Code: Class Cat*	*VALVE* *Type* *Size (In.)* *Actuator*	*POSITIONS* *Normal*	 *Safety*	 *Failsafe*	*ACTIVE-PASSIVE* *Open* *A/I/P/N*	 *Close* *A/I/P/N*	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
2SW-00236 *M-2207, Sh.2* *D-2*	**Cavity Cooling Coil HX-30B SW Outlet Isolation** *Service Water* *3 B*	*GL* *2* *MA*	*O*	*C*	*N/A*	*N*	*A*	FSM(CS)	CSJ-31	
2SW-00237 *M-2207, Sh.2* *H-1*	**Cavity Cooling Coil HX-30B SW Inlet Isolation** *Service Water* *3 B*	*GA* *2* *MA*	*O*	*C*	*N/A*	*N*	*A*	FSM(CS)	CSJ-31	
2SW-00248 *M-2207, Sh.2* *H-10*	**Containment Recirc Heat Exchanger HX-15A SW Inlet Isolation** *Service Water* *3 B*	*GA* *8* *MA*	*O*	*OC*	*N/A*	*I*	*A*	FSM(CS)	CSJ-31	
2SW-00250 *M-2207, Sh.2* *H-3*	**Containment Recirc Heat Exchanger HX-15B SW Inlet Isolation** *Service Water* *3 B*	*GA* *8* *MA*	*O*	*OC*	*N/A*	*I*	*A*	FSM(CS)	CSJ-31	
2SW-00253 *M-2207, Sh.2* *C-7*	**Containment Recirc Heat Exchanger HX-15C SW Return to RE-216** *Service Water* *3 B*	*GA* *0.5* *MA*	*O*	*C*	*N/A*	*N*	*A*	FSM(CS)	CSJ-31	

VALVE NO PID NO COORD	VALVE DESCRIPTION SYSTEM NAME Code: Class Cat	VALVE Type Size (In.) Actuator	POSITIONS Normal	 Safety	 Failsafe	ACTIVE-PASSIVE Open A/I/P/N	 Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
2SW-00255	**Containment Recirc Heat Exchanger HX-15C SW Outlet Manual Isolation**							FSM(CS)	CSJ-31	
M-2207, Sh.2	*Service Water*	*GL*	*TH*	*OC*	*N/A*	*I*	*A*			
C-7	*3 B*	*8* *MA*								
2SW-00256	**Containment Recirc Heat Exchanger HX-15A SW Return to RE-216**							FSM(CS)	CSJ-31	
M-2207, Sh.2	*Service Water*	*GA*	*O*	*C*	*N/A*	*N*	*A*			
C-9	*3 B*	*0.5* *MA*								
2SW-00258	**Containment Recirc Heat Exchanger HX-15A SW Outlet Manual Isolation**							FSM(CS)	CSJ-31	
M-2207, Sh.2	*Service Water*	*GL*	*TH*	*OC*	*N/A*	*I*	*A*			
C-9	*3 B*	*8* *MA*								
2SW-00259	**Containment Recirc Heat Exchanger HX-15B SW Return to RE-216**							FSM(CS)	CSJ-31	
M-2207, Sh.2	*Service Water*	*GA*	*O*	*C*	*N/A*	*N*	*A*			
C-3	*3 B*	*0.5* *MA*								
2SW-00261	**Containment Recirc Heat Exchanger HX-15B SW Outlet Manual Isolation**							FSM(CS)	CSJ-31	
M-2207, Sh.2	*Service Water*	*GL*	*TH*	*OC*	*N/A*	*I*	*A*			
C-3	*3 B*	*8* *MA*								

VALVE NO / PID NO / COORD	VALVE DESCRIPTION / SYSTEM NAME / Code: Class Cat	VALVE Type / Size (In.) / Actuator	POSITIONS Normal	Safety	Failsafe	ACTIVE-PASSIVE Open A/I/P/N	Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
2SW-00262	**Containment Recirc Heat Exchanger HX-15D SW Return to RE-216**							FSM(CS)	CSJ-31	
M-2207, Sh.2	*Service Water*	*GA*	*O*	*C*	*N/A*	*N*	*A*			
C-5	*3 B*	*0.5*								
		MA								
2SW-00264	**Containment Recirc Heat Exchanger HX-15D SW Outlet Manual Isolation**							FSM(CS)	CSJ-31	
M-2207, Sh.2	*Service Water*	*GL*	*TH*	*OC*	*N/A*	*I*	*A*			
C-5	*3 B*	*8*								
		MA								
2SW-00307	**CC HX-12D Outlet Manual Isolation Valve**							FSM(CS)	CSJ-32	
M-207, Sh.3	*Service Water*	*GL*	*C*	*O*	*N/A*	*A*	*N*			
E-6	*3 B*	*12*								
		MA								
2SW-02880	**Unit 2 Turbine Bldg Service Inlet Isolation**							ET(CS)	CSJ-30	
								BT-C(CS)	CSJ-30	
M-2207, Sh.1	*Service Water*	*GA*	*O*	*C*	*AI*	*N*	*A*	PIT(2Y)		
C-6	*3 B*	*6*								
		MO								
2SW-02907	**HX-15A-D Containment Recirc HX Emergency FCV**							AET(Q)		
								ABT-O(Q)		
M-2207, Sh.2	*Service Water*	*GA*	*C*	*O*	*AI*	*A*	*N*	APIT(2Y)		
B-9	*NC B*	*12*								
		MO								

VALVE NO PID NO COORD	VALVE DESCRIPTION SYSTEM NAME Code: Class Cat	VALVE Type Size (In.) Actuator	POSITIONS Normal	 Safety	 Failsafe	ACTIVE-PASSIVE Open A/I/P/N	 Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
2SW-02908 M-2207, Sh.2 B-8	HX-15A-D Containment Recirc HX Emergency FCV Service Water NC B	GA 12 MO	C	O	AI	A	N	AET(Q) ABT-O(Q) APIT(2Y)		
2SW-02959 M-2207, Sh.2 D-9	Cont R^circ Heat Exchanger HX-15A Outlet Relief Service Water 3 C	SRV 1 SA	C	OC	N/A	A	I	RVT(10Y)		
2SW-02963 M-2207, Sh.2 D-3	Cont Recirc Heat Exchanger HX-15B Outlet Relief Service Water 3 C	SRV 1 SA	C	OC	N/A	A	I	RVT(10Y)		
2SW-02967 M-2207, Sh.2 D-7	Cont Recirc Heat Exchanger HX-15C Outlet Relief Service Water 3 C	SRV 1 SA	C	OC	N/A	A	I	RVT(10Y)		
2SW-02971 M-2207, Sh.2 D-5	Cont Recirc Heat Exchanger HX-15D Outlet Relief Service Water 3 C	SRV 1 SA	C	OC	N/A	A	I	RVT(10Y)		

VALVE NO *PID NO* *COORD*	VALVE DESCRIPTION *SYSTEM NAME* *Code: Class Cat*	*VALVE* *Type* *Size (In.)* *Actuator*	*POSITIONS* *Normal*	 *Safety*	 *Failsafe*	*ACTIVE-PASSIVE* *Open* *A/I/P/N*	 *Close* *A/I/P/N*	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
2SW-04300 *M-2207, Sh.2* *D-2*	**Cavity Cooling Coil HX-30A Outlet Relief** *Service Water* *3 C*	*SRV* *1* *SA*	*C*	*OC*	*N/A*	*A*	*I*	RVT(10Y)		
2SW-04301 *M-2207, Sh.2* *D-1*	**Cavity Cooling Coil HX-30B Outlet Relief** *Service Water* *3 C*	*SRV* *1* *SA*	*C*	*OC*	*N/A*	*A*	*I*	RVT(10Y)		

VALVE NO / PID NO / COORD	VALVE DESCRIPTION / SYSTEM NAME / Code: Class Cat	VALVE Type / Size (In.) / Actuator	POSITIONS Normal	Safety	Failsafe	ACTIVE-PASSIVE Open A/I/P/N	Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
0SF-00009A	**P-12A SFP Cooling Pump Discharge Check**							CV-O(Q) CV-C(Q)		
110E018,Sh.4	*Spent Fuel Pool Cooling*	*CK* *8*	*C*	*OC*	*N/A*	*A*	*A*			
E-6	*3 C*	*SA*								
0SF-00010A	**P-12B SFP Cooling Pump Discharge Check**							CV-O(Q) CV-C(Q)		
110E018,Sh.4	*Spent Fuel Pool Cooling*	*CK* *8*	*C*	*OC*	*N/A*	*A*	*A*			
E-6	*3 C*	*SA*								
0SF-00021	**HX-13A SFP HX Outlet Manual Isolation**							FSM(Q)		
110E018,Sh.4	*Spent Fuel Pool Cooling*	*GA* *8*	*O*	*OC*	*N/A*	*A*	*A*			
G-4	*3 B*	*MA*								
0SF-00022	**HX-13B SFP HX Outlet Manual Isolation**							FSM(Q)		
110E018,Sh.4	*Spent Fuel Pool Cooling*	*GA* *8*	*O*	*OC*	*N/A*	*A*	*A*			
F-4	*3 B*	*MA*								
0SF-00027	**P-12A/B SFP Cooling Pump to U-6 SFP Demineralizer Manual Isolation**							FSM(Q)		
110E018,Sh.4	*Spent Fuel Pool Cooling*	*GA* *2*	*O*	*C*	*N/A*	*N*	*A*			
F-8	*3 B*	*MA*								

VALVE NO *PID NO* *COORD*	VALVE DESCRIPTION *SYSTEM NAME* *Code: Class Cat*	*VALVE* *Type* *Size (In.)* *Actuator*	*POSITIONS* *Normal*	 *Safety*	 *Failsafe*	*ACTIVE-PASSIVE* *Open* *A/I/P/N*	 *Close* *A/I/P/N*	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
0SF-00028	**F-6 SFP Filter Return to Spent Fuel Pool Manual Isolation**							FSM(Q)		
110E018,Sh.4 *G-3*	*Spent Fuel Pool Cooling* *3 B*	*GA* *2* *MA*	*O*	*C*	*N/A*	*N*	*A*			

VALVE NO PID NO COORD	VALVE DESCRIPTION SYSTEM NAME Code: Class Cat	VALVE Type Size (In.) Actuator	POSITIONS Normal	 Safety	 Failsafe	ACTIVE-PASSIVE Open A/I/P/N	 Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
1SF-00816 684J971, Sh.1A D-8	**RCDT to Refueling Water Circulating Pump P-33 Manual Isolation** Waste Disposal System 2 A	DI 2 MA	C	C	N/A	N	P	SLT-1		
1WG-01786 684J972, Sh.1 C-8	**RCDT Vent Header Isolation Valve** Waste Disposal System 2 A	DI 1 AO	O	C	C	N	A	ET(Q) BT-C(Q) FST-C(Q) PIT(2Y) SLT-1		
1WG-01787 684J972, Sh.1 D-8	**RCDT Vent Header Isolation Valve** Waste Disposal System 2 A	DI 1 AO	O	C	C	N	A	ET(Q) BT-C(Q) FST-C(Q) PIT(2Y) SLT-1		
1WG-01788 684J972, Sh.1 B-8	**RCDT Sample To Gas Analyzer Isolation Valve** Waste Disposal System 2 A	DI 0.75 AO	C	C	C	N	A	ET(Q) BT-C(Q) FST-C(Q) PIT(2Y) SLT-1		
1WG-01789 684J972, Sh.1 B-8	**RCDT Sample To Gas Analyzer Isolation Valve** Waste Disposal System 2 A	DI 0.75 AO	C	C	C	N	A	ET(Q) BT-C(Q) FST-C(Q) PIT(2Y) SLT-1		

VALVE NO PID NO COORD	VALVE DESCRIPTION SYSTEM NAME Code: Class Cat	VALVE Type Size (In.) Actuator	POSITIONS Normal	 Safety	 Failsafe	ACTIVE-PASSIVE Open A/I/P/N	 Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
1WL-01003A *684J971, Sh.1A* *D-7*	**P-18 RCDT Pump Suction Isolation Valve** *Waste Disposal System* *2 A*	*DI* *3* *AO*	*C*	*C*	*C*	*N*	*A*	ET(Q) BT-C(Q) FST-C(Q) PIT(2Y) SLT-1		
1WL-01003B *684J971, Sh.1A* *B-7*	**P-66 RCDT Pump Suction Isolation Valve** *Waste Disposal System* *2 A*	*DI* *3* *AO*	*C*	*C*	*C*	*N*	*A*	ET(Q) BT-C(Q) FST-C(Q) PIT(2Y) SLT-1		
1WL-01698 *684J971, Sh.1A* *D-7*	**RCDT Drain to Auxiliary Building Sump Isolation Valve** *Waste Disposal System* *2 A*	*DI* *2* *AO*	*C*	*C*	*C*	*N*	*A*	ET(Q) BT-C(Q) FST-C(Q) PIT(2Y) SLT-1		
1WL-01721 *684J971, Sh.1A* *C-8*	**RCDT Pumps' Suction Control Valve** *Waste Disposal System* *2 A*	*DI* *3* *AO*	*O*	*C*	*C*	*N*	*A*	ET(Q) BT-C(Q) FST-C(Q) PIT(2Y) SLT-1		
1WL-01723 *684J971, Sh.1A* *B-8*	**Sump A Drain To Aux Bldg Sump Isolation Valve** *Waste Disposal System* *2 A*	*DI* *3* *AO*	*C*	*C*	*C*	*N*	*A*	ET(Q) BT-C(Q) FST-C(Q) PIT(2Y) SLT-1		

VALVE NO / PID NO / COORD	VALVE DESCRIPTION / SYSTEM NAME / Code: Class Cat	VALVE Type / Size (In.) / Actuator	POSITIONS Normal	Safety	Failsafe	ACTIVE-PASSIVE Open A/I/P/N	Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
1WL-01728 684J971, Sh.1A B-8	**Sump A Drain To Aux Bldg Sump Isolation Valve** Waste Disposal System 2 A	DI 3 AO	C	C	C	N	A	ET(Q) BT-C(Q) FST-C(Q) PIT(2Y) SLT-1		
2SF-00816 684J971, Sh.1A D-8	**RCDT to Refueling Water Circulating Pump P-33 Manual Isolation** Waste Disposal System 2 A	DI 2 MA	C	C	N/A	N	P	SLT-1		
2WG-01786 684J972, Sh.1 C-10	**RCDT Vent Header Isolation Valve** Waste Disposal System 2 A	DI 1 AO	O	C	C	N	A	ET(Q) BT-C(Q) FST-C(Q) PIT(2Y) SLT-1		
2WG-01787 684J972, Sh.1 D-10	**RCDT Vent Header Isolation Valve** Waste Disposal System 2 A	DI 1 AO	O	C	C	N	A	ET(Q) BT-C(Q) FST-C(Q) PIT(2Y) SLT-1		
2WG-01788 684J972, Sh.1 B-9	**RCDT Sample To Gas Analyzer Isolation Valve** Waste Disposal System 2 A	DI 0.75 AO	C	C	C	N	A	ET(Q) BT-C(Q) FST-C(Q) PIT(2Y) SLT-1		

VALVE NO *PID NO* *COORD*	VALVE DESCRIPTION *SYSTEM NAME* *Code: Class Cat*	*VALVE* *Type* *Size (In.)* *Actuator*	*POSITIONS* *Normal*	 *Safety*	 *Failsafe*	*ACTIVE-PASSIVE* *Open* *A/I/P/N*	 *Close* *A/I/P/N*	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
2WG-01789 *684J972, Sh.1* *B-9*	**RCDT Sample To Gas Analyzer Isolation Valve** *Waste Disposal System* *2 A*	*DI* *0.75* *AO*	*C*	*C*	*C*	*N*	*A*	ET(Q) BT-C(Q) FST-C(Q) PIT(2Y) SLT-1		
2WL-01003A *684J971, Sh.1A* *B-7*	**P-18 RCDT Pump Suction Isolation Valve** *Waste Disposal System* *2 A*	*DI* *3* *AO*	*C*	*C*	*C*	*N*	*A*	ET(Q) BT-C(Q) FST-C(Q) PIT(2Y) SLT-1		
2WL-01003B *684J971, Sh.1A* *D-7*	**P-66 RCDT Pump Suction Isolation Valve** *Waste Disposal System* *2 A*	*DI* *3* *AO*	*C*	*C*	*C*	*N*	*A*	ET(Q) BT-C(Q) FST-C(Q) PIT(2Y) SLT-1		
2WL-01698 *684J971, Sh.1A* *D-7*	**RCDT Drain to Auxiliary Building Sump Isolation Valve** *Waste Disposal System* *2 A*	*DI* *2* *AO*	*C*	*C*	*C*	*N*	*A*	ET(Q) BT-C(Q) FST-C(Q) PIT(2Y) SLT-1		
2WL-01721 *684J971, Sh.1A* *C-8*	**RCDT Pumps' Suction Control Valve** *Waste Disposal System* *2 A*	*DI* *3* *AO*	*O*	*C*	*C*	*N*	*A*	ET(Q) BT-C(Q) FST-C(Q) PIT(2Y) SLT-1		

VALVE NO PID NO COORD	VALVE DESCRIPTION SYSTEM NAME Code: Class Cat	VALVE Type Size (In.) Actuator	POSITIONS Normal	 Safety	 Failsafe	ACTIVE-PASSIVE Open A/I/P/N	 Close A/I/P/N	REQ TEST/FREQ	TP/TJ/CSJ/ ROJ/ RR	REMARKS
2WL-01723 *684J971, Sh.1A* *B-8*	**Sump A Drain To Aux Bldg Sump Isolation Valve** *Waste Disposal System* *2 A*	*DI* *3* *AO*	*C*	*C*	*C*	*N*	*A*	ET(Q) BT-C(Q) FST-C(Q) PIT(2Y) SLT-1		
2WL-01728 *684J971, Sh.1A* *B-8*	**Sump A Drain To Aux Bldg Sump Isolation Valve** *Waste Disposal System* *2 A*	*DI* *3* *AO*	*C*	*C*	*C*	*N*	*A*	ET(Q) BT-C(Q) FST-C(Q) PIT(2Y) SLT-1		

APPENDIX A

PUMP RELIEF REQUESTS

PUMP RELIEF REQUEST - PRR-01

System: Various

Components:
1/2P-11A&B Component Cooling Water (CCW)
1/2P-10A&B Residual Heat Removal (RHR)
0P-12A&B Spent Fuel Pool Cooling (SFPC)

Code Class:
2 (CCW and RHR)
3 (SFPC)

Code Requirement: Instrument accuracy shall be within the limits of Table 1. Station instruments meeting these requirements shall be acceptable [OM-6, Para. 4.6.1.1]. These accuracy requirements also apply to the percent of total loop accuracy for a combination of instruments [OM-6, Table 1, Note].

The full scale range of each analog instrument shall not be greater than three times the reference value [OM-6, Para. 4.6.1.2(a)].

Basis For Relief: Various permanently installed pressure instruments have a full scale range that exceeds three times the reference value criteria that is specified by the Code. Although these instruments do not meet the Code requirements, they are able to provide the same or better indication accuracy as an instrument that is allowed by the Code, and ensure repeatability of test data.

For instruments to be in compliance with OM-6, two requirements must be satisfied. The first requirement states that flow and pressure instrumentation must be accurate to within ±2% of the full scale value; the second requirement states that the full scale range of each instrument shall be three times the reference value or less. Based on these requirements, a maximum indicated accuracy of ±6% can be calculated by comparing the actual tolerance of the instrument to the reference value being measured. An example of calculating indicated instrument accuracy is as follows.

Example:

The following example uses a pressure reference value of 20 psig and a pressure gauge with full scale range of 60 psig that is calibrated to ±2% of full scale.

Code Requirement:

3 x reference value (20 psig) = 60 psig
Instrument tolerance = ± 1.2 psig (±2% x 60 psig)

Indicated Accuracy:

±1.2 psig/20 psig x 100% = ±6%

The indicated accuracy for the instruments on the pumps listed are less than or equal to ±6% at the reference value. These accuracies are the same or better than those allowed by the Code. The use of the existing gauges is supported by NUREG-1482, Paragraph 5.5.1 when the combination of range and accuracy yields a reading at least equivalent to the reading achieved from instruments that meet the Code requirements. In addition, all the gauges identified serve as suction pressure gauges. Since suction pressure is subtracted from a much higher discharge pressure to determine differential pressure, the impact of the suction pressure error is minimized.

The following table specifies the instruments where this relief request applies. The indicated accuracy, which is less than ±6% in all cases, is determined by dividing the actual instrument calibration tolerance by the reference value multiplied by 100%.

