VIRGINIA ELECTRIC AND POWER COMPANY
RICHMOND, VIRGINIA 23261

May 1, 2013

U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C. 20555

Serial No. 13-268
NL&OS/GDM R1
Docket Nos. 50-280/281
License Nos. DPR-32/37

VIRGINIA ELECTRIC AND POWER COMPANY
SURRY POWER STATION UNITS 1 AND 2
INSERVICE TESTING PROGRAM FOR PUMPS AND VALVES
FIFTH TEN YEAR INTERVAL UPDATE AND ASSOCIATED RELIEF REQUESTS

Pursuant to 10 CFR 50.55a(f)(4)(ii), Virginia Electric and Power Company (Dominion) submits the Surry Power Station (Surry) Units 1 and 2 Inservice Testing (IST) Programs for Pumps and Valves for the fifth ten-year IST interval. 10 CFR 50.55a(b)(3) refers to the ASME Code for Operation and Maintenance (OM) of Nuclear Power Plants and includes the 2004 Edition, the 2005 Addenda and the 2006 Addenda. The Code reference became effective on July 21, 2011 and applies to the fifth IST interval for Surry Units 1 and 2. The IST Programs for the fifth interval were updated to comply with the appropriate revisions of the ASME OM Code. The IST Programs and associated summary of changes for Surry Units 1 and 2 are included in Enclosures 1 and 2, respectively. The fifth IST interval starts on May 10, 2014 for both units.

The relief requests contained in the Surry Units 1 and 2 fifth interval IST Programs require NRC review and approval before they can be implemented. For Surry Unit 1, there is one relief request associated with the general administration of the IST Program (G-1), ten relief requests for pumps (P-1 through P-10), and one relief request for valves (V-1). For Surry Unit 2, there is one relief request associated with the general administration of the IST Program (G-1), seven relief requests for pumps (P-1 through P-7), and one relief request for valves (V-1). A summary of the Surry Units 1 and 2 relief requests, as well as the relief requests themselves, are included in Enclosures 1 and 2, respectively.

Dominion requests NRC approval of the Surry Units 1 and 2 IST Programs' relief requests by April 30, 2014. The remaining portions of the IST Programs are within the provisions of the Code and therefore do not require NRC approval for implementation.

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NRR

If you have any questions or require additional information, please contact Ms. Candee Lovett at (757) 365-2178.

Respectfully,

N. L. Lane
Site Vice President - Surry Power Station

Commitments made in this letter: None

Enclosures:

1. Surry Power Station Unit 1, Fifth Interval Inservice Testing Program and Associated Relief Requests

2. Surry Power Station Unit 2, Fifth Interval Inservice Testing Program and Associated Relief Requests

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ENCLOSURE 1

SURRY POWER STATION UNIT 1
FIFTH INTERVAL INSERVICE TESTING PROGRAM

VIRGINIA ELECTRIC AND POWER COMPANY
(DOMINION)

ATTACHMENT 1

SURRY POWER STATION UNIT 1
INSERVICE TESTING PROGRAM

SUMMARY OF PROPOSED RELIEF REQUESTS
FOR THE
FIFTH 10 YEAR TESTING INTERVAL

VIRGINIA ELECTRIC AND POWER COMPANY
(DOMINION)

SURRY POWER STATION UNIT 1 INSERVICE TESTING PROGRAM SUMMARY OF PROPOSED RELIEF REQUESTS FOR THE FIFTH 10 YEAR TESTING INTERVAL			
Interval 5 Relief Request	Relief Request Description	Interval 4 Relief Request	Comments
G-1	General program relief to use OMN-20, which allows for the application of a 25% grace period when scheduling tests.	None	Other plants have submitted similar relief requests and at least one plant (Quad Cities) has received NRC approval. This issue was discussed during the last ASME OM Code/IST Owners Group meetings held in December 2012. The NRC representative discussed Code Case OMN-20, which allows for a 25% grace period when performing IST tests. Having this Code Case will solve the issue with TS 3.0.2 and TS 4.0.2, which allow a 25% grace for TS Surveillance Requirements (SRs), but not for IST tests that do not have an associated SR. NRC stated that several utilities have already requested relief to implement the draft Code Case. A relief request will be submitted using OMN-20 for the SPS Interval 5 update.
P-1	Allows for a base reference value of 0.05 ips for smooth running pumps.	P-1	North Anna received NRC approval for a similar relief request. Several plants have received NRC approval for similar relief requests within the last 3 years.
P-2	Relief from testing the RHR pumps every quarter.	P-2	North Anna received NRC approval for a similar relief request. There was a provision in the Surry Interval 4 Relief Request P-2 that stated, "These pumps will be tested every cold shutdown outage and reactor refueling outage at the first practical opportunity after containment sub-atmospheric pressure is relieved, unless the pump has been tested within the previous three months." The provision "at the first practical opportunity after containment sub-atmospheric pressure is relieved" was removed for the Interval 5 relief request for the following reasons. 1) Performing the pump test during plant cool down interrupts the cool down process and distracts the Operators from their primary task of safely bringing the plant to a cold shutdown condition. 2) The RCS water temperature is near 200^{0}F when performing the pump test at the "first practical opportunity" which is much higher than when performing the pump test following maintenance with the water temperature near 80^{0}F. The 100^{0}F difference in water temperature affects the comparison of differential pressure values measured at hot conditions to reference values measured at cold conditions. This temperature difference must be accounted for in the test procedure.