Pump ID (Freq)	Instrument Number	PPCS Loop Accuracy	Parameter	Reference Value (Baseline)	Instr Range	Instr Accur (Loop)	Instr Cal Tolerance	Indicated Accur @ Ref. Value
1P-11A	1PI-692A	N/A	Suction Pressure	**16.2 psig**	**0-60 psig**	± 0.5%	± 0.3 psig	± 1.85%
1P-11B	1PI-692B	N/A	Suction Pressure	**16.6 psig**	**0-60 psig**	± 0.5%	± 0.3 psig	± 1.80%
2P-11A	2PI-692A	N/A	Suction Pressure	**16.0 psig**	**0-60 psig**	± 0.5%	± 0.3 psig	± 1.88%
2P-11B	2PI-692B	N/A	Suction Pressure	**16.7 psig**	**0-60 psig**	± 0.5%	± 0.3 psig	± 1.80%
1P-10A(CS)	1PI-653A	N/A	Suction Pressure	**7.4 psig**	**0-60 psig**	± 0.5%	± 0.3 psig	± 4.05%
1P-10B(CS)	1PI-653B	N/A	Suction Pressure	**8.5 psig**	**0-60 psig**	± 0.5%	± 0.3 psig	± 3.53%
2P-10A(CS)	2PI-653A	N/A	Suction Pressure	**15.5 psig**	**0-60 psig**	± 0.5%	± 0.3 psig	± 1.94%
2P-10B(CS)	2PI-653B	N/A	Suction Pressure	**17.3 psig**	**0-60 psig**	± 0.5%	± 0.3 psig	± 1.73%
0P-12A	PI-658A	N/A	Suction Pressure	**4.3 psig**	**0-15 psig**	± 1.00%	± 0.15 psig	± 3.49%
0P-12B	PI-658B	N/A	Suction Pressure	**4.4 psig**	**0-15 psig**	± 1.00%	± 0.15 psig	± 3.41%

Alternate Testing: The existing permanently installed pump instrumentation is acceptable provided the indicated accuracy is less than or equal to ±6% of the reference value. No alternate testing will be performed. Any change in the baseline reference value shall be determined acceptable providing the indicated accuracy of the new reference value does not exceed the range or indicated accuracy allowables of OM-6.

APPENDIX B

VALVE RELIEF REQUESTS

VALVE RELIEF REQUEST - VRR-01

System:	Safety Injection		
Valve(s):	1(2)SI-00842A&B	1(2)SI-867A	
Category:	AC	Code Class:	1

Function: These check valves are located in the safety injection line to the RCS Loop A and B cold legs from SI accumulators 1(2)T-34A&B. The valves perform an active safety function in the open direction and must be capable of opening to provide a flow path to the RCS for injection of SI accumulator contents. This function is dependent upon a reduction in RCS pressure prior to safety injection. These valves also perform an active safety function in the closed direction. The valves serve as ASME Class 1 to Class 2 pressure boundary isolation valves. As such, they perform a safety function to maintain the integrity of the RCS pressure boundary and to isolate RCS pressure from the lower pressure SI piping and components. Also, upon initiation of high head safety injection 1(2)SI-00842A&B must close to prevent safety injection flow from being diverted to the SI accumulator in lieu of the loop B cold leg.

Code Requirement: Check valves shall be exercised at least once every 3 months, except as provided by IWV-3522.

Basis For Relief: During normal operation, neither SI pump discharge pressure of 1500 psig nor accumulator pressure of 760 psig is sufficient to overcome RCS pressure. Therefore, full or partial stroke exercising during power operation is not possible.

During cold shutdown, partial or full stroke exercising via the SI pumps or SI accumulators is not permitted due to the potential of creating a low temperature overpressure condition.

A full stroke exercise test by injecting to the RCS could be possible during refueling when the reactor vessel head is removed, but the volume and flow rate required for the test could result in damage to the core internals. There is also the potential of forcing a nitrogen bubble into the RCS piping and refueling cavity resulting in possible safety implications, which makes this testing concept inadvisable. The RHR system serves as the qualified means of heat removal when fuel is in the vessel. Rendering both trains of RHR inoperable would require a complete core off load.

Alternate Testing: At a minimum for these valves, partial open and closure exercise testing will be done at each refueling outage. In addition, partial open and closure exercise testing will be conducted at each cold shutdown which requires an Event V test. (re: T.S. 15.3.16)

Valves 1(2)SI-842A and 1(2)SI-867A will each be disassembled, inspected, and manually stroked once every six years, rotating the sequence of valves being inspected such that a different one is completed each time until all have been inspected and the sequence repeats. Should a failure be detected, the other valves for that unit (excluding SI-842B if the core is loaded) shall be disassembled and proper operation verified prior to completion of that outage. The opposite unit's two valves will be disassembled and inspected during that unit's next scheduled refueling outage.

Valves 1(2)SI-842B require a complete core off load in order to disassemble and inspect. All efforts will be made to disassemble, inspect, and manually stroke each valve every six years. However, typically this will be done concurrently with reactor vessel inspections which is required to be completed once every 120 months. Should a failure be detected, the other valves (SI-842A and SI-867A) for that unit shall be disassembled and proper operation verified prior to completion of the outage.

In the inspections which result from the detection of a failure, should an additional failure be detected, all remaining valves will be disassembled, inspected, and manually full stroke exercised. Valves associated with the unit in outage will be completed prior to the return of that unit to service, even if it requires an unscheduled core off load to be performed. Valves associated with the opposite unit will be completed during the next scheduled refueling outage, even if a complete core off load was not previously planned.

Basis for Extended Inspection Interval:

The NRC, in Generic Letter (GL) 89-04, Attachment 1, Position 2, requested information to support the extension of valve disassembly and inspection intervals of greater than once every six years. Within the last six years, each of the six valves identified in this request for relief and SI-867B have been disassembled, inspected, and manually exercised per the criteria in GL 89-04, Attachment 1, Position 2. To date no degradation of valve operability or performance has been noted in any disassembly and inspection performed on the valves. The following table lists each specific valve, the individual maintenance work request (MWR) under which the inspection was performed, and the completion date.

	UNIT 1	
SI-00842A	WO 45881	4/14/93
	WO 890172	4/11/90
	WO 872759	4/14/88
SI-00842B	WO 45639	4/14/93
	WO 890174	4/21/90

SI-00867A	WO 9703899	4/8/98
	WO 3637	5/1/90
	WO 890176	4/24/90
	WO 872755	4/15/88
SI-00867B	WO 9700761	Spring 97*
	OA 8739	Spring 96*
	OA 8739	Spring 95*
	OA 8739	Spring 94*
	WO 890178	4/21/90
	UNIT 2	
SI-00842A	WO 9510056	10/17/95
	WO 890173	10/5/89
	WO 872760	10/18/87
SI-00842B	WO 9510057	10/17/95
	WO 890175	11/4/89
SI-00867A	WO 9510060	10/21/95
	WO 890177	10/5/89
	WO 872753	10/20/87
SI-00867B	WO 9610739	Fall 96*
	OA 8739	Fall 95*
	OA 8739	Fall 94*
	WO 50730	10/8/93
	WO 890179	11/3/89

*Full Flow Test

An industry wide search, performed January 2, 1998, utilizing the Nuclear Plant Reliability Data System (NPRDS- a component maintenance/failure database managed by INPO) on similar valves also indicated no failures, although leakage through the seat was reported in 34 instances, including 3 instances at Point Beach. Allowable leakage values are given in TS Table 15.3.16-1.

The request to provide basis for extended inspection interval only applies to SI-00842B as this is the only valve which goes beyond the six year period specified in GL 89-04, Attachment 1, Position 2. The maintenance history of all six valves contained in this relief in addition to similar valve SI-867B is provided for completeness to show the trouble-free history of the valves.

Additional justification for the extended inspection interval may be found in NRC Safety Evaluation Reports (SER) on the Inservice Test Program at Point Beach dated April 17, 1992 and October 28, 1993.

Note: This Relief Request was previously approved by the SERs identified above.

VALVE RELIEF REQUEST - VRR-02

System:	Reactor Coolant	
Valve(s):	1(2)RC-00434	1(2)RC-00435
Category:	C	Code Class: 1

Function: These Code safety valves function as the pressurizer safety valves. The valves perform an active safety function in the open direction to prevent the RCS from being pressurized above its design pressure of 2485 psig as required by ASME Section III. These valves also perform a safety function in the closed direction to maintain RCS pressure boundary. This function minimizes uncontrolled RCS leakage to the PRT and prevents the loss of pressurizer pressure control which could result in inadvertent depressurization. Each valve is provided with a water seal below its seat to preclude leakage of hydrogen, fission gases or steam through the valve seat potentially resulting in damage to the valve seat and excessive inleakage to the PRT.

Code Requirement: Seat tightness shall be performed using the same fluid as for set pressure, except as provided by 8.3. (ANSI/ASME OM-1-1981, Para. 8.2, "Seat Tightness Testing")

Basis For Relief: At Point Beach, the pressurizer Code safety valves are installed on water-filled loop seals (several gallons of water between the valve and the steam source). Under normal operating conditions, valve disks and seats are not exposed to saturated steam, but subcooled water.

The pressurizer Code safety valves are designed for steam service. Set pressure testing is required to be, and most appropriately, performed utilizing saturated steam. Under the requirements of ANSI/ASME OM-1-1981, Para. 8.2, "Seat Tightness Testing", the valves must also be tested for seat tightness utilizing the same saturated steam medium.

The installation configuration of the valves which uses a water-filled loop seal, however, makes seat tightness testing utilizing steam inappropriate. Seat tightness testing utilizing subcooled water more closely duplicates the actual plant conditions experienced by the valves, and is a more appropriate indication of valve seat leakage. As a result, seat tightness testing of pressurizer Code safety valves, 1(2)RC-434 and 1(2)RC-435, using subcooled water can be considered to be equivalent to, or better than, seat tightness testing utilizing saturated steam. Under 10 CFR 50.55a(a)(3)(i), the proposed alternative of seat tightness testing utilizing subcooled water provides an acceptable level of quality and safety, and relief may be granted on that basis.

Alternate Testing: The pressurizer safety valves (1(2)RC-434 and 1(2)RC-435) shall be set pressure tested utilizing saturated steam as required by ANSI/ASME OM-1-1981. Seat tightness testing as discussed by ANSI/ASME OM-1-1981, Para. 8.2, "Seat Tightness Testing", however, shall be conducted utilizing subcooled water.

This Request for Relief has been renumbered from VRR-38 to VRR-02. VRR-38 was previously approved by NRC SER dated December 12, 1994.

APPENDIX C

COLD SHUTDOWN TEST JUSTIFICATIONS

CSJ-01	1/2AF-4006
CSJ-02	1AF-18, 19, -31, -44, 2AF-32, -45, -56, -57
CSJ-03	1/2CV-112B
CSJ-04	1/2CV-296
CSJ-05	1/2CV-313, -313A
CSJ-06	1/2CV-371, -371A
CSJ-07	1/2CV-1298
CSJ-08	0CC-LW-63, -64
CSJ-09	1/2CC-719
CSJ-10	1/2CC-754A, -754B, -759A, -759B
CSJ-11	1/2SI-836A, -836B
CSJ-12	1/2SI-847A, -847B
CSJ-13	1/2CS-466AA, -466BB, -476AA, -476BB
CSJ-14	1/2VNPSE-3212, -3213, -3244, -3245
CSJ-15	1/2MS-2015, -2016
CSJ-16	1/2MS-2017, -2018
CSJ-17	1/2RC-427
CSJ-18	1/2RC-430, -431C
CSJ-19	1/2RC-570A, -570B, -575A, -575B, -580A, -580B
CSJ-20	1/2RH-700, -701, -720
CSJ-21	1/2RH-710A, -710B
CSJ-22	1/2RH-718A, -718B
CSJ-23	1/2MS-227,-228,-235,-237,-238,-244,-265,-266
CSJ-24	1/2RH-704A, -704B
CSJ-25	1/2RH-713A, -713B, -716C, -716D
CSJ-26	1/2SI-853A, -853B
CSJ-27	1/2SI-853C, -853D
CSJ-28	1/2SI-897A, -897B
CSJ-29	1/2RH-702
CSJ-30	1/2SW-2880
CSJ-31	1SW-182, -183, -185, -186, -188, -189, -191, -192, -203, -205, -207, -209, -212, -214, -215, -217 2SW-228, -230, -232, -233, -236, -237, -248, -250, -253, -255, -256, -258, -259, -261, -262, -264
CSJ-32	0SW-315, -360, 1SW-322, 2SW-307

COLD SHUTDOWN TEST JUSTIFICATION - CSJ-01

System: Auxiliary Feedwater

Valve(s): 1(2)AF-04006

Category: B   Code Class: 3

Function: These normally closed motor operated valves are located in the individual service water (SW) supply lines to the turbine driven AFW pumps. The valves perform an active safety function in the open position to facilitate the alignment of service water to the AFW pump suction. The service water system serves as the qualified backup supply source to the AFW pumps' suction as the normal suction supply from the CSTs is classified non-Code class and is not seismically qualified. 1(2)AF-4006 must also be capable of opening by manual manipulation of the motor operators' handwheel as both valves are powered from the same emergency power source. A single failure of this emergency power source would result in the inability to align service water to both TDAFWPs. These valves have no safety function in the closed position. Their normally closed position prevents contamination of the condensate and feedwater systems due to intrusion of low quality service water Additionally valve closure allows initial AFW suction to be supplied from the CSTs; however, these functions are not required for accident mitigation or to achieve/maintain safe shutdown of the plant.

Deferred Test Justification: Manually full stroke exercising the SW supply isolation valves to the TDAFWPs quarterly during power operation is burdensome without a commensurate increase in the level of valve reliability. The valves are full stroke exercised and timed to the open position quarterly by remote manual switch which demonstrates the valves and actuators are functioning properly and provides reasonable assurance that the valve actuators are capable of manual manipulation. The valves are located in a relatively mild environment and are exposed to minimal conditions conducive to valve degradation. Full stroke manual exercising the valves during cold shutdowns, when AFW is not required to be operable, will provide adequate assurance of valve opening capability by manual manipulation.

Quarterly Partial Stroke Testing: These valves are currently full stroke exercised and stroke timed to the open position quarterly by remote manual switch actuation as required by TS 15.4.8.

Alternate Test Frequency: 1(2)AF-4006 will be manually full stroke exercised during cold shutdowns.

COLD SHUTDOWN TEST JUSTIFICATION - CSJ-02

System: Auxiliary Feedwater

Valve(s):

1AF-00018	2AF-00032
1AF-00019	2AF-00045
1AF-00031	2AF-00056
1AF-00044	2AF-00057

Category: B Code Class: 2

Function: These normally open manual containment isolation valves are located outside containment in the AFW injection lines to steam generators. The valves perform an safety function in the open position to provide a path for auxiliary feedwater flow to the steam generators subsequent to a loss of normal feedwater flow and for various other postulated accidents requiring AFW actuation. These manual isolation valves perform an active safety function in the closed position. The valves are designated as a secondary containment boundary barriers for penetrations P-5 and P-6 with a closed system inside containment serving as the primary containment isolation boundary barrier. As redundant containment boundary barriers, the valves may be required to close to maintain containment integrity.

Deferred Test Justification: These AFW manual isolation valves are administratively controlled in the locked open position to ensure a flow path is available to provide auxiliary feedwater to the steam generators which may be required during various accident conditions. Full stroke exercising these manual valves quarterly during power operation would render the associated flow path temporarily unavailable and subsequently require manual operator action to restore the alignment should an AFW actuation signal occur during testing. The valves are located in a relatively mild environment and are exposed to minimal conditions conducive to valve degradation. Full stroke manual exercising the valves during cold shutdowns, when AFW is not required to be operable, will provide adequate assurance of valve closure capability if required as a containment isolation secondary boundary barrier.

Quarterly Partial Stroke Testing: Partial stroke exercising will not be performed quarterly for the same reasons provided for not performing full stroke exercising.

Alternate Test Frequency: Full stroke manual exercising shall be performed during cold shutdowns when minimal impact will be imposed on the AFW system.

COLD SHUTDOWN TEST JUSTIFICATION - CSJ-03

System: Chemical and Volume Cor'

Valve(s): 1(2)CV-00112B

Category: B Code Class: 2

Function: These normally closed motor operated valves are located in the supply line from the RWST to the charging pumps' suction. The valves perform a safety function in the closed position to maintain the pressure boundary of the ASME Class 2 RWST. The RWST is relied on as a borated water supply source for containment spray and safety injection during post-LOCA conditions. These valves perform no safety function in the open position. CVCS pump suction could be aligned to the RWST, if the boric acid storage tanks are unavailable, to provide an alternate means of borating the RCS. However, this function is neither safety-related nor QA scope. The credited means of providing emergency boration is by utilizing the safety injection pumps.

Deferred Test Justification: Exercising these valves to the open position for closure stroke timing would result in aligning the RWST to the charging pumps' suction header. If performed quarterly during power operation, this alignment would allow RWST inventory, with its high boric acid concentration (>2700 ppm), to be injected into the RCS via the charging line and the RCP pump seals. Injecting RWST inventory into the RCS would result in severe power fluctuations and possible plant shutdown. Additionally, interlocks are provided to prevent the opening of 1(2)CV-112B unless a low-low level indication is sensed by both VCT level instruments LT-112 and LT-141. Both signals are required to prevent spurious opening of 1(2)CV-112B and subsequent plant shutdown due to high boric acid concentrations in the RCS.

Quarterly Partial Stroke Testing: The valve control circuitry is not provided with partial stroke capability; however, partially exercising the valves would result in the same consequences as full stroke exercising.

Alternate Test Frequency: Exercise and stroke time to the closed position during cold shutdowns.

COLD SHUTDOWN TEST JUSTIFICATION - CSJ-04

System: Chemical and Volume Control

Valve(s): 1(2)CV-00296

Category: B Code Class: 1

Function: These normally closed air operated valves are located in the pressurizer auxiliary spray lines from CVCS normal charging. The valves have no safety function in the open position. The auxiliary spray line provides the operational flexibility to utilize CVCS for cooldown/depressurization in lieu of the pressurizer spray valves which are dependent on the RCPs to provide motive force for spray. Depressurization by using the auxiliary spray line is not relied on for accident mitigation or to accomplish an augmented quality function. The valves perform an active safety function in the closed position. 1(2)CV-296 serve as ASME Class 1 to Class 2 RCS pressure boundary isolation valves as defined in 10CFR50.2. Therefore, the valve must be capable of closure, if open, to maintain the integrity of the RCS pressure boundary in the event of a failure of upstream components.

Deferred Test Justification: Exercising these valves to the open position for closure stroke timing would allow auxiliary spray flow to the pressurizer nozzles. Initiating pressurizer auxiliary spray quarterly during power operation would subject the spray nozzles to thermal shocking because of the large temperature differences between charging and pressurizer temperatures. Technical Specification 15.3.1.B.3.b limits the maximum spray water temperature differential between the pressurizer and spray fluid to not greater than 320°F. In addition, opening 1(2)CV-296 quarterly during power operation with subsequent failure to reclose could result in a pressure transient in the RCS and a potential plant trip.

Quarterly Partial Stroke Testing: The valve control circuitry is not provided with partial stroke capability; however, partially exercising the valves would result in the same consequences as full stroke exercising.

Alternate Test Frequency: Exercise, fail-safe test, and stroke time to the closed position during cold shutdowns.

COLD SHUTDOWN TEST JUSTIFICATION - CSJ-05

System: Chemical and Volume Control

Valve(s): 1(2)CV-00313 1(2)CV-00313A

Category: A Code Class: 2

Function: These power operated valves are located in the CVCS seal water return line from the RCP shaft seals to the VCT. The valves have no safety function in the open position. The normal seal water return line flow path is not required for accident mitigation or to bring the plant to safe shutdown. These valves perform an active safety function in the closed position. 1(2)CV-313 and -313A are designated containment isolation valves for containment penetration P-11. As containment isolation valves, they must be capable of automatic closure upon receipt of a containment isolation "T" signal to maintain containment integrity.

Deferred Test Justification: Exercising these valves quarterly during normal operation would require interrupting seal water return flow from the RCP shaft seals. The interruption of seal water return flow from the RCP shaft seals is not practical during power operation due to the potential of causing unnecessary accelerated wear to the seals and possible seal failure. A failed RCP shaft seal would allow unisolable leakage of reactor coolant from the RCS to the containment atmosphere possibly requiring plant shutdown per T.S. 15.3.1.D.

Quarterly Partial Stroke Testing: The valve control circuitry is not provided with partial stroke capability.

Alternate Test Frequency: Exercise, fail-safe test (1(2)CV-313A), and stroke timing to the closed position shall be performed during cold shutdowns when plant conditions permit the removal of the RCPs from service. If plant conditions do not permit the removal of the RCPs from service, all of the valves shall be appropriately tested at refueling.

COLD SHUTDOWN TEST JUSTIFICATION - CSJ-06

System:	Chemical and Volume Control	
Valve(s):	1(2)CV-00371	1(2)CV-00371A
Category:	A	Code Class: 2

Function: These air operated valves are located in the normal letdown line from the RCS loop "B" to the non-regenerative heat exchanger. The valves have no safety function in the open position. The process function of normal letdown serves to maintain a constant RCS inventory, impurity removal, and boric acid concentration adjustment. None of these functions are required for accident mitigation or to achieve safe shutdown. These valves perform an active safety function in the closed position. 1(2)CV-371 and -371A are designated containment isolation valves for containment penetration P-10. As containment isolation valves, they must be capable of automatic closure upon receipt of a containment isolation "T" signal to maintain containment integrity.

Deferred Test Justification: Exercising these valves to the closed position quarterly during power operation would require interrupting normal letdown flow. The interruption of normal letdown flow is not practical during power operation due to the potential of causing a pressurizer level control transient resulting in a reactor trip. In addition, failure of a letdown valve to reopen, subsequent to closure, while continuing to provide normal charging flow could result in a high RCS water level trip.

Quarterly Partial Stroke Testing: The valve control circuitry is not provided with partial stroke capability.

Alternate Test Frequency: Exercise, fail-safe test, and stroke timing to the closed position shall be performed during cold shutdowns when the normal charging and letdown functions are not required.

COLD SHUTDOWN TEST JUSTIFICATION - CSJ-07

System: Chemical and Volume Control

Valve(s): 1(2)CV-01298

Category: B Code Class: 1

Function: These normally open motor operated valves are located in the charging line to the RCS loop A cold leg on the outlet side of the regenerative heat exchanger. 1(2)CV-1298 perform no safety function in the open position. The normally open position of 1(2)CV-1298 supports the normal process functions performed by the CVCS. None of these functions are required for accident mitigation or to achieve/maintain the plant in a safe shutdown. These valves perform an active safety function in the closed position. 1(2)CV-1298 serve as ASME Class 1 to ASME Class 2 RCS pressure boundary valve as defined in 10CFR50.2. As normally open RCS pressure boundary valves, 1(2)CV-1296 must be capable of closure to maintain RCS integrity.

Deferred Test Justification: Exercising these valves to the closed position quarterly during power operation would require interrupting normal charging flow. The interruption of normal charging flow is not practical during power operation due to the potential of causing a pressurizer level control transient resulting in a reactor trip. In addition, closure of 1(2)CV-1298 would isolate charging flow to the regenerative heat exchangers resulting in high letdown temperatures. Reestablishing flow to the heat exchanger could lead to thermal shocking resulting in a tube side failure.

Quarterly Partial Stroke Testing: The valve control circuitry is not provided with partial stroke capability.

Alternate Test Frequency: Exercise and stroke timing to the closed position shall be performed during cold shutdowns when the normal charging and letdown functions are not required.

COLD SHUTDOWN TEST JUSTIFICATION - CSJ-08

System: Component Cooling Water

Valve(s): 0CC-LW-063 0CC-LW-064

Category: B Code Class: 2

Function: These normally open air operated valves are located the Unit 2 CCW supply and return lines for the radwaste processing system. The valves perform an active safety function in the closed position to maintain containment integrity as CCW functions as a closed system outside containment. CC-LW-63 and -64 are designated as outside containment closed system boundary barrier valves and serve as ASME Class 2 to non-Code Class isolation valves. The closed system design configuration outside containment serves as an extension of containment out to the designated closed system boundary barrier valves. Therefore, CC-LW-63 and -64 are required to be capable of closure to maintain the integrity of the containment and to isolate the non-essential CCW heat loads. These valves have no safety function in the open position. Their normally open position allows CCW flow to the non-safety-related radwaste system. The radwaste processing system is not required for accident mitigation or to achieve/maintain the plant in a safe shutdown condition. However, it is required to support normal plant operation.

Deferred Test Justification: The closure of these valves either by remote manual switch or upon receipt of a containment isolation signal results in the initiation of the radwaste auto shutdown circuit. This interlock is provided to prevent damage to various radwaste components which could occur as a result of a loss of CCW flow. Those components that would shutdown as a result of CC-LW-63 or -64 closing include: the cryogenic gas compressors, the auxiliary condensate return pump, and the letdown gas stripper circulating pump. Although these components are not required for accident mitigation or to achieve/maintain safe shutdown, they are required for support of normal process functions accomplished by the radwaste system and safe plant operation. Therefore, quarterly exercising of CC-LW-63 or -64 with the subsequent need to manually restore operation of various radwaste system components is burdensome without a compensating increase in the level of valve reliability.

Quarterly Partial Stroke Testing: The valve control circuitry is not provided with partial stroke capability.

Alternate Test Frequency: Valve exercise, fail-safe and stroke timing to the closed position shall be performed during cold shutdowns when minimal impact will occur to radwaste system operability.

COLD SHUTDOWN TEST JUSTIFICATION - CSJ-09

System: Component Cooling Water

Valve(s): 1(2)CC-00719

Category: B Code Class: 2

Function: These motor operated valves are located outside containment in the CCW supply headers to equipment inside containment. 1(2)CC-719 perform an active safety function in the closed position to provide redundant isolation capability of CCW supply to containment. This function prohibits the inleakage and loss of inventory of CCW flow to the containment in the event of a rupture in the CCW supply lines inside containment due to a high energy line break. Isolation of CCW to a faulted line would preserve system integrity for long term cooling of safety-related loads. These valves have no safety function in the open position. The normally open position of 1(2)CC-719 provides a path for CCW flow to the RCP motor bearings, RCP thermal barriers, and the excess letdown heat exchanger; however, these functions are not classified as safety-related. CCW supply to the RCP thermal barriers is a safety significant function for the protection of RCP seal integrity, but is not required to mitigate the consequences of an accident or to achieve/maintain the plant in a safe shutdown condition

Deferred Test Justification: Exercising these valves to the closed position quarterly during power operation would result in interrupting cooling water flow to the RCP motors bearings and thermal barriers. Should the valves fail to reopen damage could occur to the RCP motors and thermal barriers rendering the associated RCP inoperable. An inoperable RCP would require the plant to be placed in hot shutdown within 6 hours, as T.S. 15.3.1.A.1.a. requires both RCPs to be in operation when the reactor is critical.

Quarterly Partial Stroke Testing: The valve control circuitry is not provided with partial stroke capability.

Alternate Test Frequency: Valve full stroke exercising and stroke timing to the closed position shall be performed during cold shutdowns when plant conditions do not require the RCPs are to be operable.

COLD SHUTDOWN TEST JUSTIFICATION - CSJ-10

System: Component Cooling Water

Valve(s): 1(2)CC-00754A 1(2)CC-00754B
1(2)CC-00759A 1(2)CC-00759B

Category: B (754A/B) Code Class: 2
A (759A/B)

Function: These motor operated valves are located outside containment in the CCW individual supply and return lines to the RCPs' motor bearings and thermal barriers. The valves perform an active safety function in the closed position to provide redundant isolation capability of CCW supply to containment. This function prohibits the inleakage and loss of inventory of CCW flow to the containment in the event of a line rupture in the RCP cooling water line. Isolation of CCW to a faulted line would preserve system integrity for long term cooling of essential safety-related equipment. These valves have no safety function in the open position. The normally open position of the valves provide a supply and return path for CCW flow to the RCP motor bearings and thermal barrier; however, this function is not classified as safety-related. CCW supply to the RCP thermal barrier is a safety significant function for the protection of RCP seal integrity, but is not required to mitigate the consequences of an accident or to achieve/maintain the plant in a safe shutdown condition.

Deferred Test Justification: Exercising these valves to the closed position quarterly during power operation would result in interrupting cooling water flow to the RCP motors bearings and thermal barriers. Should the valves fail to reopen damage could occur to the RCP motors and thermal barriers rendering the associated RCP inoperable. An inoperable RCP would require the plant to be placed in hot shutdown within 6 hours, as T.S. 15.3.1.A.1.a. requires both RCPs to be in operation when the reactor is critical.

Quarterly Partial Stroke Testing: The valve control circuitry is not provided with partial stroke capability.

Alternate Test Frequency: Valve full stroke exercising and stroke timing to the closed position shall be performed during cold shutdowns when plant conditions do not require the RCPs are to be operable.

COLD SHUTDOWN TEST JUSTIFICATION - CSJ-11

System:	Containment Spray	
Valve(s):	1(2)SI-00836A	1(2)SI-00836B
Category:	B	Code Class: 2

Function: These normally closed air operated valves are located between the spray additive tanks (SAT) and the eductors. They perform an active safety function in the open position to provide a flow path for sodium hydroxide (NaOH) to the CS pump suction from the SAT via the spray eductors. This function allows the addition of sodium hydroxide to the spray stream for the removal of fission products released into the containment atmosphere during a LOCA. 1(2)SI-836A&B must be capable of automatically opening upon receipt of a CS actuation signal after the expiration of a 2-minute time delay. These valves also perform an active safety function in the closed position. They must be capable of closure by remote manual switch actuation when the NaOH inventory in the SAT has been reduced to the point of initiating a low-low level setpoint alarm. The low-low level alarm alerts operators to terminate flow because the predetermined volume of NaOH to satisfy sump pH requirements has been delivered. Valve closure is also required to support continued operability of the CS pumps, as the injection of nitrogen gas into the pumps' suction when the SAT empties could result in gas binding of the pumps compromising their ability to perform their design safety function.

Deferred Test Justification: Exercising these valves requires the NaOH supply to the eductors be isolated to prevent contamination of the containment spray piping with sodium hydroxide. NaOH is a highly corrosive fluid, requiring extensive flushing if exposed to CS system piping and components. The only means of isolation is by closure of a manual valve located in the common supply to both containment spray trains. This action would render both trains unable to inject sodium hydroxide for containment post LOCA iodine control without manual operator action and would require declaring an entire safety system inoperable.

Quarterly Partial Stroke Testing: Partially exercising the valves would result in the same consequences as full stroke exercising.

Alternate Test Frequency: Exercise, stroke time open and closed, and fail safe testing to the open position shall be performed during cold shutdowns when the containment spray system is not required to be operable.

COLD SHUTDOWN TEST JUSTIFICATION - CSJ-12

System:	Containment Spray	
Valve(s):	1(2)SI-00847A	1(2)SI-00847B
Category:	C	Code Class: 2

Function: These check valves are located in the spray additive lines from the SAT to the CS pumps' suction. They perform an active safety function in the open direction. They must be capable of opening, subsequent to the upstream AOVs opening, to provide a flow path for NaOH to be directed to the CS pump suction. The addition of NaOH to the spray stream is required for the removal of fission products released into the containment atmosphere following a LOCA. These valves also perform an active safety function in the closed direction. They must be capable of closure on reversal of flow to provide train separation during the event of containment spray pump operation with the SAT isolated. Additionally, the normally closed position prevents communication between the RWST supply and the NaOH piping which prevents inadvertent dilution of the 30% weight NaOH contained in the SAT.

Deferred Test Justification: Exercising these valves in the open direction requires aligning the RWST such that RWST inventory can pass through the valves in lieu of using the highly corrosive sodium hydroxide contained in the spray additive tank. This alignment requires the manipulation of various manual valves resulting in the inability to provide NaOH to the spray stream should a CS actuation signal occur during testing and rendering both trains of CS inoperable. In addition, contamination of the containment spray piping with sodium hydroxide requires extensive flushing subsequent to exposure due to the corrosive nature of the solution.

Quarterly Partial Stroke Testing: Partially exercising the valves would result in the same consequences as full stroke exercising.

Alternate Test Frequency: Full stroke exercise to the open position shall be performed during cold shutdowns when the containment spray system is not required to be operable. Closure testing will be performed during refuelings with justification provided in ROJ-20.

COLD SHUTDOWN TEST JUSTIFICATION - CSJ-13

System:	Feedwater	
Valve(s):	1(2)CS-00466AA 1(2)CS-00476AA	1(2)CS-00466BB 1(2)CS-00476BB
Category:	C	Code Class: 2

Function: These normally open check valves are in the normal feedwater flow path to the steam generators. The valves have no safety function in the open direction. Normal feedwater flow is necessary for steam production during normal plant operation, but is not required for accident mitigation or to achieve/maintain safe shutdown of the plant. These valves perform an active safety function in the closed direction. The AFW injection lines tie in downstream of the main feedwater check valves. These valves must be capable of closure on reversal of flow during a loss of normal feedwater (LONF) to prevent the diversion of AFW flow from the steam generator to the non-safety-related feedwater piping. Also, subsequent to feedwater isolation during a SGTR or MSLB, automatic closure of the inboard valves on reversal of flow serve to isolate the faulted steam generator. In the case of a MSLB the check valves close to limit the energy release to containment due to back flow from the intact steam generator to the faulted steam generator via the feedwater cross-connect. These requirements for isolation capability are redundant to that provided by the upstream (outboard) check valves for containment isolation.

Deferred Test Justification: Exercising the feedwater injection check valves in the reverse direction is not possible quarterly during power operation due to the necessity of isolating normal feedwater flow to the associated steam generator. Isolation of feedwater flow during normal operation would cause a loss of steam generator level control potentially resulting in a plant trip.

Quarterly Partial Stroke Testing: Valves are open during normal power operation.

Alternate Test Frequency: These check valves will be exercised in the closed direction by performing a seat leakage test during cold shutdown when feedwater is not required to be inservice.

COLD SHUTDOWN TEST JUSTIFICATION - CSJ-14

System: HVAC

Valve(s): 1(2)VNPSE-03212 1(2)VNPSE-03213
1(2)VNPSE-03244 1(2)VNPSE-03245

Category: A Code Class: 2

Function: These purge supply and exhaust valves are locked closed air operated valves located in the high volume purge line from the containment atmosphere to the purge exhaust stack. They are used prior to and during refueling outages or other extended cold shutdown periods, when containment entry is required, to maintain a suitable environment in containment for personnel. The valves are designed for rapid automatic closing by a safety injection signal, high containment activity signal, manual spray initiation, or manual containment isolation signal remote control switch, to limit a radioactivity release to the atmosphere. A containment ventilation isolation (CVI) signal closes the purge supply and exhaust valves to isolate the containment purge lines from the outside atmosphere under conditions indicative of containment airborne radioactivity. This function is not required to ensure 10CFR100 criteria are met following a fuel handling accident, but does provides a backup method to isolate the containment purge supply and exhaust penetrations to limit radioactivity releases from the containment atmosphere. The valves do not perform a safety function in the open position.

Deferred Test Justification: The containment purge valves are required to be maintained in the locked closed during plant operations, per TS 15.3.6.A.1.c. This administrative control is necessary since the valves have not been demonstrated capable of closing from the full open position during a LOCA. Maintaining these valves locked closed during plant operation ensures that excessive quantities of radioactive materials will not be released via the containment purge system in the event of a design basis LOCA. These valves are passive during normal operation and no testing is required. When opened during cold shutdowns or refuel outages the valves are active and testing will be performed.

Quarterly Partial Stroke Testing: The valve control circuitry is not provided with partial stroke capability. In addition, the valves are administratively kept in the locked closed position.

Alternate Test Frequency: Exercise, stroke time, and fail safe test to the closed position during cold shutdowns **when** these valves are opened. If not opened during cold shutdown, testing of these valves will be performed during refueling.

COLD SHUTDOWN TEST JUSTIFICATION - CSJ-15

System: Main Steam

Valve(s): 1(2)MS-02015 1(2)MS-02016

Category: B Code Class: 2

Function: The atmospheric steam dump valves, 1(2)MS-2015 and -2016, (one per steam generator) are attached to the main steam safety valve headers outside containment and discharge to the atmosphere. These valves perform an active safety function in the open position to provide a means of depressurizing following a steam generator tube rupture (SGTR) coincident with a loss of AC power and cooldown of the reactor coolant system to RHR entry conditions. 1(2)MS-2015 and -2016 must be capable of opening by remote manual actuation of their respective controller or by local manual operation within the time period required by the accident analysis due to their fail-closed design. Additionally, in the event of a small break LOCA the valves would be opened to remove heat and reduce reactor coolant system pressure until safety injection or RHR system operational limits are achieved. However, as stated in the FSAR, the use of the atmospheric steam dumps is not required to meet core cooling objectives in the event of a small break LOCA. The ability of this valve to open when the predetermined setpoint is reached is an enhancement to safety and would not preclude recovery from a SGTR accident. 1(2)MS-2015 and -2016 also perform an active safety function in the closed position. Subsequent to opening during a SGTR event, the valves must be capable of closure to minimize the release of fission products to the environment to maintain offsite dose within 10CFR100 limits. Their failure to reclose would be equivalent to a small steam line break enhancing the severity of the SGTR event.

Deferred Test Justification: Manually full stroke exercising the atmospheric steam dump valves quarterly during power operation is burdensome without a commensurate increase in the level of valve reliability. The valves are full stroke exercised and timed to the open and closed position quarterly by remote manual switch which demonstrates the valves and actuators are functioning properly and provides reasonable assurance that the valve actuators are capable of manual manipulation. The valve air actuators are the reverse acting type failing closed on a loss of air or electrical power with a manual operator assembly attached to the top of the diaphragm housing. The only failure which could compromise the manual actuation capability, that would not be detected during quarterly exercising, would be degradation of stem to stem nut thread engagement in the manual operator assembly. This failure mechanism is highly unlikely to occur during normal use of the valve.

Quarterly Partial Stroke Testing: The valves are exercised and stroke timed to the open and closed positions quarterly by remote manual switch.

Alternate Test Frequency: Manual full stroke exercising of the valves shall be performed during cold shutdown.

COLD SHUTDOWN TEST JUSTIFICATION - CSJ-16

System: Main Steam

Valve(s): 1(2)MS-02017 1(2)MS-02018

Category: B Code Class: 2

Function: These normally open, air operated check valves are located in the main steam headers from the steam generators and serve as the main steam stop valves (MSSV). The valves perform an active safety function in the closed direction to prevent the unrestricted release of steam from the steam generators during a main steam line break (MSLB). This function prevents blowdown from more than one steam generator for a break upstream or downstream of an MSSV. For an MSLB upstream of the MSSV additional isolation for the adjacent steam generator is provided by the non-return check valves. Other accident conditions resulting in closure of the MSSV include a steam generator tube rupture (SGTR) and a loss of reactor coolant (LOCA). Additionally, the MSSVs are designated outboard containment isolation valves for containment penetrations P-1 and P-2. As containment isolation valves, they must also be capable of closure to maintain containment integrity. The valves have no safety function in the open direction. The MSSVs remain open during normal operation to allow steam flow from the steam generators to the main turbine to support power generation. This function is not required for accident mitigation and is not a safety related function.

Deferred Test Justification: Exercising these valves during normal operation isolates one line of steam flow to the turbine. Isolation of a main steam header would cause a severe pressure transient in the associated main steam line possibly resulting in a plant trip. Additionally, closure of an MSSV, at power, could potentially result in challenging the set point of the main steam relief valves causing inadvertent lifting. Reducing power level to perform testing without causing a transient would significantly impact plant operations and power production.

Quarterly Partial Stroke Testing: The valve control circuitry is not designed with partial stroke capability. The MSSVs are check valves which open against the direction of steam flow allowing rapid closure for stream line isolation.

Alternate Test Frequency: The MSSVs will be exercised and stroked timed to the closed position during cold shutdowns.

COLD SHUTDOWN TEST JUSTIFICATION - CSJ-17

System: Reactor Coolant

Valve(s): 1(2)RC-00427

Category: B Code Class: 1

Function: These normally open motor operated valves are located in the normal letdown line from the RCS loop B hot leg to the regenerative heat exchanger HX-2 . They have no safety/augmented function in the open position. The process function of normal letdown serves to; maintain a constant RCS inventory, remove impurities, and adjust boric acid concentration. These valves perform an active safety function in the closed position. They serve a Class 1 to Class 2 RCS boundary barrier function as defined in 10CFR50.2. As a RCS boundary barrier valves, they must be capable of closure subsequent to a line break in the downstream Class 2 piping to prevent a small break LOCA scenario resulting in the uncontrolled release of reactor coolant. Closure of 1(2)RC-427 is also required subsequent to a VCT rupture thereby isolating letdown flow and maintaining offsite dose releases within the limits specified in the FSAR Chapter 14 VCT rupture analysis.

Deferred Test Justification: Exercising these valves to the closed position quarterly during power operation would require interrupting normal letdown flow. The interruption of normal letdown flow is not practical during power operation due to the potential of causing a pressurizer level control transient resulting in a reactor trip. In addition, failure of a letdown valve to reopen, subsequent to closure, while continuing to provide normal charging flow could result in a high RCS water level trip.

Quarterly Partial Stroke Testing: The valve control circuitry is not provided with partial stroke capability. Valve is open during normal power operation.

Alternate Test Frequency: Exercise and stroke timing to the closed position shall be performed during cold shutdowns when the normal charging and letdown functions are not required.

COLD SHUTDOWN TEST JUSTIFICATION - CSJ-18

System:	Reactor Coolant	
Valve(s):	1(2)RC-00430	1(2)RC-00431C
Category:	BC	Code Class: 1

Function: These normally closed air operated valves function as pressurizer power operated relief valves (PORVs) and also serve as Class 1 to non-Code boundary barriers. The valves perform an augmented safety function in the open position to provide a means for quick depressurization of the RCS during a steam generator tube rupture (SGTR). As part of the overpressure mitigating system (OMS), the PORVs also perform the safety related function of providing low temperature overpressure protection (LTOP) when the RCS is in a low temperature water solid condition. The PORVs also perform an active safety function in the closed position. They must be capable of closure by remote manual switch actuation, if open, to maintain RCS pressure boundary. This function minimizes the potential for a small break LOCA condition resulting in uncontrolled RCS discharge to the PRT and a loss of pressurizer pressure control.

Deferred Test Justification: Full stroke exercising the PORVs quarterly during power operation is not practical due to the high probability of their sticking in the open position or failure to provide a leak tight barrier when closed. In addition, exercising the valves at power could potentially cause a large pressure drop in the RCS resulting in a pressure transient and a low pressure trip signal generated by the reactor protective instrumentation. Exercising the valve at power could also result in lifting the PRT relief valve or blowing out the PRT rupture disk.

Quarterly Partial Stroke Testing: The valve control circuitry is not provided with partial stroke capability. In addition, partially exercising the valves would result in the same consequences as full stroke exercising.

Alternate Test Frequency: Exercise, stroke time open and closed, and fail safe testing to the closed position shall be performed during cold shutdowns in accordance with GL 90-06.