SURRY POWER STATION UNIT 1 INSERVICE TESTING PROGRAM SUMMARY OF PROPOSED RELIEF REQUESTS FOR THE FIFTH 10 YEAR TESTING INTERVAL			
Interval 5 Relief Request	Relief Request Description	Interval 4 Relief Request	Comments
			3) Performing the pump test "at the first practical opportunity" provides no benefits in terms of testing at the "as found condition" because the pump has already been operating for about 6 to 10 hours before the test can be performed. 4) The pumps will be operating at cold conditions for a large majority of the time the pumps are needed.
P-3	Relief from the Code required 2% accuracy for the boric acid transfer pump suction pressure instruments (current accuracy is 3%).	P-6	Two other plants received NRC approval for similar relief requests.
P-4	Relief from the Code required analog pressure indicator full scale being less than or equal to 3 times the reference value for the charging pump cooling water pumps.	P-7	One other plant received NRC approval for a similar relief request.
P-5	Relief from the Code required reference value for flow rate for the comprehensive pump test being within 20% of pump design flow rate for the CS pumps.	P-8	North Anna received NRC approval for a similar relief request. The relief request for the CS pumps (P-5) only applies to Unit 1 because the Unit 1 pumps are flowing just below (1596 gpm) the required flow for the comprehensive pump test which is within 20% (1600 gpm) of the accident flow rate (2000 gpm). Therefore, there is a need for relief. The Unit 2 pumps flow within 20% of the accident flow rate by a wide margin (1671 gpm for the A pump and 1681 gpm for the B pump) and relief is not needed.
P-6	Relief from having to use the 1.03% upper action limit for the comprehensive tests. The upper required action limit is increased to 1.06% per Code Case OMN-19. Applies to all ASME Classed pumps except the CS pumps. The design basis accident flow rate cannot be achieved for the CS pumps with the current test loop configuration.	None	There are no submitted or approved relief requests for other plants that are similar to P-6. For pumps that have a specific design basis accident flow rate in the credited safety analysis (e.g., technical specifications, technical requirements program, or updated safety analysis) the NRC expects that the Owner also perform a pump periodic verification (PPV) test. A PPV test is a test that verifies a pump can meet the required (differential or discharge) pressure as applicable, at its highest design basis accident flow rate.

SURRY POWER STATION UNIT 1
INSERVICE TESTING PROGRAM
SUMMARY OF PROPOSED RELIEF REQUESTS
FOR THE FIFTH 10 YEAR TESTING INTERVAL

Interval 5 Relief Request	Relief Request Description	Interval 4 Relief Request	Comments
P-7	Allows for the use of a pump curve for testing the emergency SW pumps per ASME OM Code Case OMN-16.	P-3	North Anna received NRC approval for a similar relief request. The Interval 4 relief request used Code Case OMN-9, Use of a Pump Curve for Testing for the emergency SW pumps. OMN-9 is being replaced by OMN-16 of the same title for plants subject to latter editions of the Code. Code Case OMN-16 is being included in Revision 1 to RG 1.192, which is the RG used by the NRC to approve code cases for use without a relief request. Revision 1 is expected to be approved for use by the NRC in the second quarter 2014. The decision was made to go forward with a relief requests using Code Case OMN-16 in case the RG is not approved by 5/10/2014.
P-8	Allows for the use of a pump curve for testing the main control room air condition chilled water VS pumps per ASME OM Code Case OMN-16.	P-4	Refer to discussion for P-7
P-9	Allows for the use of a pump curve for testing the main component cooling CC pumps per ASME OM Code Case OMN-16.	P-5	Refer to discussion for P-7
P-10	Allows for the use of a pump curve for the quarterly testing the charging pumps per ASME OM Code Case OMN-16.	None	North Anna received NRC approval for a relief request to use OMN-9. P-10 will be added for the quarterly test for the charging pumps. The basis for the relief is as follows. Plant conditions may not be the same as when the reference values were established. In the Chemical and Volume Control System, charging system flow must be balanced with seal injection, letdown and seal return flows to maintain a constant pressurizer level and pressure. Adjusting the charging flow rate to a specific reference test flow rate and then returning the charging system to the original flow rate places an unnecessary transient on the charging system and causes undesirable perturbations within the Reactor Coolant System.
V-1	Allows a RWST isolation valve to exceed its leak limit if overall leakage to the RWST is within the overall limit.	V-2	North Anna received NRC approval for a similar relief request.

ATTACHMENT 2

SURRY POWER STATION UNIT 1
INSERVICE TESTING PROGRAM

PROPOSED RELIEF REQUESTS
FOR THE
FIFTH 10 YEAR TESTING INTERVAL

VIRGINIA ELECTRIC AND POWER COMPANY
(DOMINION)

RELIEF REQUEST G-1

Proposed alternative in accordance with 10CFR50.55a(a)(3)(ii), Hardship or Unusual Difficulty Without Compensating Increase in Level of Quality or Safety.
Alternative provides acceptable level of quality and safety.

1.0 ASME Code Components Affected

All Pumps and Valves contained within the Inservice Testing Program scope

2.0 Applicable Code Edition and Addenda

ASME OM Code, 2004 Edition, 2005 and 2006 Addenda

3.0 Applicable Code Requirements

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

Code Paragraph	Description
ISTA-3120(a)	"The frequency for the inservice testing shall be in accordance with the requirements of Section 1ST."
ISTB-3400	Frequency of Inservice Tests
ISTC-3510	Exercising Test Frequency
ISTC-3540	Manual Valves
ISTC-3630(a)	Frequency
ISTC-3700	Position Verification Testing
ISTC-5221 (c)(3)	"At least one valve from each group shall be disassembled and examined at each refueling outage; all valves in a group shall be disassembled and examined at least once every 8 years."
Appendix I, I-1320	Test Frequencies, Class 1 Pressure Relief Valves
Appendix I, I-1330	Test Frequencies, Class 1 Non-reclosing Pressure Relief Devices
Appendix I, I-1340	Test Frequencies - Class 1 Pressure Relief Valves that are used for Thermal Relief Application
Appendix I, I-1350	Test Frequencies - Class 2 and 3 Pressure Relief Valves
Appendix I, I-1360	Test Frequencies - Class 2 and 3 Non-reclosing Pressure Relief Devices
Appendix 1, I-1370	Test Frequencies - Class 2 and 3 Primary Containment Vacuum Relief Valves

RELIEF REQUEST G-1 (Cont.)

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

4.0 Reason for Request

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

ASME OM Code Section 1ST establishes the inservice test frequency for all components within the scope of the Code. The frequencies (e.g., quarterly) have always been interpreted as "nominal" frequencies (generally as defined in the Table 3.2 of NUREG 1482, Revision 1) and Owners routinely applied the surveillance extension time period (i.e., grace period) contained in the plant Technical Specifications (TS) Surveillance Requirements (SRs). The TS typically allow for a less than or equal to 25% extension of the surveillance test interval to accommodate plant conditions that may not be suitable for conducting the surveillance (TS 4.0.2). However, regulatory issues have been raised concerning the applicability of the TS "Grace Period" to ASME OM Code required inservice test frequencies irrespective of allowances provided under TS Administrative Controls (i.e., TS 6.4.I, "Inservice Testing Program," invokes TS 4.0.2 for various OM Code frequencies).

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

RELIEF REQUEST G-1 (Cont.)

The NRC recognized this potential issue in the TS by allowing a frequency tolerance as described in TS 4.0.2. The lack of a similar tolerance applied to OM Code testing places an unusual hardship on the plant to adequately schedule work tasks without operational flexibility.