COLD SHUTDOWN TEST JUSTIFICATION - CSJ-19

System: Reactor Coolant

Valve(s): 1(2)RC-00570A, 1(2)RC-00570B
1(2)RC-00575A, 1(2)RC-00575B
1(2)RC-00580A, 1(2)RC-00580B

Category: B   Code Class: 1

Function: These normally closed pilot operated solenoid valves are part of the RCS gas vent system and are located in the reactor vessel head vent lines. The valves perform an active safety function in the open position. They must be capable of opening by remote manual switch actuation to vent non-condensible gases from the reactor vessel head space during post-accident conditions. The valves also perform an active safety function in the closed position. They must be capable of closure by remote manual switch actuation to maintain RCS pressure boundary integrity.

Deferred Test Justification: Exercising these valves during power operation with subsequent failure to reclose or significant leakage following closure could result in a loss of coolant in excess of the limits imposed by T.S. 15.3.1.D leading to a plant shutdown. Additionally, as pilot operated solenoid valves, system pressure is utilized for motive force to open the valves. The valves may not properly close if the upstream pressure is equal to or less than downstream pressure which increases the potential for through leakage, providing further justification for exercising the valves during cold shutdown.

Quarterly Partial Stroke Testing: The control circuitry of the valves is not provided with partial stroke capability. In addition, partially exercising the valves would result in the same consequences as full stroke exercising.

Alternate Test Frequency: Exercise, stroke time open and closed, and fail safe testing to the closed position shall be performed during cold shutdowns.

COLD SHUTDOWN TEST JUSTIFICATION - CSJ-20

System: Residual Heat Removal

Valve(s): 1(2)RH-00700 1(2)RH-00701
1(2)RH-00720

Category: B Code Class: 1

Function: These normally closed motor operated valves are located in the RHR supply and return lines from the RCS. The valves perform an active safety function in the open position. They must be capable of opening by remote manual switch actuation for initiation of RHR shutdown cooling to mitigate the consequences of a SGTR and MSLB. This function provides a means for long term shutdown cooling during post accident conditions when recirculation of sump inventory is not required. These valves also perform an active safety function in the closed position. They must be capable of closure by remote manual switch actuation, if open, to allow alignment for safety injection and to prevent over-pressurization of the RHR system should RCS pressure rise above the RHR system design pressure. Their normally closed position during power operation preserves the pressure boundary integrity of the RCS and serves to maintain RHR system pressure boundary integrity by providing a two valve isolation barrier between the RCS and the lower design pressure piping of the RHR system. Although not identified in TS Table 15.3.16-1, these valves are RCS pressure boundary isolation valves which perform a PIV function.

Deferred Test Justification: Exercising these valves quarterly during power operation would require defeating an interlock and protective measures intended to protect the RHR system piping and components from overpressurization from the RCS. Full or partial-stroke exercising at power would result in overpressurizing the RHR system piping and a loss of containment integrity. Valve exercising shall be performed during cold shutdown when RCS pressure is less than RHR system design pressure. Interlocks and protective lockouts are provided to prevent inadvertent opening of the valves when RCS pressure is greater than the RHR system design pressure.

Quarterly Partial Stroke Testing: The control circuitry of the valves is not provided with partial stroke capability. In addition, partially exercising the valves would result in the same consequences as full stroke exercising.

Alternate Test Frequency: Exercise test and stroke timing to the open and closed positions shall be performed during cold shutdowns when RCS pressure is less than RHR system design pressure.

COLD SHUTDOWN TEST JUSTIFICATION - CSJ-21

System: Residual Heat Removal

Valve(s): 1(2)RH-00710A 1(2)RH-00710B

Category: C Code Class: 2

Function: These normally closed check valves are located in the discharge lines from RHR pumps to the heat exchangers. The valves perform an active safety function in the open direction. They must be capable of opening subsequent to the associated pump starting to provide a path for post-LOCA low head safety injection and recirculation flow to the RCS, and long term shutdown cooling to mitigate the consequences of a SGTR and MSLB. These valves perform an active safety function in the closed direction. They must be capable of closure on reversal of flow, if its associated pump is secured or unavailable, to maintain separation of the RHR trains when operating in the normal shutdown cooling mode. RHR normal shutdown cooling operation is credited for mitigating the consequences of SGTR and MSLB accidents. Therefore, closure of these check valves prevent diversion of flow from the discharge of the opposite train to the suction side of the idle train subsequent to a loss of pump or the removal of a pump from service.

Deferred Test Justification: Exercising these valves in the reverse direction would require cross connecting RHR trains "A" and "B". Cross connecting the RHR trains for the purpose of testing during power operation requires the manipulation of various manual isolation valves which would compromise the ability for the system to accomplish its design safety function as credited in the accident analysis. The starting sequence of the RHR pumps and their related emergency power equipment is designed so that delivery of the minimum required accident flow is achieved within ≤23.7 seconds after receipt of the actuation signal. Should excessive leakage occur through one of the check valves, the system would be unable to satisfy the required response time due to the amount of time required to close the manual isolation valves to re-establish separation between the trains.

Quarterly Partial Stroke Testing: Valves are tested full open during quarterly pump testing.

Alternate Test Frequency: Exercise testing to the closed position shall be performed during cold shutdowns when RHR trains can be cross connected.

COLD SHUTDOWN TEST JUSTIFICATION - CSJ-22

System:	Residual Heat Removal	
Valve(s):	1(2)RH-00718A	1(2)RH-00718B
Category:	C	Code Class: 2

Function: These normally closed check valves are located in the RHR normal shutdown cooling supply lines to the suction of RHR pumps. The valves perform an active safety function in the open direction. They must be capable of opening when RHR shutdown cooling flow is initiated to mitigate the consequences of a SGTR and MSLB. This function provides a means for long term shutdown cooling during post accident conditions when sump inventory is not available. These valves have no safety function in the closed direction. Diversion of flow is prevented through an idle pump when the A and B trains are cross-tied by the pump discharge check valves.

Deferred Test Justification: Quarterly pump testing uses the RWST as the suction supply which does not expose these check valves to flow. Exercising these valves in the forward direction would require aligning the RHR pump suction to the RCS loop A hot leg. To open the upstream pressure isolation valves would require defeating an interlock and protective measures intended to protect the RHR system piping and components from overpressurization from the RCS. This low pressure line can not be exposed to reactor coolant pressures. During cold shutdown, testing will be performed with RHR operating in the shutdown cooling mode. This mode of operation cross-ties the two trains both upstream and downstream of the heat exchangers. Due to the flow indicating device being located at the main shutdown cooling return header, individual flow through each check valve cannot be determined when both pumps are operating during RHR shutdown cooling.

Quarterly Partial Stroke Testing: Valves are tested full open during cold shutdown. No partial test is performed since these valves are isolated during normal power operation.

Alternate Test Frequency: Exercise test to the open position shall be performed during cold shutdowns when RHR is aligned for shutdown cooling with single pump operation.

COLD SHUTDOWN TEST JUSTIFICATION - CSJ-23

System:	Main Steam	
Valve(s):	1(2)MS-00227	1(2)MS-00238
	1(2)MS-00228	1(2)MS-00244
	1(2)MS-00235	1(2)MS-00265
	1(2)MS-00237	1(2)MS-00266
Category:	B	Code Class: 2

Function: These normally open manual containment isolation valves are located outside containment in various main stream lines penetrating containment. 1(2)MS-227 and -244 perform a safety function in the open position to provide a path for steam to be vented to the atmosphere via the atmospheric steam dump valves. Likewise, 1(2)MS-235 and -237 perform a safety function in the open position to provide a path for steam supply to the turbine driven auxiliary feedwater pumps. The remaining valves have no safety function in the open position. These manual isolation valves perform an active safety function in the closed position. The valves are designated as secondary containment boundary barriers for various penetrations with a closed system inside containment serving as the primary containment isolation boundary barrier. As redundant containment boundary barriers, the valves may be required to close to maintain containment integrity.

Deferred Test Justification: The MS manual isolation valves performing a safety function in the open position are administratively controlled in the open position to ensure a flow path is available during various accident conditions. Full stroke exercising these manual valves quarterly during power operation would render the associated safety related flow path temporarily unavailable and subsequently require manual operator action to restore the alignment necessary for the downstream components to accomplish their design safety function. Those normally open manual valves not performing a safety function in the open position do support various plant process functions. Their temporary closure could have an undesirable impact on the downstream process functions. It is PBNPs position that quarterly exercising of manual valves, unless exercised during a plant evolution, is burdensome without a commensurate increase in the level of valve reliability. All of the valves are located in a relatively mild environment and are exposed to minimal conditions conducive to valve degradation. Full stroke manual exercising the valves during cold shutdowns will provide adequate assurance of valve closure capability if required as a containment isolation secondary boundary barrier.

Quarterly Partial Stroke Testing: Partial stroke exercising will not be performed quarterly for the same reasons provided for not performing full stroke exercising.

Alternate Test Frequency: Full stroke manual exercising shall be performed during cold shutdowns when minimal impact will be imposed on the MS system.

COLD SHUTDOWN TEST JUSTIFICATION - CSJ-24

System: Residual Heat Removal

Valve(s): 1(2)RH-00704A 1(2)RH-00704B

Category: B Code Class: 2

Function: These normally locked-closed manual valves are located in the RHR normal shutdown cooling supply line to RHR pumps suction. The valves perform an active safety function in the open position. They must be capable of opening for initiation of RHR shutdown cooling to mitigate the consequences of a SGTR and MSLB. This function provides a means for long term shutdown cooling during post accident conditions when recirculation of sump inventory is not required. These valves also perform an active safety function in the closed position. They must be capable of closure by manual manipulation, if open, to allow alignment of the RHR pumps for safety injection. In addition, their normally closed position maintains normal RHR system standby alignment to receive suction from the RWST for low head safety injection.

Deferred Test Justification: Exercising manual valves quarterly is burdensome without a commensurate increase in the level of valve reliability. These valves are located in a relatively mild environment with limited failure mechanisms to affect operability. They are opened each cold shutdown for alignment of RHR normal shutdown cooling. Valve exercising shall be performed at cold shutdown when RHR shutdown cooling is placed in service.

Quarterly Partial Stroke Testing: Partially exercising the valves will not be performed for the same reasons discussed above.

Alternate Test Frequency: Full stroke manual exercise shall be performed during cold shutdowns when RHR is aligned for shutdown cooling.

COLD SHUTDOWN TEST JUSTIFICATION - CSJ-25

System: Residual Heat Removal

Valve(s): 1(2)RH-00713A 1(2)RH-00713B 1(2)RH-00716C 1(2)RH-00716D

Category: B Code Class: 2

Function: These normally closed manual isolation valves are located in the cross-connects between the RHR trains. The valves perform an active safety function in the open position. They must be capable of opening to align the RHR system for the shutdown cooling mode of operation. The normal shutdown cooling mode of RHR is credited for mitigating the consequences of SGTR and MSLB accidents by providing a means for long term decay heat removal. When aligning RHR for shutdown cooling, the RHR heat exchangers inlet (1/2RH-713A&B) and outlet (1/2RH-716C&D) manual cross-connect valves are placed in the open position to allow flow from either pump through both heat exchangers to the cold leg return line. These valves perform a safety function in the normally closed position to maintain RHR train separation when low head safety injection is required to be operable during power operation.

Deferred Test Justification: Cross connecting the RHR trains for the purpose of testing during power operation would compromise the ability for the system to accomplish its design safety function as credited in the accident analysis. The starting sequence of the RHR pumps and their related emergency power equipment is designed so that delivery of the minimum required accident flow is achieved within ≤23.7 seconds after receipt of the actuation signal. Should excessive leakage occur through one of the upstream check valves, the system would be unable to satisfy the required response time due to the amount of time required to close the manual isolation valves to re-establish separation between the trains. Exercising manual valves quarterly is burdensome without a commensurate increase in the level of valve reliability. These valves are located in a relatively mild environment with limited failure mechanisms to affect operability. They are opened each cold shutdown for alignment of RHR normal shutdown cooling.

Quarterly Partial Stroke Testing: Partially exercising the valves would result in the same consequences and burden as full stroke exercising.

Alternate Test Frequency: Full stroke manual exercise shall be performed during cold shutdowns when RHR is aligned for shutdown cooling.

COLD SHUTDOWN TEST JUSTIFICATION - CSJ-26

System: Safety Injection

Valve(s): 1(2)SI-00853A 1(2)SI-00853B

Category: AC Code Class: 1

Function: These normally closed check valves are located inside containment in the low head safety injection flow path to the RCS. The valves perform an active safety function in the open direction. 1(2)SI-853A&B must be capable of opening subsequent to system initiation to provide a path for post-LOCA low head safety injection and recirculation flow to the RCS for emergency core cooling when RCS pressure has been reduced to below the shutoff head of the pumps (334 ft.). These valves also perform an active safety function in the closed direction. 1(2)SI-853A&B are designated containment isolation valves for containment penetrations P-8 and P-22. As containment isolation valves, 1(2)SI-853A&B must be capable of closure on reversal of flow to maintain containment integrity. In addition, the valves serve as ASME Code Class 1 to Class 2 boundary barrier valves which perform a leakage important safety function as Event V pressure isolation valves (PIV). Their normally closed position preserves the pressure boundary integrity of the RCS and isolates RCS pressure from the attached low pressure RHR piping. The valves normally closed position also prevents diversion of core deluge injection flow if the SI pumps are aligned to provide ECCS flow via the core deluge nozzles.

Deferred Test Justification: Full or partial stroke exercising of these valves in the forward direction quarterly during power operation is not possible due to insufficient pump discharge head to overcome reactor pressure. Exercising the valves in the forward direction during cold shutdown is not desirable unless leak testing per Technical Specification 15.3.16 is scheduled to ensure valve leak tight integrity is verified subsequent to closure. Reverse exercising these check valves is best accomplished during the leak tight verification testing required by T.S. 15.3.16 which is performed each cold shutdown of ≥72 hours if not performed in the previous 9 months. This leak tight verification testing can not be performed quarterly during power operation due to the necessity of manual realignment of the RHR system rendering both trains of low head safety injection inoperable.

Quarterly Partial Stroke Testing: Partial stroke exercising will not be performed quarterly for the same reasons provided for not performing full stroke exercising.

Alternate Test Frequency: Valve exercising in the forward and reverse directions shall be performed during cold shutdown when the testing requirements of Technical Specification 15.3.16 are scheduled to be performed and LHSI is not required to be operable.

COLD SHUTDOWN TEST JUSTIFICATION - CSJ-27

System: Safety Injection

Valve(s): 1(2)SI-00853C 1(2)SI-00853D

Category: AC Code Class: 1

Function: These normally check valves are located inside containment in the low head safety injection and SI core deluge injection lines to the reactor vessel. The valves perform an active safety function in the open direction. 1(2)SI-853C&D must be capable of opening to provide a path for post-LOCA low head safety injection and recirculation flow to the RCS for emergency core cooling. These valves also perform an active safety function in the closed direction. 1(2)SI-853C&D are one of two valves providing the ASME Code Class 1 to Class 2 boundary barrier and perform a leakage important safety function as an Event V pressure isolation valves(PIV). The normally closed position of these valves preserve the pressure boundary integrity of the RCS and isolates RCS pressure from the attached low pressure RHR piping.

Deferred Test Justification: Full or partial stroke exercising of these valves in the forward direction quarterly during power operation is not possible due to insufficient pump discharge head to overcome reactor pressure. Exercising the valves in the forward direction during cold shutdown is not desirable unless leak testing per Technical Specification 15.3.16 is scheduled to ensure valve leak tight integrity is verified subsequent to closure. Reverse exercising these check valves is best accomplished during the leak tight verification testing required by T.S. 15.3.16 which is performed each cold shutdown of ≥72 hours if not performed in the previous 9 months. This leak tight verification testing can not be performed quarterly during power operation due to the necessity of manual realignment of the RHR system rendering both trains of low head safety injection inoperable.

Quarterly Partial Stroke Testing: Partial stroke exercising will not be performed quarterly for the same reasons provided for not performing full stroke exercising.

Alternate Test Frequency: Valve exercising in the forward and reverse directions shall be performed during cold shutdown when the testing requirements of Technical Specification 15.3.16 are scheduled to be performed and LHSI is not required to be operable.

COLD SHUTDOWN TEST JUSTIFICATION - CSJ-28

System: Safety Injection

Valve(s): 1(2)SI-00897A 1(2)SI-00897B

Category: A **Code Class:** 2

Function: These normally gagged open air operated valves are located in the SI injection check valves' test return line to the RWST and are installed in series. The valves perform a safety function in the OPEN position. The normally open position of 1(2)SI-897A&B provides a return path for SI pump minimum flow recirculation back to the RWST. This minimum flow recirculation path is required to prevents damage to the SI pumps as a result of operating in low flow or dead-headed conditions. The open position of 1(2)SI-897A&B also provides an overpressure protection relief path for the containment spray pumps' suction piping. A relief path is provided for the CS pumps' suction piping to prevent overpressurization as a result of RHR inleakage to the CS system during RHR system operation. These valves also perform an active safety function in the closed position. 1(2)SI-897A&B are required to close, subsequent to gag removal, during the switchover from the injection mode to the recirculation mode of SI. Additionally, the SI system serves as a closed system outside containment for the purposes of containment isolation. Valves 1(2)SI-897A&B are designated as containment closed system boundary valves. Therefore, they have a safety function in the closed position to maintain containment integrity.

Deferred Test Justification: Exercise testing these valves quarterly during power operation requires physically removing a gagging device locally before the valves are capable of changing from their normally open position. This activity is time consuming and could compromise minimum flow protection for the SI pumps should either valve fail to reopen subsequent to closure or should a malfunction occur with the instrument air supply. These valves remain open during post-accident conditions except for the high head recirculation phase of emergency core cooling. During the transitioning to recirculation, operators are dispatched to remove the gagging device and locally close the valves.

Quarterly Partial Stroke Testing: Partial stroke exercising will not be performed quarterly for the same reasons provided for not performing full stroke exercising.

Alternate Test Frequency: Full stroke exercising and stroke time testing to the closed position shall be performed during cold shutdown when the SI pumps are not required to be operable.

COLD SHUTDOWN TEST JUSTIFICATION - CSJ-29

System: Residual Heat Removal

Valve(s): 1(2)RH-00702

Category: C Code Class: 2

Function: These check valves are located in a branch connection to CVCS off the RHR "A" train low head safety injection(LHSI)/shutdown cooling header inside the primary containment. The valves perform an active safety function in the open direction. No relief valves are installed in the LHSI/RHR Train "A" piping. 1(2)RH-702 must open to provide a pressure relief flow path between the LHSI/RHR piping and the letdown orifice outlet relief valve, 1(2)CV-203. The RHR/LHSI piping has a design pressure and temperature of 700 psig and 400°F. It is connected to the reactor coolant pressure boundary which has a design pressure and temperature of 2580 psig and 650°F. Overpressure protection is required to prevent overpressurization of the lower pressure LHSI piping in the event of in-leakage from the high pressure RCS. There is no accident flow rate associated with the safety function of RH-702 in the forward direction. These check valves also perform an active safety function in the closed direction. 1(2)RH-702 are designated inboard isolation valves for containment penetration P-8. The containment isolation boundary criteria for this penetration are remote manual isolation valves and/or valves capable of automatic closure to function as barriers inside containment and a closed system outside containment. As containment isolation valves, 1(2)RH-702 must be capable of closure to maintain containment integrity.

Deferred Test Justification: Exercising these check valves in the partially open direction quarterly during power operation would require initiating flow from RHR to the CVCS letdown flow stream. Initiating RHR flow to CVCS letdown is not possible due to insufficient discharge head of the RHR pumps to overcome CVCS system pressure.

Quarterly Partial Stroke Testing: Partial stroke exercising will not be performed quarterly due to the reason stated above.

Alternate Test Frequency: Exercising these check valves in the partially open direction will be performed during cold shutdowns when CVCS charging and letdown can be removed from service. Closure verification will be performed quarterly during RHR pump A testing.

COLD SHUTDOWN TEST JUSTIFICATION - CSJ-30

System: Service Water

Valve(s): 1(2)SW-02880

Category: B Code Class: 3

Function: These normally open motor operated valves are located in the service water supply line to various non-essential heat loads in the turbine building and serve as Class 3 to non-Code boundary barriers. The valves perform an active safety function in the closed position. 1(2)SW-2880 must be capable of automatic closure when less than four service water pumps start upon receipt of an SI signal. This function isolates the non-essential heat loads from the safety related portion of the service water system to ensure maximum flow is delivered to the essential heat loads. The valves have no safety function in the open position. The normally open position of 1(2)SW-2880 provides a path for cooling water flow to the turbine building in support of various process functions performed by the main SGFP coolers, seal oil coolers, main generator bus coolers, exciter cooler, EH oil coolers, and lube oil coolers. These components are located in non-Code class piping and support equipment necessary for power generation, none of which are required for accident mitigation, or to achieve/maintain the plant in a safe shutdown condition.

Deferred Test Justification: Exercising these valves quarterly during power operation could result in a plant trip or equipment damage due to the interruption of cooling water flow to components in the turbine building which are required to support normal plant operation.

Quarterly Partial Stroke Testing: These valves are normally open during power operation. The control circuitry of the valves is not provided with partial stroke capability.

Alternate Test Frequency: Full stroke exercise and stroke time to the closed position shall be performed during cold shutdowns when service water may be isolated to the turbine building.