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

5.0 Proposed Alternative and Bases for Use

Code Case OMN-20 is included in the ASME OM Code, 2009 Edition and will be used as the alternative to the frequencies of the ASME OM Code.

The requirements of Code Case OMN-20 are described below.

ASME OM Division: 1 Section IST and earlier editions and addenda of ASME OM Code specify component test frequencies based either on elapsed time periods (e.g., quarterly, 2 years, etc.) or based on the occurrence of plant conditions or events (e.g., cold shutdown, refueling outage, upon detection of a sample failure, following maintenance, etc.).

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

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

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

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

RELIEF REQUEST G-1 (Cont.)

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

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

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

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

b. Components whose test frequencies are based on the occurrence of plant conditions or events may not have their period between tests extended except as allowed by ASME OM Division: 1 Section IST 2009 Edition through OMa-2011 Addenda and earlier editions and addenda of ASME OM Code.

6.0 <u>Duration of the Proposed Alternative</u>

The proposed alternative described in Relief Request G-1 will be used for the Surry Power Station Unit 1 Fifth Ten Year Inservice Testing Interval.

7.0 <u>Precedents</u>

The following relief request for another plant that is similar to Relief Request G-1 was approved by the NRC.

Request Number RV-01 for Quad Cities Units 1 and 2 was approved by the NRC by letter dated 2/14/2013 (TAC Nos. ME7981 through ME7988, ME7990 through ME7995.)

RELIEF REQUEST G-1 (Cont.)

8.0 References

1. ASME OM Code, 2004 Edition, 2005 and 2006 Addenda
2. Surry TS Paragraph 4.0.2
3. Surry TS 6.4.I, Inservice Testing Program

RELIEF REQUEST P-1

Proposed alternative in accordance with 10CFR50.55a(a)(3)(i).
Alternative provides acceptable level of quality and safety.

1.0 ASME Code Components Affected

Refer to Table P-1.1

2.0 Applicable Code Edition and Addenda

ASME OM Code, 2004 Edition, 2005 and 2006 Addenda

3.0 Applicable Code Requirements

ISTB-3300, "Reference Values"

ISTB-3300(a) requires that initial reference values shall be determined from the results of testing meeting the requirements of ISTB-3100, "Preservice Testing," or from the results of the first inservice test.

ISTB-3300(d) requires that reference values shall be established at a point(s) of operation (reference point) readily duplicated during subsequent tests.

ISTB-3300(f) requires that all subsequent test results shall be compared to these initial reference values or to new reference values established in accordance with ISTB-3310, ISTB-3320, or ISTB-6200(c).

ISTB-5120, "Inservice Testing" (Centrifugal Pumps, Except Vertical Line Shaft Centrifugal Pumps)

ISTB-5121(e) and ISTB-5123(e), "Group A Test Procedure and Comprehensive Test Procedure", require that all deviations from the reference values shall be compared with the ranges of Table ISTB-5121-1 and corrective action taken as specified in ISTB-6200. Vibration measurements shall be compared to both the relative and absolute criteria shown in the alert and required action ranges of Table ISTB-5121-1. For example, if vibration exceeds either 6Vr, or 0.7 in/sec, the pump is in the required action range.

RELIEF REQUEST P-1 (Cont.)

ISTB-5220, "Inservice Testing" (Vertical Line Shaft Centrifugal Pumps)

ISTB-5221(e) and ISTB-5223(e), "Group A Test Procedure and Comprehensive Test Procedure", require that all deviations from the reference values shall be compared with the ranges of Table ISTB-5221-1 and corrective action taken as specified in ISTB-6200. Vibration measurements shall be compared to both the relative and absolute criteria shown in the alert and required action ranges of Table ISTB-5221-1.

Note: There are no ASME Code Classed positive displacement pumps in the Surry IST Program.

4.0 Reason for Request

The pumps listed in Table P-1.1 tend to be smooth running pumps. Each pump listed in Table P-1.1 has at least one vibration reference value (Vr) that is currently less than 0.05 inches per second (ips). Small values for Vr produce small acceptable ranges for pump operation. The acceptable ranges are defined in Tables ISTB-5121-1 and ISTB-5221-1 as less than or equal to 2.5Vr. Based on a small acceptable range, a smooth running pump could be subject to unnecessary corrective action if the measured vibration parameter exceeds this acceptable range.

For very small reference values, hydraulic noise and instrument error can be a significant portion of the reading and affect the repeatability of subsequent measurements. Also, experience gathered from the North Anna preventive maintenance program has shown that changes in vibration levels in the range of 0.05 ips do not normally indicate significant degradation in pump performance.