COLD SHUTDOWN TEST JUSTIFICATION - CSJ-31

System: Service Water

Valve(s): 1SW-00182, -00183, -00185, -00186, -00188, -00189, -00191, -00192, -00203, -00205, -00207, -00209, -00212, -00214, -00215, -00217

2SW-00228, -00230, -00232, -00233, -00236, -00237, -00248, -00250, -00253, -00255, -00256, -00258, -00259, -00261, -00262, -00264

Category: B Code Class: 3

Function: These normally open manual containment isolation valves are located outside containment in service water supply and return lines providing cooling water to components inside containment. All of the valves associated with the cooling water supply and return path for the containment fan coolers perform a safety related function in the open position to support operability of the coolers. The remaining valves providing a flow path for cooling water to the cavity cooling coils and effluent flow radiation detection have no safety function in the open position. All of these manual isolation valves perform an active safety function in the closed position. The valves are designated as a secondary containment boundary barriers for various penetrations with a closed system inside containment serving as the primary containment isolation boundary barrier. As redundant containment boundary barriers, the valves may be required to close to maintain containment integrity. These manual isolation valves are exempt from Appendix J, Type C, leak testing requirements; however, they are still required to be capable of closure for containment isolation.

Deferred Test Justification: The SW manual isolation valves performing a safety function in the open position are administratively controlled in the open position to ensure cooling water is provided to the containment fan coolers. As part of a designated safety-feature system, the containment fan coolers provide sufficient air recirculation flow to accomplish containment heat removal following a LOCA or steam line break inside containment. Full stroke exercising these manual valves quarterly during power operation renders the associated fan cooler temporarily inoperable and subsequently requires manual operator action to restore the alignment necessary for the fan coolers to accomplish their design safety function. Those normally open manual valves not performing a safety function in the open position do support various plant process functions. Their temporary closure could have an undesirable impact on the downstream process functions. It is PBNPs position that quarterly exercising of manual valves, unless exercised during a plant evolution, is burdensome without a commensurate increase in the level of valve reliability. All of the valves are located in a relatively mild environment and are exposed to minimal conditions conducive to valve degradation. Full stroke manual exercising the valves during cold shutdowns will provide adequate assurance of valve closure capability if required as a containment isolation secondary boundary barrier.

Quarterly Partial Stroke Testing: Partially exercising the valves would result in the same consequences and burden as full stroke exercising.

Alternate Test Frequency: Manual full stroke exercise to the open and closed positions shall be performed during cold shutdowns when service water cooling flow to containment may be isolated.

COLD SHUTDOWN TEST JUSTIFICATION - CSJ-32

System: Service Water

Valve(s): 1SW-00322 2SW-00307
0SW-00315 0SW-00350

Category: B Code Class: 3

Function: These normally closed manual isolation valves are located in the SW outlet lines from CCW heat exchangers. They perform an active safety function in the open position to allow the required amount of service water flow through the CCW heat exchanger whenever the RHR heat exchangers are placed into service. Maximum SW flow through the CCW heat exchangers is required during the normal shutdown cooling mode of RHR and during the sump recirculation phase of safety injection. The valves have no safety function in the closed position. Their normally closed position puts less demand on the SW system in support of providing sufficient flow to satisfy the non-essential heat loads dependent upon SW during normal plant operation.

Deferred Test Justification: Exercising these valves quarterly during power operation is a relatively labor intensive activity due to the large size of the valves (12") and would result in placing higher demands on the service water system. In addition, the valves are opened each cold shutdown during alignment of RHR normal shutdown cooling. It is PBNPs position that quarterly exercising of manual valves, unless exercised during a plant evolution, is burdensome without a commensurate increase in the level of valve reliability. All of the valves are located in a relatively mild environment and are exposed to minimal conditions conducive to valve degradation. Full stroke manual exercising the valves during cold shutdowns will provide adequate assurance of valve opening capability if required for maintaining the plant in a safe shutdown condition subsequent to an accident..

Quarterly Partial Stroke Testing: Partially exercising the valves would result in the same consequences and burden as full stroke exercising.

Alternate Test Frequency: Manual full stroke exercise to the open and closed positions shall be performed during cold shutdowns when RHR shutdown cooling is placed in service.

APPENDIX D

REFUELING OUTAGE TEST JUSTIFICATIONS

ROJ-01	0AF-112, -113 1/2AF-111
ROJ-02	1/2AF-100, -101
ROJ-03	1/2AF-106, -107, 1AF-102, -104, 2AF-103, -105
ROJ-04	1/2CV-294
ROJ-05	1/2CV-370
ROJ-06	1/2CV-295, -297
ROJ-07	1/2CV-304A, -304B
ROJ-08	1/2CV-304C, -304D
ROJ-09	1/2CV-383
ROJ-10	1/2CC-745
ROJ-11	1/2CC-755A, -755B
ROJ-12	1/2CC-767
ROJ-13	1/2RM-3200AA
ROJ-14	1/2RC-528
ROJ-15	1/2RC-529
ROJ-16	0SW-112A, -135A
ROJ-17	1/2SI-834D
ROJ-18	1/2SI-845A, -845B, -845C, -845D, -845E, -845F
ROJ-19	1/2SI-862A, -862B
ROJ-20	1/2SI-847A, -847B
ROJ-21	1/2H2-V-04, -05, -12, -13, -19, -20, -22, -23
ROJ-22	1/2SI-889A, -889B
ROJ-23	1/2SI-867B
ROJ-24	1/2SI-867A, 1/2SI-842A, 1/2SI-842B
ROJ-25	0FP-296A, -304A
ROJ-26	1/2SI-854A, -854B
ROJ-27	1/2SI-875A, -875B

REFUELING OUTAGE TEST JUSTIFICATION - ROJ-01

System: Auxiliary Feedwater

Valve(s): 1(2)AF-00111
0AF-00112 0AF-00113

Category: C Code Class: 3

Function: These normally closed check valves is located in AFW pumps' suction supply lines from the CSTs. The valves perform an active safety function in the closed direction. Upon depletion of CST inventory or when the CSTs are unavailable, the suction supply for the AFW pumps is provided by the service water system. When the AFW pumps are aligned to the service water system for a suction supply source, these Class 3 to non-Code boundary barrier check valves close to maintain pressure boundary and to prevent the service water supply from being diverted to the CSTs. These valves perform no safety function in the open position.

Deferred Test Justification: There are no test connections to enable closure verification of these check valves by leak rate testing. Additionally, closure verification by aligning the pump suction to service water is undesirable due to the necessity of injecting service water into the steam generators. Injecting service water into the steam generators would result in unnecessarily subjecting the steam generators to premature degradation due to lack of maintaining proper water chemistry. The only practical means of verifying closure capability of these check valves, with the exception of disassembly, is by performing a radiographic examination test (RT) on the valve body to demonstrate the valve disk is in the closed position. Due to the labor intensive nature of non-intrusive testing, performing this type of testing activity quarterly during power operation is burdensome without a commensurate increase in the level of valve reliability. Performing this type of test activity during cold shutdown is impractical from a logistics standpoint as RTs are performed by an off-sight contractor. During unplanned cold shutdowns the primary concern is to safely restart the plant when the condition which required going to cold shutdown is corrected. Therefore, the coordination of outside contractor notification and the time required for equipment setup is impractical for the purpose of testing and could delay plant restart.

Partial Stroke Exercising: Although, these check valves do not perform a safety function in the open direction, they will be full stroke exercised with flow during quarterly pump testing.

Alternate Test Frequency: Closure verification of the AFW pumps' suction check valves from CSTs will be accomplished by performing an RT during each refueling outage. This method of testing and frequency is supported by the discussion provided in NUREG-1482, Section 4.1.2.

REFUELING OUTAGE TEST JUSTIFICATION - ROJ-02

System:	Auxiliary Feedwater	
Valve(s):	1(2)AF-00100	1(2)AF-00101
Category:	C	Code Class: 2

Function: These normally closed check valves are located inside containment in the AFW injection lines to the steam generators and serve as the first-off check from the S/Gs. The valves perform an active safety function in the closed direction to isolate the AFW system from the main feedwater system. They serve as a barrier at the piping class break to prevent the diversion of high temperature main feedwater into the low temperature AFW system piping. Additionally, main feedwater inleakage to the AFW system may result in voiding in the piping and could result in a loss of availability of the AFW pumps due to steam binding. The valves also perform an active safety function in the open direction to provide a path for auxiliary feedwater flow to the steam generators subsequent to a loss of normal feedwater flow and for various other postulated accidents requiring AFW actuation.

Deferred Test Justification: Serving as the first off check valves from the steam generators there are no isolation valves or test connections located downstream to enable closure verification of these check valves by leak rate testing. There are drain connections located upstream of the check valves which could be utilized to verify a pressure drop across the valves' disk. However, opening these drain valves during power operation represents substantial personnel risks and would create a condition requiring manual action to restore proper alignment should AFW receive an actuation signal. During cold shutdowns these upstream drain connections could be utilized to verify differential pressure exists across the valve seat due to the ≈35 psig of static head in the steam generators. However, historically these valves have demonstrated difficulty in sealing with feedwater pressure on the downstream side therefore it is a concern that ≈35 psig of static head will not be sufficient pressure to establish a pressure drop across the valve seats. As a result of poor isolation capability, WEPCO is planning the replacement of these valves in both units. Until valve replacement has occurred, verification of closure capability of these check valves will be accomplished by performing a radiographic examination test (RT) on the valve body to demonstrate the disk is in the closed position. Due to the labor intensive nature of non-intrusive testing, performing this type of testing activity quarterly during power operation is burdensome without a commensurate increase in the level of valve reliability. Performing this type of test activity during cold shutdown is impractical from a logistics standpoint as RTs are performed by an off-sight contractor. During unplanned cold shutdowns the primary concern is to safely restart the plant when the condition which required going to cold shutdown is corrected. Therefore, the coordination of outside contractor notification and the time required for equipment setup is impractical for the purpose of testing and could delay plant restart. The valves' normally closed position is continuously monitored by observing upstream line temperature via thermocouples. Continuous monitoring of line temperature allow operators sufficient time to take appropriate action to prevent steam binding of the AFW pumps should feedwater inleakage occur.

Partial Stroke Exercising: These check valves will be full stroke exercised with flow during quarterly pump testing.

Alternate Test Frequency: Closure verification of the first-off AFW injection check valves to the steam generators will be accomplished by performing an RT during each refueling outage. This method of testing and frequency is supported by the discussion provided in NUREG-1482, Section 4.1.2.

REFUELING OUTAGE TEST JUSTIFICATION - ROJ-03

System: Auxiliary Feedwater

Valve(s): 1(2)AF-00106 1(2)AF-00107
1AF-00102 1AF-00104
2AF-00103 2AF-00105

Category: C Code Class: 2

Function: These normally closed check valves are located outside containment in the AFW injection lines to the steam generators and serve as the second-off check from the S/Gs. These valves perform an active safety function in the closed direction to isolate the AFW system from the main feedwater system. They serve as a barrier at the piping class break to prevent the diversion of high temperature main feedwater into the low temperature AFW system piping. Additionally, main feedwater inleakage to the AFW system may result in voiding in the piping and could result in a loss of availability of the AFW pumps due to steam binding. Valve closure also provides redundant isolation capability to prevent diversion of flow from an adjacent pump thereby ensuring AFW accident flow is properly directed to S/Gs. The valves also perform an active safety function in the open direction to provide a path for auxiliary feedwater flow to the steam generators subsequent to a loss of normal feedwater flow and for various other postulated accidents requiring AFW actuation.

Deferred Test Justification: The AFW second off check valves from the steam generators are not provided with downstream isolation and test connections in a configuration allowing the ability for closure verification by leak rate testing. The only practical means of verifying closure capability of these check valves, with the exception of disassembly, is by performing a radiographic examination test (RT) on the valve body to demonstrate the valve disk is in the closed position. Due to the labor intensive nature of non-intrusive testing, performing this type of testing activity quarterly during power operation is burdensome without a commensurate increase in the level of valve reliability. Performing this type of test activity during cold shutdown is impractical from a logistics standpoint as RTs are performed by an off-sight contractor. During unplanned cold shutdowns the primary concern is to safely restart the plant when the condition which required going to cold shutdown is corrected. Therefore, the coordination of outside contractor notification and the time required for equipment setup is impractical for the purpose of testing and could delay plant restart. The valves' normally closed position is continuously monitored by observing line temperature via thermocouples. Continuous monitoring of line temperature allow operators sufficient time to take appropriate action to prevent steam binding of the AFW pumps should feedwater inleakage occur.

Partial Stroke Exercising: These check valves will be full stroke exercised with flow during quarterly pump testing.

Alternate Test Frequency: Closure verification of the AFW second-off injection check valves to the steam generators will be accomplished by performing an RT during each refueling outage. This method of testing and frequency is supported by the discussion provided in NUREG-1482, Section 4.1.2.

REFUELING OUTAGE TEST JUSTIFICATION - ROJ-04

System: Chemical and Volume Control

Valve(s): 1(2)CV-00294

Category: AC Code Class: 2

Function: These check valves are located inside containment in the bypass line around the seal return header isolation valves 1(2)CV-313A. The valves perform an active safety function in the partial open and closed directions. 1(2)CV-294 must be capable of partially opening to provide thermal overpressure protection for containment penetration P-11 when the penetration isolation valves are closed. As containment isolation valves, 1(2)CV-294 must be capable of closure on cessation or reversal of flow to maintain containment integrity.

Deferred Test Justification: Exercising these valves partially open or in the reverse direction requires interrupting normal seal cooling return flow from the RCPs. To satisfactorily exercise these check valves requires the use of temporary test equipment inside containment to perform a leak test or back flow test, in addition to passing air through the valves to demonstrate their partial opening capability. Such testing activities, if performed during power operation, could cause damage to the RCP shaft seals as a result of interrupting seal cooling water flow. Due to the considerable effort associated with these test activities, exercise testing to the partially open or closed positions during cold shutdown is considered impractical due to the necessity of utilizing temporary test equipment inside containment. Exercise testing of 1(2)CV-294 to the partially open and closed positions shall be performed during refueling in conjunction with Appendix J Type C local leak rate testing.

Partial Stroke Exercising: Demonstrating these check valves can partially open is not possible for the same reasons as full stroke exercising.

Alternate Test Frequency: Partial opening and closure verification of these check valves shall be performed during refueling outages when performing Appendix J Type C seat leakage testing. To demonstrate the partial opening capability, LLRT test volume will be vented such that the test volume must pass through the check or an outside pressure source will be applied upstream and vented downstream. There is no accident flow rate associated with the valves' safety function in the open direction. The deferral of test frequency to refueling outages is acceptable per the discussion provided in NUREG-1482, Section 4.1.4.

REFUELING OUTAGE TEST JUSTIFICATION - ROJ-05

System: Chemical and Volume Control

Valve(s): 1(2)CV-00370

Category: AC Code Class: 2

Function: These normally open check valves are located inside containment in the charging header to the RCS loop A cold leg and auxiliary spray line. As containment isolation valves, they perform an active safety function in the closed direction to maintain containment integrity. The valves perform no safety function in the open direction. Check valves 1(2)CV-370 open to support normal process functions performed by the CVCS.

Deferred Test Justification: The only method available to verify reverse flow closure capability of these check valves is by seat leakage testing. The test connections utilized to perform seat leakage testing are located inside containment. Therefore, it would require containment entry and the interruption of the valves' normal process functions in order to verify their closure capability. Exercising these check valves in the reverse direction requires interrupting normal charging flow and the use of temporary test equipment inside containment. Such testing activities if performed during power operation could result in a pressurizer level transient causing a plant trip. Due to the considerable effort associated with these test activities, reverse exercise testing during cold shutdown is considered impractical due to the necessity of utilizing temporary test equipment inside containment.

Partial Stroke Exercising: These valves remain in the open position during normal power operation in support of the normal process functions performed by the CVCS.

Alternate Test Frequency: Closure verification of these check valves shall be performed during refueling outages when performing Appendix J Type C seat leakage testing. The deferral of test frequency to refueling outages is acceptable per the discussion provided in NUREG-1482, Section 4.1.4.

REFUELING OUTAGE TEST JUSTIFICATION - ROJ-06

System: Chemical and Volume Control

Valve(s): 1(2)CV-00295 1(2)CV-00297

Category: C Code Class: 1

Function: These check valves are located inside containment in the CVCS normal charging lines (1(2)CV-295) and pressurizer auxiliary spray lines (1(2)CV-297). These valves perform an active safety function in the closed direction. They serve as ASME Class 1 RCS pressure boundary isolation valves as defined in 10CFR50.2. Therefore, the valves must be capable of closure to maintain the integrity of the RCS pressure boundary in the event of a failure of upstream components. The valves have no safety function in the open direction.

Deferred Test Justification: The normal charging and pressurizer auxiliary spray line check valves are not provided with downstream isolation or test connections allowing the ability for closure verification by leak rate testing. The only practical means of verifying closure capability of these check valves, with the exception of disassembly, is by performing a radiographic examination test (RT) on the valve body to demonstrate the valve disk is in the closed position. Verifying closure capability of the normal charging line check valves (1(2)CV-295) is not possible during power operation due to the necessity of interrupting normal charging flow which could result in a pressurizer level transient causing a plant trip. Verifying closure capability of the pressurizer auxiliary spray check valves quarterly during power operation is burdensome without a commensurate increase in the level of valve reliability due to the labor intensive nature of non-intrusive testing inside containment. Performing this type of test activity during cold shutdown is impractical from a logistics standpoint as RTs are performed by an off-sight contractor. During unplanned cold shutdowns the primary concern is to safely restart the plant when the condition which required going to cold shutdown is corrected. Therefore, the coordination of outside contractor notification and the time required for equipment setup is impractical for the purpose of testing and could delay plant restart.

Partial Stroke Exercising: The normal charging line check valves 1(2)CV-295 remain in the open position during power operation to provide a flow path for normal charging. The pressurizer auxiliary spray check valves (1(2)CV-297) are placed into service to cool the pressurizer during final stages of cooldown when the RCPs are shutdown and normal spray cannot be used.

Alternate Test Frequency: Closure verification of the CVCS normal charging line check valves (1(2)CV-295) and pressurizer auxiliary spray check valves (1(2)CV-297) will be accomplished by performing an RT during each refueling outage. This method of testing and frequency is supported by the discussion provided in NUREG-1482, Section 4.1.2.

REFUELING OUTAGE TEST JUSTIFICATION - ROJ-07

System: Chemical and Volume Control

Valve(s): 1(2)CV-00304A 1(2)CV-00304B

Category: C Code Class: 1

Function: These check valves are located inside containment in the CVCS seal water injection line to the RCP shaft seals. The valves perform an active safety function in the closed direction. 1(2)CV-304A&B are ASME Class 1 to Class 2 RCS pressure boundary isolation valves as defined in 10CFR50.2. Therefore, the valves must be capable of closure to maintain the integrity of the RCS pressure boundary in the event of a failure of upstream components. The valves perform a safety function in the open direction to provide a relief path during a thermally induced overpressure condition of the containment penetration piping post-LOCA. There is no design flow rate associated with the open safety function. The valves also perform process functions; the seal water injection flow path is one of three flow paths available to the RCS for alternate boration. However, the SI pumps are credited with the function of providing boration if the charging pumps are unavailable. In addition, seal water injection assures the integrity of the RCP shaft seals. However, the RCPs are not relied on for accident mitigation or to achieve/maintain the plant in a safe shutdown.

Deferred Test Justification: These seal water injection check valves are the first-off check valves from the RCPs #1 seal with no means of isolation between the check valves and the shaft seal. The valves are provided with upstream and downstream test connections. However, utilizing the downstream test connections to apply an outside pressure source to establish a ΔP across the valve seat may not provide a meaningful reverse exercise test result. Applying sufficient pressure to prevent the backflow of reactor coolant through the seal would result in a portion of the applied pressure being injected into the RCS via the seal. In addition, verifying closure by backflow from RCS static or residual pressure is undesirable due to ALARA concerns and the potential of trapping debris in the seals causing unnecessary wear to the shaft sealing surface when the associated RCP is returned to service. The preferred method of verifying closure capability of these check valves is by performing a radiographic examination test (RT) on the valve body to demonstrate the disk is in the closed position. Performing this test quarterly during power operation is not possible due to the necessity of removing an RCP for service to prevent seal damage when stopping seal water flow. T.S. 15.3.1.A.1.a. requires both reactor coolant pumps to be in service whenever the reactor is critical. Performing this type of test activity during cold shutdown is impractical from a logistics standpoint as RTs are performed by an off-sight contractor. During unplanned cold shutdowns the primary concern is to safely restart the plant when the condition which required going to cold shutdown is corrected. Therefore, the coordination of outside contractor notification and the time required for equipment setup is impractical for the purpose of testing and could delay plant restart.

Partial Stroke Exercising: These valves remain in the open position during normal power operation in support of normal seal water flow to the RCPs. Sufficient flow through the valves is verified by observation of seal temperatures.

Alternate Test Frequency: Closure verification of the CVCS seal water injection line check valves 1(2)CV-304A&B will be accomplished by performing an RT during each refueling outage. This method of testing and frequency is supported by the discussion provided in NUREG-1482, Section 4.1.2.

REFUELING OUTAGE TEST JUSTIFICATION - ROJ-08

System: Chemical and Volume Control

Valve(s): 1(2)CV-00304C 1(2)CV-00304D

Category: AC Code Class: 1

Function: These check valves are located in the CVCS seal water injection line to the RCP shaft seals. The valves perform an active safety function in the closed direction. Check valves 1(2)CV-304C&D serve as inside containment isolation automatic trip valves for the CVCS seal water supply line to the RCP shaft seals. As such, 1(2)CV-304C&D must be capable of closure on reversal of flow to maintain containment integrity. Additionally, 1(2)CV-304C&D are ASME Class 1 to Class 2 RCS pressure boundary isolation valves as defined in 10CFR50.2. Therefore, the valves must also be capable of closure to maintain the integrity of the RCS pressure boundary in the event of a failure of upstream components. The valves perform an safety function in the open direction to provide a relief path during a thermally induced overpressure condition of the containment penetration piping post-LOCA. There is no design flow rate associated with the safety function. The valves also perform process functions; the seal water injection flow path is one of three flow paths available to the RCS for alternate boration. However, the SI pumps are credited with the function of providing boration if the charging pumps are unavailable. In addition, seal water injection assures the integrity of the RCP shaft seals. However, the RCPs are not relied on for accident mitigation or to achieve/maintain the plant in a safe shutdown.

Deferred Test Justification: The preferred method to verify reverse flow closure capability of these check valves is by seat leakage testing. The test connections utilized to perform seat leakage testing are located inside containment. Therefore, it would require containment entry and the interruption of the valves' normal process functions in order to verify their closure capability. Exercising these check valves in the reverse direction requires interrupting normal RCP seal water flow and the use of temporary test equipment inside containment. Such testing activities if performed during power operation would result unnecessary wear to the seals and potential premature failure of the RCP shaft seals rendering the associated pump inoperable. An inoperable RCP would require the plant to be placed in hot shutdown within 6 hours, as T.S. 15.3.1.A.1.a. requires both RCPs to be in operation when the reactor is critical. Due to the considerable effort associated with these test activities, reverse exercise testing during cold shutdown, if the RCPs are removed from service, is considered impractical due to the necessity of utilizing temporary test equipment inside containment.

Partial Stroke Exercising: These valves remain in the open position during normal power operation in support of normal seal water flow to the RCPs. Sufficient flow through the valves is verified by observation of seal temperatures.

Alternate Test Frequency: Closure verification of these check valves shall be performed during refueling outages when performing Appendix J Type C seat leakage testing. The deferral of test frequency to refueling outages is acceptable per the discussion provided in NUREG-1482, Section 4.1.4.

REFUELING OUTAGE TEST JUSTIFICATION - ROJ-09

System: Chemical and Volume Control

Valve(s): 1(2)CV-00383

Category: C Code Class: 1

Function: These check valves are located inside containment in the CVCS auxiliary charging line to the RCS loop B cold leg. 1(2)CV-383 perform an active function in the open direction to provide a relief path during a thermally induced overpressure condition of the containment penetration piping post-LOCA. There is no design flow rate associated with the safety function of 1(2)CV-383 in the open direction. 1(2)CV-383 perform an active safety function in the closed direction. The valves serve as ASME Class 1 RCS pressure boundary isolation valves as defined in 10CFR50.2. Therefore, 1(2)CV-383 must be capable of closure to maintain the integrity of the RCS pressure boundary in the event of a failure of upstream components.

Deferred Test Justification: The auxiliary charging line check valves are not provided with downstream isolation or test connections allowing the ability for closure verification by leak rate testing. The only practical means of verifying closure capability of these check valves, with the exception of disassembly, is by performing a radiographic examination test (RT) on the valve body to demonstrate the valve disk is in the closed position. Verifying closure capability of the auxiliary charging line check valves 1(2)CV-383 quarterly during power operation is burdensome without a commensurate increase in the level of valve reliability due to the labor intensive nature of non-intrusive testing inside containment. Performing this type of test activity during cold shutdown is impractical from a logistics standpoint as RTs are performed by an off-sight contractor. During unplanned cold shutdowns the primary concern is to safely restart the plant when the condition which required going to cold shutdown is corrected. Therefore, the coordination of outside contractor notification and the time required for equipment setup is impractical for the purpose of testing and could delay plant restart.

Flow exercising these check valves quarterly during power operation or cold shutdown would require manual manipulation of valves to facilitate alignment to auxiliary charging in lieu of normal charging. This activity is burdensome without a commensurate increase in the level of valve reliability. The safety function in the open direction is for thermal overpressure protection which has no specific accident flow rate. Exercising the valves with high pressure discharge flow from the charging pumps does not necessarily demonstrate their capability to open as a thermal overpressure relief path. Forward exercising to the partially open position is preferable during refueling outages when an outside pressure source can be applied upstream of the valves to verify partial opening capability.

Partial Stroke Exercising: The auxiliary charging line check valves 1(2)CV-383 remain in the closed position during power operation. This flow path is maintained isolated by a normally closed manual isolation valve outside containment. Partial stroke exercising will not be performed since demonstrating the valves' opening capability with high pressure discharge flow from the charging pumps does not ensure the valve will open as a thermal overpressure relief path.

Alternate Test Frequency: Verification of partial opening capability shall be performed during each refueling outage, when the RCS is not pressurized, by applying an outside pressure source upstream of the valve and discharging to the RCS loop B cold leg. Closure verification of the CVCS auxiliary charging line check valves will be accomplished by performing an RT during each refueling outage. This method of testing and frequency is supported by the discussion provided in NUREG-1482, Section 4.1.2.

REFUELING OUTAGE TEST JUSTIFICATION - ROJ-10

System: Component Cooling Water

Valve(s): 1(2)CC-00745

Category: C   Code Class: 2

Function: These check valves are located in the CCW return header from equipment inside containment. The valves perform an active safety function in the closed direction to isolate CCW main header return flow from being directed to containment in the event of a CCW line break inside containment. Closure of the CCW return header check valves 1(2)CC-745 is required to preserve the integrity of the CCW system for continued heat removal capability from essential safety-related equipment. These check valves have no safety function in the open direction. Their normally open position provides a path for CCW return flow from the RCP motor bearings, the RCP thermal barriers, and the excess letdown heat exchanger; however, this function is not classified as safety-related.

Deferred Test Justification: Exercising these check valves to the closed position quarterly during power operation would require isolating the main CCW supply header to the containment. Isolating the CCW supply header to containment would interrupt CCW flow to the RCP motors bearings and thermal barriers. The interruption of cooling water flow to the RCPs could result in damage to the RCP motors and thermal barriers rendering the associated RCP inoperable. An inoperable RCP would require the plant to be placed in hot shutdown within 6 hours, as T.S. 15.3.1.A.1.a. requires both RCPs to be in operation when the reactor is critical. Exercising these valves to the closed position during cold shutdowns would require the removal of both RCPs (per unit) from service and verifying the absence of leakage at an upstream vent/drain connection while maintaining flow in the CCW return header downstream of 1(2)CC-745. Although possible, this method of testing is undesirable due to the personnel risks associated with verifying the absence of leakage at an upstream vent/drain connection. Component cooling water contains the corrosion inhibitor potassium chromate. Potassium chromate poses a moderate health hazard and is a carcinogen. Therefore, personnel contact with potassium chromate should be minimized and should not be discharged to the environment. The preferred method of verifying closure capability of 1(2)CC-745 is by performing a radiographic examination test (RT) on the valve body to demonstrate the valve disk is in the closed position. Due to the labor intensive nature of non-intrusive testing, performing this type of test activity during cold shutdown is impractical from a logistics standpoint as RTs are performed by an off-sight contractor. During unplanned cold shutdowns the primary concern is to safely restart the plant when the condition which required going to cold shutdown is corrected. Therefore, the coordination of outside contractor notification and the time required for equipment setup is impractical for the purpose of testing and could delay plant restart.

Partial Stroke Exercising: Partial stroke exercising these check valves in the closed direction is not possible due to the inability of verifying the valves partially close on a reduction or cessation of flow.

Alternate Test Frequency: Closure verification of the CCW return header check valves from containment will be accomplished by performing an RT during each refueling outage. This method of testing and frequency is supported by the discussion provided in NUREG-1482, Section 4.1.2.

REFUELING OUTAGE TEST JUSTIFICATION - ROJ-11

System: Component Cooling Water

Valve(s): 1(2)CC-00755A 1(2)CC-00755B

Category: AC Code Class: 2

Function: These check valves are located inside containment in the individual cooling water supply lines to the RCPs. The valves perform an active safety function in the closed direction to maintain containment integrity. Check valves 1(2)CC-755A and -755B are credited as automatic trip valve inside containment for penetrations P-15 and P-16. As such, they must be capable of automatic closure on reversal of flow to maintain containment integrity subsequent to a CCW line break inside containment. Additionally, closure of these valves provide isolation of the low pressure CCW piping outside containment subsequent to a thermal barrier cooling coil rupture. These valves also perform an ACTIVE safety function in the partially OPEN position. 1(2)CC-755A&B must be capable of opening to provide a vent path for relief of overpressurization due to thermal expansion during post-LOCA when the penetration is in an isolated condition.

Deferred Test Justification: The preferred method to verify partially open and reverse flow closure capability of these check valves is during the performance of Type C seat leakage testing. The test connections utilized to perform seat leakage testing are located inside containment. Therefore, it would require containment entry and the interruption of the valves' normal process functions in order to verify their closure capability. Exercising these check valves in the reverse direction requires interrupting normal RCP cooling water flow and the use of temporary test equipment inside containment. Such testing activities if performed during power operation could result in damage to the RCP motor and thermal barrier rendering the associated RCP inoperable. An inoperable RCP would require the plant to be placed in hot shutdown within 6 hours, as T.S. 15.3.1.A.1.a. requires both RCPs to be in operation when the reactor is critical.. Due to the considerable effort associated with these test activities, reverse exercise testing during cold shutdown, if the RCPs are removed from service, is considered impractical due to the necessity of utilizing temporary test equipment inside containment.

Partial Stroke Exercising: These valves remain in the open position during normal power operation in support of normal cooling water flow to the RCPs. However, this doesn't necessarily demonstrate the ability for the valve to open as a thermal overpressure protection vent path.

Alternate Test Frequency: Closure verification of these check valves shall be performed during refueling outages when performing Appendix J Type C seat leakage testing. The partially opening capability shall be verified by venting the LLRT volume via the check valve. The deferral of test frequency to refueling outages is acceptable per the discussion provided in NUREG-1482, Section 4.1.4.

REFUELING OUTAGE TEST JUSTIFICATION - ROJ-12

System: Component Cooling Water

Valve(s): 1(2)CC-00767

Category: AC Code Class: 2

Function: These check valves are located inside primary containment in the cooling water supply line to the shellside of the excess letdown heat exchanger 1(2)HX-4. The valves perform an active safety function in the closed direction to maintain containment integrity. 1(2)CC-767 are designated as the inboard isolation valves for containment penetration P-19. As containment isolation valves, 1(2)CC-767 must be capable of automatic closure on reversal of flow to maintain containment integrity subsequent to a CCW line break inside containment. These valves have no safety function in the open direction. 1(2)CC-767 opens when flow is initiated to provide a path for cooling water to the heat exchanger which is not a safety-related function. The excess letdown heat exchanger cools reactor letdown flow at a rate equal to the nominal injection rate through the RCP labyrinth seal if letdown through the normal letdown path is not available. Normal charging and letdown are process functions required to support normal plant operation and are not required for accident mitigation or to achieve/maintain the plant in a safe shutdown condition.

Deferred Test Justification: The preferred method to verify reverse flow closure capability of these check valves is by seat leakage testing. The test connections utilized to perform seat leakage testing are located inside containment. Therefore, it would require containment entry and the use of temporary test equipment to verify their closure capability. In addition, CCW would require isolation by closing manual valve 1(2)CC-766. Due to the considerable effort associated with these test activities, reverse exercise testing during cold shutdown is considered impractical due to the necessity of utilizing temporary test equipment inside containment.

Partial Stroke Exercising: These valves remain in the closed position during normal power operation. Partial exercising to the open position will not be performed as the valves have no safety function in the open position. However, the valves will pass flow if the excess letdown heat exchanger 1(2)HX-4 is placed into service.

Alternate Test Frequency: Closure verification of these check valves shall be performed during refueling outages when performing Appendix J Type C seat leakage testing. The deferral of test frequency to refueling outages is acceptable per the discussion provided in NUREG-1482, Section 4.1.4.

REFUELING OUTAGE TEST JUSTIFICATION - ROJ-13

System: HVAC

Valve(s): 1(2)RM-03200AA

Category: AC   **Code Class:** 2

Function: These rad monitor return check valves are located inside containment in the return line to containment from radiation monitors RE-211 and RE-212. These valves are designated inboard containment isolation valves and as such, must be capable of closure on reversal of flow to maintain containment integrity. The valves have no safety function in the open position. RM-3200AA opens to provide a return path to containment during normal leak detection sampling activities.

Deferred Test Justification: These check valves provide a discharge path directly to the containment atmosphere from radiation monitors RE-211 and RE-212. The only method available to verify reverse flow closure capability of these check valves is by seat leakage testing. The test connections utilized to perform seat leakage testing are located inside containment. Therefore, it would require containment entry and the interruption of the valves' normal process functions in order to verify their closure capability. Exercising these check valves in the reverse direction requires the use of temporary test equipment inside containment. Due to the considerable effort associated with these test activities, reverse exercise testing during cold shutdown is considered impractical due to the necessity of utilizing temporary test equipment inside containment.

Partial Stroke Exercising: These valves are verified in the open position during normal power operation in support of normal sampling functions.

Alternate Test Frequency: Closure verification of these check valves shall be performed during refueling outages when performing Appendix J Type C seat leakage testing. The deferral of test frequency to refueling outages is acceptable per the discussion provided in NUREG-1482, Section 4.1.4.

REFUELING OUTAGE TEST JUSTIFICATION - ROJ-14

System: Reactor Coolant

Valve(s): 1(2)RC-00528

Category: AC Code Class: 2

Function: These check valves are located inside containment in the nitrogen supply line to the pressurizer relief tank and serve as Class 2 to non-Code boundary barriers. The valves perform an active safety function in the closed direction. They serve as the inside containment automatic trip valves for the PRT nitrogen supply lines. As such, they must be capable of closure on cessation or reversal of flow to maintain containment integrity. These valves also perform an active safety function in the partially open position. 1(2)RC-528 must be capable of opening to relieve overpressurization due to thermal expansion during post-LOCA when the penetration is in an isolated condition. There is no flow rate associated with this safety function. The process function in the open position to supply nitrogen to the PRT is non-safety related as the PRT is classed as non-Code and is not required for accident mitigation or to achieve/maintain the plant in a safe shutdown condition.

Deferred Test Justification: The only method available to verify reverse flow closure capability of these check valves is by seat leakage testing. The test connections utilized to perform seat leakage testing are located inside containment. Therefore, it would require containment entry and the interruption of the valves' normal process functions in order to verify their closure capability. Due to the considerable effort associated with these test activities, reverse exercise testing quarterly or during cold shutdown is considered impractical due to the necessity of utilizing temporary test equipment inside containment. Verification of the valves' partial opening capability could be satisfied by providing nitrogen makeup to the PRT. However, due to infrequency of this process function, partial opening capability will be demonstrated by venting the local leak rate test volume via the test connection downstream of 1(2)RC-528 subsequent to performing Type C testing on 1(2)RC-595.

Partial Stroke Exercising: These valves may be verified to open during power operation when normal nitrogen makeup is provided to the PRT. However, due to infrequency of this process function, partial opening capability will be demonstrated as discussed in the alternate testing frequency.

Alternate Test Frequency: Closure verification of these check valves shall be performed during refueling outages when performing Appendix J Type C seat leakage testing. The deferral of test frequency to refueling outages is acceptable per the discussion provided in NUREG-1482, Section 4.1.4. Verification of the valves' partial opening capability will be demonstrated by venting the local leak rate test volume via the test connection downstream of 1(2)RC-528 subsequent to performing Type C testing on 1(2)RC-595.

REFUELING OUTAGE TEST JUSTIFICATION - ROJ-15

System: Reactor Coolant

Valve(s): 1(2)RC-00529

Category: AC Code Class: 2

Function: These check valves are located inside containment in the reactor makeup water supply line to the pressurizer relief tanks and serve as Class 2 to non-Code boundary barriers. The valves perform an active safety function in the closed direction. 1(2)RC-00529 serve as inside containment automatic trip valves for the PRT fill line from RMW. As such, they must be capable of closure on cessation or reversal of flow to maintain containment integrity. These valves also perform an ACTIVE safety function in the partially OPEN position. 1(2)RC-529 must be capable of opening to provide a vent path for relief of overpressurization due to thermal expansion during post-LOCA when the penetration is in an isolated condition.

Deferred Test Justification: The only method available to verify partially open and reverse flow closure capability of these check valves is during the performance of seat leakage testing. The test connections utilized to perform seat leakage testing are located inside containment. Therefore, it would require containment entry and the interruption of the valves' normal process functions in order to verify their closure capability. As a result of the considerable effort associated with these test activities, reverse exercise testing quarterly or during cold shutdown is considered impractical due to the necessity of utilizing temporary test equipment inside containment.

Partial Stroke Exercising: These valves may be exercised in the partial open position during power operation when makeup water is provided to the PRT. However, this may be an infrequently performed process function and doesn't necessarily demonstrate the ability for the valve to open as a thermal overpressure protection vent path.

Alternate Test Frequency: Closure verification of these check valves shall be performed during refueling outages when performing Appendix J Type C seat leakage testing. The partially opening capability shall be verified by venting the LLRT volume via the check valve. The deferral of test frequency to refueling outages is acceptable per the discussion provided in NUREG-1482, Section 4.1.4.

REFUELING OUTAGE TEST JUSTIFICATION - ROJ-16

System:	Service Water	
Valve(s):	0SW-00112A	0SW-00135A
Category:	C	Code Class: 3

Function: These check valves are located in the service water supply lines to the steam driven AFW pumps and turbines. The valves perform an active safety function in the open direction. The turbine driven AFW pump is dependent upon bearing cooling water to support long term operation of both the pump and turbine subsequent to a design basis accident. They must be capable of opening to provide a path for cooling water flow to the bearings whenever cooling water supply valve 1(2)MS-2090 opens. These valves perform no safety function in the closed direction. The fire water system is also capable of supplying bearing cooling water to the TDAFWP and ties-in immediately downstream of these valves. Therefore, they would be required to close to prevent diversion of TDAFWP bearing cooling water when being supplied by the fire water system. However, the ability for the fire water system to supply bearing cooling to the TDAFWP is not a safety-related function.

Deferred Test Justification: Full-stroke exercising with flow is impractical since flow indication is not provided. Additionally, crediting full stroke capability by monitoring the components' temperature parameters is impractical due to the amount of time required for component operation. Calculations have demonstrated that an extended pump run (≈42 minutes) would be required before pump/turbine bearing temperatures would exceed the maximum allowables. Therefore, partial stroke capability will be credited during quarterly pump testing by observation of the pump/turbine bearing temperatures.

Partial Stroke Exercising: These valves are verified in the partial open position during quarterly pump testing by observation of the pump/turbine bearing temperatures.

Alternate Test Frequency: Full stroke capability of the valves will be verified during refueling outages by sample disassembly in accordance with the guidelines provided in the IST Program document. This method of testing and frequency is acceptable per the guidelines provided in Position 2 of GL 89-04.

REFUELING OUTAGE TEST JUSTIFICATION - ROJ-17

System: Safety Injection

Valve(s): 1(2)SI-00834D

Category: AC Code Class: 2

Function: These check valves are located inside containment in the nitrogen supply header to the SI accumulators. The valves perform an active safety function in the partial open direction to provide a pressure relief path to prevent thermal overpressure protection for P-14C penetration piping post-accident. These valves perform an active safety function in the closed direction. 1(2)SI-834D are designated inboard isolation valves for containment penetration P-14C. As such, 1(2)SI-834D must be capable of closure on reversal of flow to maintain containment integrity.

Deferred Test Justification: The only method available to verify reverse flow closure capability of these check valves is by seat leakage testing. The test connections utilized to perform seat leakage testing are located inside containment. Therefore, it would require containment entry and the interruption of the valves' normal process function in order to verify their closure capability. Exercising these check valves in the reverse direction requires defeating the ability to provide nitrogen makeup to the SI accumulator tanks and the use of temporary test equipment inside containment. As a result of the considerable effort associated with these test activities, reverse exercise testing during power operation or cold shutdown is considered impractical due to the necessity of utilizing temporary test equipment inside containment. These valves are exercised in the forward direction when ever nitrogen makeup is provided to the SI accumulators. This process function may be performed periodically during power operation and is performed during cold shutdowns subsequent to partially exercising the accumulator check valves. However, providing a flow path for high pressure nitrogen makeup to the accumulators doesn't necessarily demonstrate the valves' ability to partially open as a pressure relief path to prevent thermal overpressure protection.

Partial Stroke Exercising: These valves may be exercised in the partial open position during power operation and cold shutdowns when makeup nitrogen is provided to the SI accumulators. However, this opening capability will not be credited as satisfying Code required testing due to the infrequency of nitrogen makeup.

Alternate Test Frequency: Partial Opening and closure verification of these check valves shall be performed during refueling outages when performing Appendix J Type C seat leakage testing. To demonstrate the partial opening capability, LLRT test volume will be vented such that the test volume must pass through the check or an outside pressure source will be applied upstream and vented downstream. There is no accident flow rate associated with the valves' safety function in the open direction. The deferral of test frequency to refueling outages is acceptable per the discussion provided in NUREG-1482, Section 4.1.4.