To avoid unnecessary corrective action, a minimum value for Vr of 0.05 ips has been established for velocity measurements. This minimum value will be applied to individual vibration locations for the pumps listed in Table P-1.1 where the measured reference value is less than 0.05 ips.

When new reference values are established per ISTB-3310, ISTB-3320 or ISTB-6200(c), the measured parameters will be evaluated for each location to determine if the provisions of this relief request still apply.

In addition to the requirements of ISTB, the pumps in the ASME Inservice Testing Program are included in the Surry Predictive Maintenance Program. The Surry Predictive Maintenance Program currently employs predictive monitoring techniques such as:

RELIEF REQUEST P-1 (Cont.)

- vibration monitoring and analysis beyond that required by ISTB, and
- oil sampling and analysis where applicable (e.g., for pumps with sufficiently large oil reservoirs).

If the measured parameters are outside the normal operating range or are determined by analysis to be trending toward an unacceptable degraded state, appropriate actions are taken that may include:

- increased monitoring to establish rate of change,
- review of component specific information to identify cause, and
- removal of the pump from service to perform maintenance.

It should be noted that all of the pumps in the IST Program will remain in the Predictive Maintenance Program even if certain pumps have very low vibration readings and are considered to be smooth running pumps. This alternative to the requirements of ISTB-3300, ISTB-5120 and ISTB-5220, and Table ISTB-5121-1 and Table ISTB-5221-1 provides an acceptable level of quality and safety.

5.0 Proposed Alternative and Basis for Use

For the pumps listed in Table P-1.1, if a measured reference value is below 0.05 ips for a particular vibration measurement location, then subsequent test results for that location may be compared to an acceptable range based on 0.05 ips. In addition to the Code requirements, all pumps in the IST Program are included in and will remain in the Surry Predictive Maintenance Program regardless of their smooth running status.

Using the provisions of this relief request as an alternative to the specific requirements of ISTB-3300, ISTB-5120 and ISTB-5220, and Table ISTB-5121-1 and Table ISTB-5221-1 will provide adequate indication of pump performance and continue to provide an acceptable level of quality and safety. Therefore, pursuant to 10CFR50.55a(a)(3)(i), Relief Request P-1 requests relief from the specific ISTB requirements identified in this request.

6.0 Duration of the Proposed Alternative

The proposed alternative described in Relief Request P-1 will be used for the Surry Power Station Unit 1 Fifth Ten Year Inservice Testing Interval.

RELIEF REQUEST P-1 (Cont.)

7.0 Precedents

A similar relief request for the Surry Unit 1 Fourth Ten Year Inservice Testing Interval was approved by the NRC in their safety evaluation entitled "Surry Power Station, Units 1 and 2 – American Society of Mechanical Engineers Inservice Testing Program (TAC NOS. MC0120 through MC0146)" dated July 2, 2004.

The following relief requests for other plants that are similar to Relief Request P-1 were approved by the NRC.

Pump Relief Request P-1 for North Anna 1 was approved by the NRC by letter dated 11/15/2010 (TAC NOS. ME2776 and ME2777).

Pump Relief Request PRR8 for Beaver Valley 1 was approved by the NRC by letter dated 9/27/2007 (TAC NOS. MD5118 – MD5131).

Pump Relief Request PRR8 for Beaver Valley 2 was approved by the NRC by letter dated 2/14/2008 (TAC NOS. MD5595 – MD5604).

8.0 References

1. ASME OM Code, 2004 Edition, 2005 and 2006 Addenda

RELIEF REQUEST P-1 (Cont.)