REFUELING OUTAGE TEST JUSTIFICATION - ROJ-18

System: Safety Injection

Valve(s): 1(2)SI-00845A 1(2)SI-00845B 1(2)SI-00845C 1(2)SI-00845D 1(2)SI-00845E 1(2)SI-00845F

Category: AC Code Class: 1

Function: These check valves are located inside containment in the high head safety injection flow path to the RCS Loop A and B cold legs and core deluge. The valves perform an active safety function in the open direction. The valves must be capable of opening subsequent to an SI system initiation to provide a path for post-LOCA high head safety injection and recirculation flow to the RCS for emergency and long term core cooling. SI injection via the cold legs is also credited for mitigating the consequences for a steam line break (SLB). High head safety injection can occur only when RCS pressure has been reduced to below the shutoff head of the SI pumps (3500 ft.). These valves also perform an active safety function in the closed direction. The valves must be capable of closure, if open, to prevent diversion of flow from other emergency core cooling systems as the reduction in RCS pressure allows SI accumulator discharge and subsequently low head safety injection. In addition, the valves are designated containment isolation valves and must be capable of closure on reversal of flow to maintain containment integrity. The valves also serve as RCS pressure isolation valves as identified in TS 15.3.16. As such, valve closure is to maintain the integrity of the RCS pressure boundary and to isolate RCS pressure from the lower pressure SI piping and components.

Deferred Test Justification: Full stroke and partial stroke exercising these valves in the forward direction quarterly during power operation is not possible due to insufficient SI pump discharge head to overcome reactor pressure. Full stroke exercising these valves in the forward direction during cold shutdown is precluded by restrictions related to LTOP concerns as discussed in TS 15.3.15.B. The valves will be partially exercised in the forward direction during cold shutdown whenever leak testing per Technical Specification 15.3.16 is scheduled to ensure valve leak tight integrity is verified subsequent to closure. Partial stroke exercising without subsequent leak testing creates the potential for inter-system LOCA if the valves are not verified to be properly seated.

Partial Stroke Exercising: These valves are partially exercised in the open direction during cold shutdowns by aligning an RHR pump to the discharge of an SI pump. Partial stroke exercising is performed only when sufficient time is available for leak testing per Technical Specification 15.3.16.

Alternate Test Frequency: Full stroke exercising in the forward and reverse directions shall be performed during refueling when sufficient time is available to demonstrate proper seating of the valves per the requirements of Technical Specification 15.3.16. and sufficient expansion volume exists in the RCS to accommodate the required flow rate.

REFUELING OUTAGE TEST JUSTIFICATION - ROJ-19

System: Safety Injection

Valve(s): 1(2)SI-00862A 1(2)SI-00862B

Category: AC Code Class: 2

Function: These check valves are located in the CS pumps' discharge lines to the containment spray nozzles. The valves perform an active safety function in the open direction to provide a path for CS pump discharge flow to the spray nozzles during post-LOCA conditions. This function serves to limit peak containment pressure to less than the design pressure of 60 psig @ 286°F and removes airborne radioactive iodine from the containment atmosphere minimizing the potential of exceeding the offsite dose limits specified in 10CFR100. These valves also perform an active safety function in the closed direction. 1(2)SI-862A&B are designated outboard isolation valves for containment penetrations P-54 and P-55. As containment isolation valves, they must be capable of automatic closure on cessation of flow to maintain containment integrity.

Deferred Test Justification: The only practical means of verifying valve closure capability is by performing a seat leakage test. Performing this type of test quarterly during power operation would require isolating the associated CS header to the spray nozzles and utilizing an outside pressure source. Verifying valve closure capability with flow during quarterly pump testing would require cross connecting the discharge headers with both trains isolated from the containment spray nozzles by closing manual valves 1(2)SI-868A&B. This alignment would render both trains of CS inoperable. Exercise testing during cold shutdown is impractical due to the necessity of utilizing an outside pressure source or diagnostic testing both of which require the use of temporary test equipment with the potential of delaying plant restart.

Partial Stroke Exercising: These valves are full stroke exercised in the forward direction during quarterly pump testing by utilizing a full flow test line.

Alternate Test Frequency: Valve exercise testing in the closed direction shall be performed in conjunction with Type C seat leakage testing during refuelings. This deferral of testing frequency is further supported by Section 4.1.4 of NUREG-1482.

REFUEL OUTAGE TEST JUSTIFICATION - ROJ-20

System: Containment Spray

Valve(s): 1(2)SI-00847A 1(2)SI-00847B

Category: C Code Class: 2

Function: These check valves are located in the spray additive lines from the SAT to the CS pumps' suction. They perform an active safety function in the open direction. 1(2)SI-847A&B must be capable of opening, subsequent to the upstream AOVs opening, to provide a flow path for NaOH to be directed to the CS pump suction. The addition of NaOH to the spray stream is required for the removal of fission products released into the containment atmosphere following a LOCA. These valves also perform an active safety function in the closed direction. They must be capable of closure on reversal of flow to provide train separation during the event of containment spray pump operation with the SAT isolated. Additionally, the normally closed position prevents communication between the RWST supply and the NaOH piping which prevents inadvertent dilution of the 30% weight NaOH contained in the SAT.

Deferred Test Justification: During quarterly pump testing the containment spray pumps are run utilizing a full flow test line which recirculates flow back to the RWST to prevent wetting the containment. This test does not verify closure of 1(2)SI-847A&B, even though there is no flow through these checks, due to the eductors creating a low pressure area downstream of the check valves. Cold shutdown testing in the open direction passes RWST water through these checks. Since the check valves are in parallel paths, open testing of one check does not verify closure of the opposite train check. The only method available to verify reverse flow closure capability of these check valves is by seat leakage testing. Due to the considerable effort associated with these test activities, reverse exercise testing during cold shutdown is considered burdensome without a commensurate increase in the level of valve reliability.

Partial Stroke Testing: Partially exercising the valves would result in the same consequences as full stroke exercising and will be performed during cold shutdowns.

Alternate Test Frequency: Valve closure capability shall be verified during refuel outages by performing a seat leak test. Open testing will be performed during cold shutdowns with justification provided in CSJ-12.

REFUELING OUTAGE TEST JUSTIFICATION - ROJ-21

System:	HVAC	
Valve(s):	1(2)H2-V-04	1(2)H2-V-05
	1(2)H2-V-12	1(2)H2-V-13
	1(2)H2-V-19	1(2)H2-V-20
	1(2)H2-V-22	1(2)H2-V-23
Category:	A	Code Class: 2

Function: These normally locked closed manual containment isolation valves are located in the PACV system. The valves perform an active safety function in the open position. They may be required to be placed in the open position to vent containment atmosphere during post-LOCA conditions for the reduction of hydrogen concentration in the containment environment. The valves also perform an active safety function in the closed position. They serve as primary or secondary boundary barrier valves for containment isolation. If open during intermittent or continuous PACV operation, they would require manual closure to establish containment integrity.

Deferred Test Justification: These manual isolation valves are administratively controlled in the locked closed position to ensure containment integrity is maintained. Full stroke exercising these manual valves quarterly during power operation could affect valve seating, which affects leakage. The valves are located in a relatively mild environment and are exposed to minimal conditions conducive to valve degradation. Full stroke exercise testing during cold shutdown is considered burdensome without a commensurate increase in the level of valve reliability.

Partial Stroke Exercising: Partial stroke exercising will not be performed quarterly or cold shutdown for the same reasons provided for not performing full stroke exercising.

Alternate Test Frequency: Full stroke manual exercising of these valves shall be performed during refueling outages when performing Appendix J Type C seat leakage testing.

REFUELING OUTAGE TEST JUSTIFICATION - ROJ-22

System: Safety Injection

Valve(s): 1(2)SI-00889A 1(2)SI-00889B

Category: C Code Class: 2

Function: These check valves are located in the discharge lines from the SI pumps to the cold leg loop A & B injection lines and the core deluge loop A & B injection lines. The valves perform an active safety function in the open direction. 1(2)SI-889A&B must be capable of opening subsequent to the associated pump starting to provide a flow path for SI injection and recirculation post-accident to the RCS for emergency core cooling. This function is required to mitigate the consequences of a small break LOCA and to maintain shutdown margins subsequent to a SLB. These valves also perform an active safety function in the closed direction. The SI trains are normally aligned to maintain 100% redundancy without reliance on cross-tie capability. In this normal alignment configuration, failure of a SI pump discharge check valve to close, subsequent to a train failure or removal from service, would not compromise the ability of the operating train to accomplish its design safety function. However, SI train cross-tie capability is provided for operational flexibility and to satisfy single failure in the event the SI pumps are required to provide flow to the core deluge lines to prevent boron precipitation thereby maintaining shutdown margins. Cross-connecting the discharge lines of the SI pumps would require the pump discharge check valves to be capable of closure to prevent diversion of flow from the running pump through an idle pump. The conditions constituting this alignment configuration would not require closure capability of SI-889A on reversal of flow as cross tying the loops is required to align P-15A for core deluge subsequent to a loss of P-15B. However, closure capability will be verified as an augmented test requirement for good engineering judgment.

Deferred Test Justification: Exercising these valves in the reverse direction quarterly during the inservice testing of the adjacent pump would require opening the cross-tie manual isolation valves which renders both trains of SI inoperable. In addition, reverse exercising these check valves with flow by allowing the discharge of an operating pump to communicate with the non-operating pump's discharge check valve could result in overpressurizing the pump's suction pumping. This testing alignment would require cross-connecting A and B trains, then isolating the suction and discharge of the non-operating pump. This isolated boundary is not provided with overpressure protection. If the check valve being tested had significant leakage, the suction piping could become overpressurized by the high pressure discharge from the operating pump. The preferred method of reverse exercising these check valves is by utilizing an outside pressure source to establish a ΔP across the valve seat. This method of testing allows control of applied pressure thereby ensuring no risk of overpressurizing the pumps' suction piping. This type of testing is best performed during refueling outages when sufficient time exists for equipment setup and the SI system is not required to be operable.

Partial Stroke Exercising: These valves are full stroke exercised during the performance of quarterly pump testing.

Alternate Test Frequency: Valve exercise testing in the closed direction shall be accomplished by establishing a ΔP across the valve seat during refueling outages. This deferral of testing frequency is further supported by Section 4.1.4 of NUREG-1482.

REFUELING OUTAGE TEST JUSTIFICATION - ROJ-23

System: Safety Injection

Valve(s): 1(2)SI-00867B

Category: AC Code Class: 1

Function: These normally closed check valves are located in the safety injection line to the RCS Loop B cold legs from SI accumulators 1(2)T-34B, the SI pump discharge, and the return path for RHR shutdown cooling. The valves perform an active safety function in the open direction and must be capable of opening to provide a flow path to the RCS for injection of SI accumulator contents. 1(2)SI-867B also opens to allow high head safety injection/recirculation flow from the SI pumps. Both functions are dependent upon a reduction in RCS pressure prior to safety injection. These valves also perform an active safety function in the closed direction. The valves serve as ASME Class 1 to Class 2 pressure boundary isolation valves. As such, they perform a safety function to maintain the integrity of the RCS pressure boundary and to isolate RCS pressure from the lower pressure SI piping and components.

Deferred Test Justification: Exercising these valves to the full open or partially open position quarterly during power operation is not possible due to the inability of overcoming RCS pressure. The accumulators are charged with a nitrogen blanket at ≈700-760 psig which is insufficient to inject accumulator inventory into the RCS during normal operation for full or partial exercising. Likewise, the SI pumps have a shutoff head of ≈1500 psig which is also insufficient to overcome RCS pressure at power. To exercise these valves to their full open position at cold shutdown would require the injection of approximately 1000 ft^3 of highly concentrated borated water into the RCS which could cause a low temperature overpressure condition due to insufficient expansion volume to accommodate the high flow rate. Dumping the full accumulator inventory into the RCS at refueling could result in damage to the core internals. In addition to potentially forcing a nitrogen bubble into the RCS piping and refueling cavity resulting in possible safety implications and inhibit natural recirculation.

Partial Stroke Exercising: Partial stroke exercising will be performed during cold shutdowns by RHR shutdown cooling flow.

Alternate Test Frequency: 1(2)SI-00867B will be full stroke exercised in the forward direction during refueling outages by directing RHR shutdown cooling flow through the valves while simultaneously performing a radiographic examination test on the valve body demonstrating that the disk is in the full open position. Verification of valve closure capability shall be demonstrated by performing seat leakage testing per TS 15.3.16 during cold shutdown and or refueling.

REFUELING OUTAGE TEST JUSTIFICATION - ROJ-24

System: Safety Injection

Valve(s): 1(2)SI-00867A 1(2)SI-00842A 1(2)SI-00842B

Category: AC Code Class: 1

Function: These normally closed check valves are located in the safety injection line to the RCS cold legs from SI accumulators 1(2)T-34A/B. 1(2)SI-00867A is also in the flow path for high head safety injection via the RCS loop A cold leg. The valves perform an active safety function in the open direction and must be capable of opening to provide a flow path to the RCS for injection of SI accumulator contents. 1(2)SI-867A also opens to provide a flow path for high head safety injection/recirculation flow from the SI pumps. Both functions are dependent upon a reduction in RCS pressure prior to safety injection. These valves also perform an active safety function in the closed direction. The valves serve as ASME Class 1 to Class 2 pressure boundary isolation valves. As such, they perform a safety function to maintain the integrity of the RCS pressure boundary and to isolate RCS pressure from the lower pressure SI piping and components. Also, upon initiation of high head safety injection 1(2)SI-842A/B must close to prevent safety injection flow from being diverted to the SI accumulator in lieu of the loop A cold leg.

Deferred Test Justification: Exercising these valves to the full open or partially open position quarterly during power operation is not possible due to the inability of overcoming RCS pressure. The accumulators are charged with a nitrogen blanket at ≈700-760 psig which is insufficient to inject accumulator inventory into the RCS during normal operation for full or partial exercising. Likewise, the SI pumps have a shutoff head of ≈1500 psig which is also insufficient to overcome RCS pressure at power. In addition to potentially forcing a nitrogen bubble into the RCS piping and refueling cavity resulting in possible safety implications and inhibit natural recirculation. Since the check valves are in parallel paths, open testing of one check does not verify closure of the opposite train check. The only method available to verify reverse flow closure capability of 1/2SI-867A check valve is by seat leakage testing. Due to the considerable effort associated with these test activities, reverse exercise testing during cold shutdown is considered burdensome without a commensurate increase in the level of valve reliability.

Partial Stroke Exercising: Partial stroke exercising will be performed during cold shutdowns when an Event V test per T.S. 15.3.16 is scheduled to be performed subsequent to exercising.

Alternate Test Frequency: Full stroke capability of the valves will be verified during refueling outages by sample disassembly as outlined in VRR-01. Verification of 1(2)-SI-867A closure capability shall be demonstrated by performing seat leakage testing per TS 15.3.16 during cold shutdown and or refueling. 1(2)SI-842A/B shall be verified closed quarterly.

REFUELING OUTAGE TEST JUSTIFICATION - ROJ-25

System: Service Water

Valve(s): 0FP-00296A 0FP-00304A

Category: C Code Class: 3

Function: These check valves are located in the fire water pump P-35B supply line to the steam driven AFW pumps/turbines 1(2)P-29. The valves perform an active safety function in the closed direction. The fire water supply piping to the TDAFWPs ties into the service water bearing cooling supply piping downstream of check valves SW-135A (unit 1) and SW-112A (unit 2). Service water is the safety-related bearing cooling water supply during post accident conditions; therefore, FP-296A and FP-304A must be capable of closure to prevent diversion of TDAFWP bearing cooling water flow from the service water system to the non-safety-related, non-Code Class, Seismic Class 3 fire water system. These valves have no safety function in the open direction. The ability for the fire water system to supply bearing cooling water to the TDAFWPs is not a safety-related function. The fire water system has the capability of providing bearing cooling water to the TDAFWPs to ensure component operability subsequent to a station blackout. The diesel-driven fire water pump P-35B can provide cooling water independent of AC power, DC power, and instrument air. However, this scenario assumes multiple failures of the emergency diesel generators which is beyond the single failure design basis of the plant.

Deferred Test Justification: Verification of closure capability of these check valves quarterly during power operation is not possible due to the lack of vent/drain connections upstream. In addition, a pressure regulating device is located immediately upstream which functions to maintain the line in a charged condition at a lessor pressure than service water. To properly verify reverse flow closure capability of these check valves would require depressurizing upstream and downstream of the valves then venting residual pressure causing the pressure regulating device to fail open. With the pressure regulating device in the open position, vent or drain connections are available to verify check valve closure subsequent to realigning service water downstream or by utilizing an outside pressure source. Due to the labor intensive nature of these test activities, performing them during cold shutdown is considered a burden without a compensating increase in the level of valve reliability. During unplanned cold shutdowns the primary concern is to safely restart the plant. During planned cold shutdowns of limited duration a larger sampling of cold shutdown frequency valves can be tested prior to restart by focusing efforts on those valves not requiring temporary test equipment or partial system drainage to facilitate testing. Performing this type of test activities during refueling outages is preferred when sufficient time exists to properly perform the test without potential impacting restart.

Partial Stroke Exercising: Partially exercising the valves would require reducing service water pressure to below that of fire water and will not be performed. Additionally, valve opening capability is not a safety function.

Alternate Test Frequency: Valve closure capability will be verified at refueling when sufficient time exists to accomplish the test.

REFUELING OUTAGE TEST JUSTIFICATION - ROJ-26

System: Residual Heat Removal

Valve(s): 1(2)SI-00854A 1(2)SI-00854B

Category: C Code Class: 2

Function: These check valves are located in the individual supply line from the RWST to the suction of RHR pumps P-10A/B. The valves perform an active safety function in the open direction. They must be capable of opening subsequent to an auto pump start to provide a flow path for borated water from the RWSTs to the suction of the RHR pump. This function is required for initiation of low head safety injection flow for emergency core cooling following a large break LOCA. The valves also perform an active safety function in the closed direction. They must be capable of closure to maintain containment integrity since they are designated as closed system boundary valves. As designated interim closed system boundary valves, the check valves shall be subject to system leakage testing to assure their capability to prevent a containment bypass leakage path from the containment sump to the vented RWST post-LOCA.

Deferred Test Justification: The only practical means of verifying valve closure capability is by performing a seat leakage test. Performing this type of test quarterly during power operation would require isolating the associated RHR pump and utilizing an outside pressure source. Exercise testing during cold shutdown is impractical due to the necessity of utilizing an outside pressure source or diagnostic testing both of which require the use of temporary test equipment with the potential of delaying plant restart.

Partial Stroke Exercising: These valves are full stroke exercised in the forward direction during quarterly pump testing by utilizing a full flow test line.

Alternate Test Frequency: Valve exercise testing in the closed direction shall be performed in conjunction with system seat leakage testing during refuelings. This deferral of testing frequency is further supported by Section 4.1.4 of NUREG-1482.

REFUELING OUTAGE TEST JUSTIFICATION - ROJ-27

System: Safety Injection

Valve(s): 1(2)SI-00875A 1(2)SI-00875B

Category: C Code Class: 2

Function: These check valves are located in a 3/4" branch line connecting the high head safety injection headers to the SI check valves' test line. The valves perform an active safety function in the partially open direction. 1(2)SI-875A&B must be capable of opening to provide a relief path for overpressure protection of the safety injection headers. The SI injection piping is attached to the RCS pressure boundary and the SI piping design pressure is less than RCS operating pressure. The relief valves for the SI injection piping, 1(2)SI-887, are located downstream of 1(2)SI-875A&B. Therefore, 1(2)SI-875A&B must open to provide overpressure protection relief path. There is no required flow rate associated with its safety function in the open direction. These valves also perform an active safety function in the closed direction. 1(2)SI-875A&B are designated containment isolation valves for penetrations P-13 and P-27. As such, 1(2)SI-875A&B must be capable of closure on reversal of flow to maintain containment integrity. A closed system serves a the containment boundary barrier outside containment.

Deferred Test Justification: These simple check valves are located inside containment. Exercising these valves in the forward direction requires alternating flow in the high head safety injection headers and diverting a portion of flow through the SI test line utilized for measuring seat leakage of the Event V check valves. Establishing this alignment requires manipulation of locked closed manual containment isolation valves inside and outside containment. Performing this testing activity quarterly during power operation would result in requiring manual operator action to restore containment integrity.

Verification of reverse flow closure capability of these check valves requires the installation of temporary test gauges either inside or outside containment, depending on the availability of vent/drain connections, to provide a means of observing a differential pressure exists across the valve seat. This testing is best performed during refueling when full flow forward exercising the individual train high head safety injection checks which requires the vessel head removed, allowing sufficient expansion volume to accommodate the required flow rate. In addition, performing this test activity at refueling allows sufficient time for the installation an removal of temporary test equipment inside containment and the necessary system alignment.

Partial Stroke Testing: Partial stroke exercising will be performed during cold shutdowns.

Alternate Test Frequency: Partial stroke exercising in the forward direction shall be performed during cold shutdowns when containment integrity is not required. Valve exercise testing in the closed direction shall be accomplished by verifying a differential pressure exists across the valve seat when performing forward exercising of the high head safety injection check valves in the individual trains. This testing can only be performed during refueling outages when sufficient expansion volume exists to accommodate the required flow rate.