Table P-1.1

Pump Groups	System	Code Class	OM Group	Description	Pump Type	Pump Speed (rpm)
1-CC-P-1A 1-CC-P-1B	Component Cooling	3	A	Component Cooling Water Pumps	Centrifugal	1185
1-CC-P-2A	Component Cooling	3	A	Component Cooling Water Pump to Charging Pump	Centrifugal	3500
1-CH-P-1B 1-CH-P-1C	Chemical and Volume Control/Safety Injection	2	A	High Head Safety Injection/Charging Pump	Centrifugal	6018
1-CH-P-2A 1-CH-P-2B	Chemical and Volume Control	2	A	Boric Acid Transfer Pumps	Centrifugal	3500
1-FW-P-3B	Auxiliary Feedwater	3	B	Auxiliary Feedwater Motor Driven Pump	Centrifugal	3560
1-RH-P-1A 1-RH-P-1B	Residual Heat Removal	2	A	Residual Heat Removal Pump	Centrifugal	1780
1-SW-P-10A 1-SW-P-10B	Service Water	3	A	Service Water Pump to Charging Pump	Centrifugal	3500
1-VS-P-1B 1-VS-P-1C	Ventilation	3	A	Main Control Room Air Conditioning System Condenser Water Pumps	Centrifugal	3550
1-VS-P-1D 1-VS-P-1E	Ventilation	3	A	Main Control Room Air Conditioning System Condenser Water Pumps	Centrifugal	1750
1-VS-P-2A 1-VS-P-2B 1-VS-P-2C	Ventilation	3	A	Main Control Room Air Conditioning System Chilled Water Pumps	Centrifugal	3500
1-VS-P-2D 1-VS-P-2E	Ventilation	3	A	Main Control Room Air Conditioning System Chilled Water Pumps	Centrifugal	3535

RELIEF REQUEST P-2

Proposed alternative in accordance with 50.55a(f)(6)(i) and 10CFR50.55a(a)(3)(i).
Code requirement is impractical.
Alternative provides acceptable level of quality and safety.

1.0 ASME Code Components Affected

Pump(s): 1-RH-P-1A
1-RH-P-1B

System: Residual Heat Removal

Group: A

Class: 2

Function: The residual heat removal pumps remove decay heat from the reactor core and the reactor coolant system during plant cool down.

2.0 Applicable Code Edition and Addenda

ASME OM Code, 2004 Edition, 2005 and 2006 Addenda

3.0 Applicable Code Requirements

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

Table ISTB-3400-1, "Inservice Test Frequency," requires an inservice test be run on each Group A pump nominally every 3 months.

4.0 Reason for Request

ISTB-3400 and Table ISTB-3400-1

The residual heat removal (RHR) pumps are located inside containment. The pumps are low pressure (600 psig design pressure) pumps that take suction from and discharge to the reactor coolant system (RCS). The RCS is maintained at 2235 psig and the containment atmosphere is maintained at sub-atmospheric pressure during normal operation. The RHR motor operated suction and discharge isolation valves are interlocked with an output signal from RCS pressure transmitters which prevent the valves from being opened when the RCS pressure exceeds 460 psig. Therefore, testing the RHR pumps during normal operation is not possible.

RELIEF REQUEST P-2 (Cont.)

5.0 Proposed Alternative and Bases for Use

ISTB-3400 and Table ISTB-3400-1

These pumps will be tested every cold shutdown outage and reactor refueling outage, unless the pump has been tested within the previous three months. (During back-to-back cold shutdown or refueling outages, the test period remains valid for three months following each test, and no additional periodic testing needs to be performed within this three month test period.) For a cold shutdown or reactor refueling that extends longer than three months, the pumps will be tested every three months in accordance with ISTB 3400-1.

Using the provisions of this relief request as an alternative to the specific requirements of Table ISTB-3400-1 identified above, which have been identified to be impractical, will provide adequate indication of pump performance. Therefore, pursuant to 10 CFR 50.55a(f)(6)(i) we request relief from the specific ISTB Code requirements identified in this relief request.

6.0 Duration of the Proposed Alternative

The proposed alternative described in Relief Request P-2 will be used for the Surry Power Station Unit 1 Fifth Ten Year Inservice Testing Interval.

7.0 Precedents

A similar relief request for the Surry Unit 1 Fourth Ten Year Inservice Testing Interval was approved by the NRC in their safety evaluation entitled "Surry Power Station, Units 1 and 2 – American Society of Mechanical Engineers Inservice Testing Program (TAC NOS. MC4251 and MC4252)" dated September 28, 2004.

The following relief requests for other plants that are similar to Relief Request P-2 were approved by the NRC.

Pump Relief Request P-2 for North Anna 1 was approved by the NRC by letter dated 9/30/2010 (TAC NOS. ME2748, ME2749, ME2753 to ME2760, ME2763 to ME2772, ME2778 to ME2789).

Pump Relief Request PRR7 for Beaver Valley 1 was approved by the NRC by letter dated 9/27/2007 (TAC NOS. MD5118 – MD5131) and applies to ISTB-3400 and Table ISTB-3400-1.

RELIEF REQUEST P-2 (Cont.)

8.0 References

1. ASME OM Code, 2004 Edition, 2005 and 2006 Addenda

RELIEF REQUEST P-3

Proposed alternative in accordance with 50.55a(f)(6)(i) and 10CFR50.55a(a)(3)(i).
Code requirement is impractical.
Alternative provides acceptable level of quality and safety.

1.0 ASME Code Components Affected

Pump(s): 1-CH-P-2A
1-CH-P-2B

System: Chemical and Volume Control

Group: A

Class: 2

Function: The boric acid transfer pumps supply boric acid to the suction of the charging pumps for emergency boration.

2.0 Applicable Code Edition and Addenda

ASME OM Code, 2004 Edition, 2005 and 2006 Addenda

3.0 Applicable Code Requirements

Table ISTB-3500-1 requires that Group A test pressure instrument accuracy shall be within $\pm$ 2%.

ISTB-3510(b)(1) requires that the full-scale range of each analog instrument shall be not greater than three times the reference value.

4.0 Reason for Request

Table ISTB-3500-1

Calibrating the inlet pressure instruments for the boric acid transfer pumps to an accuracy within $\pm$ 2% has proven difficult and may be impractical in the future with the current instruments. Calibrating the inlet pressure instruments to an accuracy within $\pm$ 3% would be practical.

RELIEF REQUEST P-3 (Cont.)

ISTB-3510(b)(1)

The inlet pressure gauges have a full scale range of 0 to 15 psig. These instruments were sized by evaluating the static pressures present at the suction side of the pumps and applying the three times rule of ISTB-3510(b)(1). The static pressures range from 6 to 7 psig.

When the pumps are started, the pressure at the suction side of the pumps drops to approximately 2 psig; therefore, the inlet pressure gauges do not meet the three times rule for dynamic inlet pressure.

Using a lower range pressure gauge (i.e. 0 to 5 psig) would meet the three times rule for dynamic inlet pressure; however, the lower range gauge would be repeatedly exposed to an over range condition (static pressures in excess of 5 psig) which would damage the instruments.

Using a lower range temporary gauge on a quarterly basis presents a hardship because the process fluid contains boric acid and is contaminated. If contaminated, the temporary instruments would probably become waste material. However, with the current 0 to 15 psig inlet pressure gauges calibrated to ± 3%, a differential pressure can be determined that exceeds the accuracy requirements for differential pressure.

Each boric acid transfer pump discharge pressure gauge (0 to 150 psig range) has an instrument loop accuracy of 1.59%. Computing the maximum error for differential pressure using the current instrument configuration and an inlet pressure gauge accuracy of ± 3%, yields an error of 2.85 psid.

Computing the Code allowed error for differential pressure for an inlet pressure gauge with 2% accuracy and a 0 to 5 psig range and a discharge pressure instrument with 2% accuracy and a 0 to 150 psig range yields an error of 3.1 psid. With the current instrument configuration, the loop accuracy of each discharge pressure instrument could be as high as 1.75%, which equates to a 3.075 psid error, and still be within the Code allowed error of 3.1 psid for differential pressure. Therefore, for purposes of trending pump degradation using differential pressure and flow, the current instrument is adequate as long as the discharge pressure instrument loop accuracies remain at or below 1.75%.

RELIEF REQUEST P-3 (Cont.)

5.0 Proposed Alternative and Bases for Use

The inlet pressure gauges with a full scale range of 0 to 15 psig and calibrated to an accuracy within $\pm$ 3%, will be used to measure dynamic inlet pressures. Also, the loop accuracies for the discharge pressure gauges will be maintained at or below an accuracy of 1.75% to ensure that the differential pressure error is below the differential pressure error allowed by the Code.

Using the provisions of this relief request as an alternative to the specific requirements of Table ISTB-3500-1 and ISTB-3510(b)(1) identified above, which have been identified to be impractical, will provide adequate indication of pump performance. Therefore, pursuant to 10 CFR 50.55a(f)(6)(i) we request relief from the specific ISTB Code requirements identified in this relief request.

6.0 Duration of the Proposed Alternative

The proposed alternative described in Relief Request P-3 will be used for the Surry Power Station Unit 1 Fifth Ten Year Inservice Testing Interval.

7.0 Precedents

A similar relief request was approved by the NRC in their safety evaluation entitled "Surry Power Station, Units 1 and 2 – American Society of Mechanical Engineers Inservice Testing Program (TAC NOS. MC0120 through MC0146)" dated July 2, 2004.