APPENDIX E

TECHNICAL JUSTIFICATIONS

TJ-01	1/2CS-466, -476
TJ-02	1/2CS-480, -481
TJ-03	1/2H2-V-26
TJ-04	1IA-644, -645, -1280, -1281 2IA-876, -877, -1401, -1402
TJ-05	1IA-1301, -1302 2IA-1418, -1419
TJ-06	1IA-1203, -1204, -1207, -1210 2IA-1332, -1333, -1336, -1339
TJ-07	1/2MS-2017A, -2018A

TECHNICAL JUSTIFICATION - TJ-01

System: Feedwater

Valve(s): 1(2)CS-00466 1(2)CS-00476

Category: B Code Class: NC

Function: These normally open air operated valves are located in the main feedwater supply header to the steam generators and serves as the feedwater flow control valves. The valves perform an active safety function in the closed position to isolate feedwater flow during a MSLB. Isolating feedwater flow subsequent to a MSLB decreases the blowdown rate from the steam line break which reduces cooling of the primary system and reduces the post-accident containment pressure by limiting the energy mass release to containment. The valves must be capable of automatic closure upon receipt of an SI signal which is indicative of conditions requiring feedwater isolation. 1(2)CS-466 and -476 will also auto close upon receipt of a low Tave signal coincident with a reactor trip to prevent overcooling the reactor which could result in a return to criticality. Auto closure will also occur upon receipt of a high steam generator level signal to prevent steam generator flooding. The later two automatic isolation signals are not required for accident mitigation and are classified as non-QA functions. These valves have no safety function in the open position. During normal operation, the feedwater regulator control valves modulate to control the flow of feedwater to the steam generator in response to a control air signal supplied from the steam generator water level control circuitry. The feedwater regulator valve will also auto open, if closed, upon receipt of a high Tave signal with a reactor trip to supply feedwater as quickly as possible to reduce the reactor coolant Tave to the no-load average temperature value. The automatic opening function is not required for accident mitigation and is classified as a non-QA function.

Deferred Test Justification: Exercising the feedwater flow control valves closed quarterly during power operation would result in a loss of normal feedwater flow to the associated Steam Generator. Isolation of normal feedwater flow during power operation could potentially cause a severe steam generator level transient which could result in a plant trip, and would initiate an auxiliary feedwater system actuation signal unnecessarily. This closure testing is considered augmented, since the valves are not ASME Class 1, 2, or 3.

Partial Stroke Testing: Partial stroke exercising will be performed through normal operation of the valves in their modulating capacity.

Alternate Test Frequency: Exercise, stroke time, and fail safe test to the closed position during cold shutdowns when feedwater is removed from service.

TECHNICAL JUSTIFICATION - TJ-02

System: Feedwater

Valve(s): 1(2)CS-00480 1(2)CS-00481

Category: B Code Class: NC

Function: These normally closed air operated valves are located in the bypass lines around the feedwater regulator control valves. The bypass valves perform an active safety function in the closed position to isolate feedwater flow during a MSLB. Isolating feedwater flow subsequent to a MSLB decreases the blowdown rate from the steam line break which reduces cooling of the primary system and reduces the post-accident containment pressure by limiting the energy mass release to containment. These valves must be capable of automatic closure, if open, upon receipt of an SI signal which is indicative of conditions requiring feedwater isolation. This isolation capability is redundant to the main feedwater, condensate, and heater drain tank pump trip circuitry which actuates on receipt of a high containment pressure signal. However, this pump trip circuitry is non-safety related and cannot be relied on for isolation of feedwater subsequent to a MSLB. The feedwater regulator control bypass valves will also auto close upon receipt of a high steam generator level signal to prevent steam generator flooding. This automatic isolation signal is not required for accident mitigation and is classified as a non-QA function. These valves have no safety function in the open position.

Deferred Test Justification: Exercising the feedwater regulator control bypass valves to the closed position quarterly during power operation could induce perturbations in normal feedwater flow possibly resulting in undesirable fluctuations in steam generator level. This closure testing is considered augmented, since the valves are not ASME Class 1, 2, or 3.

Partial Stroke Testing: Partial stroke exercising will be performed during startups through normal operation of the valves in their modulating capacity.

Alternate Test Frequency: Exercise, stroke time, and fail safe test to the closed position during cold shutdowns when feedwater is removed from service.

TECHNICAL JUSTIFICATION - TJ-03

System: HVAC

Valve(s): 1(2)H2-V-26

Category: C Code Class: 2

Function: These PACV (Post Accident Containment Vent) service air supply check valves are located in the service air supply line to the containment atmosphere. The valves must be capable of opening to provide a path for service air flow to containment if service air is required for containment pressurization/hydrogen dilution prior to initiating PACV for hydrogen removal. Due to the dependency on the non-safety related service air system, the open safety function shall be classified as **Augmented**. 1(2)H2-V-26 have no safety function in the closed direction. The check valves are located between the designated primary and secondary isolation valves for containment penetrations P-25c (Unit 1) and P-42c (Unit 2).

Deferred Test Justification: These check valves are located between locked closed manual containment isolation valves. To verify partial open capability, flow is verified using an outside pressure source to open the check valve. Quarterly testing is not considered feasible since the required alignment would result in having only one containment barrier during testing. Due to the considerable effort associated with these test activities, partial exercise testing during cold shutdown is considered impractical due to the necessity of utilizing temporary test equipment. Testing more often than every refuel outage would be burdensome without a commensurate increase in the level of valve reliability. This partial open test is considered to be an augmented test.

Partial Stroke Testing: Partially exercising the valves will be performed during refueling outages.

Alternate Test Frequency: Partial exercise to the open position during refueling as part of the Appendix J Type C leak test of the containment penetration manual isolation valves. Test volume will be vented through these valves to verify partial open capability.

TECHNICAL JUSTIFICATION - TJ-04

System: Instrument Air

Valve(s): 1IA-00644, 1IA-00645, 1IA-01280, 1IA-01281
2IA-00876, 2IA-00877, 2IA-01401, 2IA-01402

Category: AC   Code Class: NC

Function: These check valves are located in the non-Code Class seismic Class 1 instrument air supply line to the boot seals associated with the containment purge valves. These valves have no safety function in the open direction. An accumulator is situated downstream of each check valve with sufficient capacity to maintain the seals fully inflated subsequent to a loss of the non-safety related instrument air system. These check valves perform a safety function in the closed direction. They must be capable of closure to maintain pressure boundary integrity of the downstream accumulator and piping subsequent to a loss of the non-safety related instrument air system or when instrument air header pressure is inadequate to maintain the seals properly inflated.

Deferred Test Justification: Exercising these valves in the closed direction quarterly during power operation would require depressurizing the instrument air header inside containment and performing an accumulator pressure decay test. Performing this testing activity quarterly is burdensome without a commensurate increase in valve reliability. Reverse exercising shall be performed during cold shutdowns. Since these valves are not ASME Code Class 1, 2, or 3 this testing is considered to be augmented testing.

Partial Stroke Testing: These valves perform no safety function in the open direction. Normal air supply to the boot seals does verify partial open capability.

Alternate Test Frequency: Closure verification of these check valves shall be performed during cold shutdowns when performing accumulator pressure decay testing.

TECHNICAL JUSTIFICATION - TJ-05

System: Instrument Air

Valve(s): 1IA-01301 1IA-01302
2IA-01418 2IA-01419

Category: C Code Class: NC

Function: These normally closed check valves are located in the non-Code class seismic Class 1 nitrogen supply lines from the backup nitrogen bottles to the PORVs. The valves have no safety function in the closed direction. These check valves perform an active augmented safety function in the open direction. They must be capable of opening to provide an unobstructed flow path for backup nitrogen to the PORVs whenever the upstream manual isolation valves are placed in the open position. The PORVs may be aligned to the backup nitrogen bottle, subsequent to a loss of normal instrument air, in order to accomplish the following augmented safety functions; depressurization during SGTR recovery, depressurization when the safety injection (SI) pumps are utilized as an alternate means of borating the RCS, or to provide low temperature overpressure protection (LTOP) when the RCS is in a low temperature water solid condition.

Deferred Test Justification: Exercising these check valves requires the PORVs to be cycled. Demonstrating the associated PORV's ability to change position within the required stroke time limitations when receiving actuating air from the nitrogen bottle satisfies full stroke exercise requirements for these check valves. Due to the possibility of the PORV to stick open or fail to seal tightly when reseated the PORVs will not be exercised at power. Additionally, GL 90-06 provides guidelines to not exercise the PORVs at power. This open test is considered to be an augmented test since the valves are not ASME Class 1, 2, or 3.

Partial Stroke Testing: Since nitrogen supply to the PORVs is isolated during normal operation, partially exercising will be performed during cold shutdowns only.

Alternate Test Frequency: Exercise to the open position during cold shutdowns by stroking the PORVs with backup nitrogen as the 'air' supply. There is no accident flow rate associated with the valves' safety function in the open direction. Satisfactory stroke time of the PORVs will verify full open capability.

TECHNICAL JUSTIFICATION - TJ-06

System:	Instrument Air	
Valve(s):	1IA-01203 1IA-01204	2IA-01332 2IA-01333
	1IA-01207	2IA-01336
	1IA-01210	2IA-01339
Category:	B	Code Class: NC

Function: These normally closed manual isolation valves are located in the non-Code class seismic Class 1 nitrogen lines from the nitrogen backup bottles to the PORVs. The valves perform a passive safety function in the closed position. Their normally closed position prevents a loss of inventory maintained in the nitrogen backup bottle. These valves perform an active augmented safety function in the open position. The valves must be placed in the open position when aligning the PORVs to receive actuating air from the backup nitrogen bottles.

Deferred Test Justification: The valves are located inside containment and are exposed to minimal conditions conducive to valve degradation. Exercising them quarterly would require containment entry at power. Performing this testing activity quarterly is burdensome without a commensurate increase in valve reliability. Full stroke manual exercising the valves during cold shutdowns, when testing the PORVs, will provide adequate assurance of valve opening and closure capability. This exercise test is considered to be an augmented test since the valves are not ASME Class 1, 2, or 3.

Partial Stroke Testing: Partial stroke exercising will not be performed quarterly for the same reasons provided for not performing full stroke exercising.

Alternate Test Frequency: Full stroke manual exercising shall be performed during cold shutdowns when testing the PORVs.

TECHNICAL JUSTIFICATION - TJ-07

System: Main Steam

Valve(s): 1(2)MS-02017A 1(2)MS-02018A

Category: C Code Class: NC

Function: These MS non-return check valves are located in non-Code class piping downstream of the MSSVs and upstream of the main steam cross connection. The valves perform an active safety function in the closed direction. A steam line rupture upstream of the non-return valves would require valve closure to prevent unrestricted blowdown of the unaffected steam generator. These valves have no safety function in the open direction. 1(2)MS-2017A and -2018A remain open during normal operation to allow steam flow from steam generators to the main turbine in support of power generation. This function is not required for accident mitigation and is not a safety-related function.

Deferred Test Justification: Exercising these valves in the closed direction during normal operation would require isolation of one line of steam flow to the turbine. Isolation of a main steam header would cause a severe pressure transient in the associated main steam line possibly resulting in a plant trip. Additionally, isolation of a main steam header at power could potentially result in challenging the set point of the main steam relief valves causing inadvertent lifting. Reducing power level to perform testing without causing a transient would significantly impact plant operations and power production. This closure test is considered to be an **augmented** test since the valves are not ASME Class 1, 2, or 3.

Partial Stroke Testing: The MS non-return check valves can not be partially stroked in the closed direction from their normally full open position for the same reasons that full stroke exercising cannot be performed.

Alternate Test Frequency: Exercise to the closed position during cold shutdown.

APPENDIX F

TECHNICAL POSITIONS

TECHNICAL POSITION - TP-01

System:	Various	
Valve(s):	1(2)CV-01296	1(2)RC-00557
Category:	A (CV-1296)	B (RC-557)
Code Class:	1 (CV-1296)	NC (RC-557)

Function: These normally closed air operated valves perform an active function in the partially open position to provide a relief path during a thermally induced overpressure condition of the containment penetration piping post-LOCA. An increase in pressure due to thermal expansion results in pressure accumulation under the valve disk causing the valve to partially open providing a pressure relief path.

Technical Position: Recent evaluations required by NRC Generic Letter 96-06 determined that these valves provide overpressure protection for piping associated with containment penetration P-32C and P-30C. This overpressure protection capability provides a relief path during a thermally induced overpressure condition of the containment penetration post-LOCA. The actuator spring set allows the valves to partially open when sufficient pressure has accumulated under the valve seat. Although the valves serve as overpressure protection devices, the requirements of ASME OM-1 are not applicable. ASME OM-1 does not provide guidance or specific requirements pertaining to the testing of air operated valves which serve an overpressure protection function. The lifting capability of the valves is a determination of the amount of pressure accumulation under the valve disk required to overcome the closure force maintained by the air actuator spring. The valves are fail-closed on a loss of air or electrical power, overcoming air pressure exerted to the area over the actuator diaphragm is not a factor. The amount of pressure accumulation required to lift the disk off the seat is not adjustable nor do the valves' have a certified rate of discharge capacity. To demonstrate the ability of the valves to provide thermal overpressure protection, a calculation will be performed to determine the amount of pressure accumulation required to lift the AOV off the seat. Special testing will be performed to verify that the valve will lift at the specified pressure. Subsequent testing will consist of timing the valve to the open position. Any degradation of the valves operating characteristics will be detected by a deviation in stroke time. In addition, the valves receive diagnostic testing per the AOV testing program.

TECHNICAL POSITION - TP-02

System: Control Room (CR) and Cable Spreading Room (CSR) HVAC

Valve(s): 0VNCR-04636 0VNCR-04639
0VNCSR-04638 0VNCSR-04640

Category: B Code Class: NC

Function: These air operated temperature control valves are located in the chilled water hydraulic circuitry associated with the control room and cable spreading room HVAC systems. The valves perform an augmented safety significant function in their fail-safe open position either to minimize the amount of heat added to the rooms or to ensure room cooling capability on a loss of instrument air. Both the control room and cable spreading room contain safety related temperature sensitive instrumentation which would require cooling following a design basis accident.

Technical Position: These non-Code class valves are not provided with a remote manual switch or remote position indication to facilitate conventional stroke timing. Valve positioning is dependent upon a temperature control signal input provided by non-safety related, non-seismically qualified temperature indicating controllers. The preferred method of verifying valve operability and monitoring for valve degradation is by demonstrating the valves properly respond to temperature control signal input and by observation of proper valve modulation during operation of the system. The fail-safe capability of the valves is verified quarterly by bleeding the actuating air from the valve operator. Monitoring for valve degradation to the fail-safe open position by stroke timing would require manually applying pressure to force the valve closed then timing open when the pressure is bled-off. This method of testing is prescribed in NUREG-1482, Section 4.2.9, "Control Valves with a Safety Function" but is not explicitly required by the Code. Should a control valve be capable of fully traveling to its non-conservative position without the assist of a manually applied pressure source, and have a fail-safe safety related position, then Code testing would be appropriate. Otherwise, control valves which are unable to travel to their nonconservative position are best demonstrated to function properly by observation during normal system operation, in addition to fail-safe testing. Due to the non-Code classification of these valves request for relief from Code required testing pursuant to 10CFR50.55a(a)(3) is not required.

TECHNICAL POSITION - TP-03

System:	Instrument Air	
Valve(s):	1IA-01206, -01209 2IA-01335, -01338	1IA-01605, -01606 2IA-01652, -01653
Category:	C	Code Class: NC

Function: These series check valves are located in the non-Code class seismic Class 1 instrument air supply lines to the pressurizer PORVs. The valves have no safety significant function in the open direction. The ability of the PORVs to operate is not dependent upon instrument air to accomplish their design functions. The valves are provided with a backup nitrogen supply source to ensure continued operability during a loss of instrument air. These valves performs an active augmented safety significant function in the closed direction. They must be capable of closure to prevent diversion of the backup nitrogen to the instrument air system in lieu of being directed to the PORVs whenever the PORV is aligned to receive its actuating air from the backup nitrogen bottle. Diversion of backup nitrogen to the instrument air system could compromise the ability of the PORV to accomplish its design functions.

Technical Position: Each instrument air supply line to the associated PORV contains two simple check valves in series with no intermediate test connections for individual valve closure verification. The accident analysis does not credit or require both of these series check valves to provide isolation of the non-classed instrument air system from the backup nitrogen bottles. Therefore, one valve could be removed without creating a conflict with regulatory or licensing requirements. The additional check is considered a design safety enhancement to ensure pressure boundary integrity of the associated backup nitrogen bottle. Per the guidelines provided in NUREG-1482, Section 4.1.1, the two valves shall be considered to function as a single unit and, if either of them close, proper operation of the accumulators is assured. To verify reverse flow closure of the unit requires containment entry to isolate and depressurize the instrument air system piping immediately upstream of the series checks and monitoring for leakage via an opened tubing connection. Because of the time required to implement the testing, and due to the extent of the test activities, performing closure verification quarterly during power operation is burdensome without a compensating increase in the level of valve reliability. These series check valves will be tested as a unit during cold shutdown. Test results outside the acceptance criteria shall result in declaring both valves within the unit inoperable and corrective actions taken, as necessary, to restore the valves to an operable status before being returned to service.

TECHNICAL POSITION - TP-04

System: Instrument Air

Valve(s): 1IA-06310 1IA-06311
2IA-06342 2IA-06343

Category: N/A Code Class: NC

Function: These pressure regulating devices are located in the non-Code class seismic Class 1 nitrogen supply lines from the backup nitrogen bottles to the individual PORVs. These devices perform a pressure regulating function to reduce nitrogen bottle pressure from >1200 psig to a working pressure of 100 psig. Their proper operation is required to prevent overpressurizing the individual valve actuators and to support operation of the respective PORV. However, the downstream piping is protected by a relief valve to mitigate the consequences of a pressure regulator failure. These pressure regulating devices are not provided with position indication or a control switch and do not have a fail-safe position.

Technical Position: These components are simple two-stage pressure regulating devices with a predetermined setpoint of 100 psig. As such, they are exempt from IST requirements as allowed by IWV-1200 and OM-10, Para.1.2.(a)(2). However, due to the critical function these pressure regulators perform they shall remain in the IST program as augmented components and be observed for proper operation during cold shutdowns at the same frequency as forward exercising the downstream nitrogen supply check valves. In addition, instructions are provided in EOP-0.2 and ECP-1.2 to verify the pressure regulators are set at 100 psig subsequent to opening the manual nitrogen supply isolation valves.

TECHNICAL POSITION - TP-05

System: Cable Spreading Room Chilled Water

Components: 0P-111A&B Cable Spreading Room Chilled Water (CSRCW - Augmented)

Code Class: NC

Code Requirement: Instrument accuracy shall be within the limits of Table 1. Station instruments meeting these requirements shall be acceptable [OM-6, Para. 4.6.1.1]. These accuracy requirements also apply to the percent of total loop accuracy for a combination of instruments [OM-6, Table 1, Note].

The full scale range of each analog instrument shall not be greater than three times the reference value [OM-6, Para. 4.6.1.2(a)].

Technical Position: The permanently installed pressure instruments in the following table have a full scale range that exceeds three times the reference value criteria that is specified by the Code. Although these instruments do not meet the Code requirements, they are able to provide the same or better indication accuracy as an instrument that is allowed by the Code, and ensure repeatability of test data. These instruments are non-Code Classed and associated with a non-Code Classed components, they are included in the IST program as Augmented components.

For instruments to be in compliance with OM-6, two requirements must be satisfied. The first requirement states that flow and pressure instrumentation must be accurate to within ±2% of the full scale value; the second requirement states that the full scale range of each instrument shall be three times the reference value or less. Based on these requirements, a maximum indicated accuracy of ±6% can be calculated by comparing the actual tolerance of the instrument to the reference value being measured. An example of calculating indicated instrument accuracy is as follows.

Example:

The following example uses a pressure reference value of 20 psig and a pressure gauge with full scale range of 60 psig that is calibrated to ±2% of full scale.

Code Requirement:

3 x reference value (20 psig) = 60 psig
Instrument tolerance = ± 1.2 psig (±2% x 60 psig)

Indicated Accuracy:

±1.2 psig/20 psig x 100% = ±6%

The indicated accuracy for the instruments on the pumps listed are less than or equal to ±6% at the reference value. These accuracies are the same or better than those allowed by the Code. The use of the existing gauges is supported by NUREG-1482, Paragraph 5.5.1 when the combination of range and accuracy yields a reading at least equivalent to the reading achieved from instruments that meet the Code requirements. In addition, the gauges identified serve as suction pressure gauges. Since suction pressure is subtracted from a much higher discharge pressure to determine differential pressure, the impact of the suction pressure error is minimized.

The following table specifies the instruments where this relief request applies. The indicated accuracy, which is less than ±6% in all cases, is determined by dividing the actual instrument calibration tolerance by the reference value multiplied by 100%.

Pump ID (Freq)	Instrument Number	PPCS Loop Accuracy	Parameter	Reference Value (Baseline)	Instr Range	Instr Accur (Loop)	Instr Cal Tolerance	Indicated Accur @ Ref. Value
0P-111A	PI-4745	N/A	Suction Pressure	**3.5 psig**	**0-10 psig**	± 1.00%	± 0.1 psig	± 2.86%
0P-111B	PI-4747	N/A	Suction Pressure	**3.0 psig**	**0-10 psig**	± 1.00%	± 0.1 psig	± 3.33%

The existing permanently installed pump instrumentation is acceptable provided the indicated accuracy is less than or equal to ±6% of the reference value. No alternate testing will be performed. Any change in the baseline reference value shall be determined acceptable providing the indicated accuracy of the new reference value does not exceed the range or indicated accuracy allowables of OM-6.