The following relief requests for other plants that are similar to portions of P-3 were approved by the NRC.

Pump Relief Request PRR-03 for Brunswick Steam Electric Plant, Unit 1 and 2 was approved by the NRC by letter dated May 8, 2008 (TAC NOS. MD7425 through MD7438, and MD 7440 and MD7441). Note that Relief Request PRR-03 only applies to the full scale range requirements in ISTB-3510(b)(1), and not to the instrument accuracy requirements in Table ISTB-3500-1.

Pump Relief Request PRR006 for Fermi 2 was approved by the NRC by letter dated 76/2010 (TAC NOS. ME2548, ME2549, ME2551) and applies to Table ISTB-3510-1.

8.0 References

1. ASME OM Code, 2004 Edition, 2005 and 2006 Addenda

RELIEF REQUEST P-4

Proposed alternative in accordance with 10CFR50.55a(a)(3)(i).
Alternative provides acceptable level of quality and safety.

1.0 ASME Code Components Affected

Pump(s): 1-CC-P-2A
1-CC-P-2B

System: Component Cooling Water

Group: A

Class: 3

Function: The charging pump cooling water pumps supply cooling water to transfer heat from the charging pump mechanical seals coolers.

2.0 Applicable Code Edition and Addenda

ASME OM Code, 2004 Edition, 2005 and 2006 Addenda

3.0 Applicable Code Requirements

ISTB-3510(b)(1) requires that the full-scale range of each analog instrument shall be not greater than three times the reference value.

4.0 Reason for Request

Installed inlet pressure gauges used for the Group A tests have a full scale range of 0 to 3.5 psig. Readings from these inlet pressure gauges over the past year indicate that the dynamic pressures fall within the bottom third of full scale. However, the difference in the error between the 0 to 3.5 psig gauges and gauges that would meet the three times full-scale rule are so small that the 0 to 3.5 psig gauges can be considered to be equivalent in terms of accuracy for determining differential pressure.

RELIEF REQUEST P-4 (Cont.)

For example, inlet pressures as low as 0.8 psig have been recorded for pump 1-CC-P-2B. A gauge that meets the three times full-scale rule would have a full scale of 2.4 psig or less. A 2% accuracy for the 2.4 psig gauge translates to an error of 0.05 psig. A 2% accuracy for the 3.5 psig gauge translates to an error of 0.07 psig. The difference in error of 0.02 psig is insignificant when determining the differential pressures for these pumps which range between 50 and 60 psig. Therefore, the two gauges can be considered to be equivalent in terms of accuracy for determining differential pressure.

5.0 Proposed Alternative and Bases for Use

Inlet pressure for the Group A tests will be measured with gauges that have a full-scale of 0 to 3.5 psig.

Using the provisions of this relief request as an alternative to the specific requirements of ISTB-3510(b)(1) identified above will provide adequate indication of pump performance and continue to provide an acceptable level of quality and safety. Therefore, pursuant to 10 CFR 50.55a(a)(3)(i) we request relief from the specific ISTB Code requirements identified in this relief request.

6.0 Duration of the Proposed Alternative

The proposed alternative described in Relief Request P-4 will be used for the Surry Power Station Unit 1 Fifth Ten Year Inservice Testing Interval.

7.0 Precedents

A similar relief request was approved by the NRC in their safety evaluation entitled "Surry Power Station, Units 1 and 2 – American Society of Mechanical Engineers Inservice Testing Program (TAC NOS. MC0120 through MC0146)" dated July 2, 2004.

The following relief request for another plant that is similar to portions of P-4 was approved by the NRC.

Pump Relief Request PRR-03 for Brunswick Steam Electric Plant, Unit 1 and 2 was approved by the NRC by letter dated May 8, 2008 (TAC NOS. MD7425 through MD7438, and MD 7440 and MD7441).

8.0 References

1. ASME OM Code, 2004 Edition, 2005 and 2006 Addenda

RELIEF REQUEST P-5

Proposed alternative in accordance with 10CFR50.55a(a)(3)(i).
Alternative provides acceptable level of quality and safety.

1.0 ASME Code Components Affected

Pump(s): 1-CS-P-1A
1-CS-P-1B

System: Containment Spray

Group: B

Class: 2

Function: The containment spray pumps provide a cooled, chemically treated, borated spray to reduce containment pressure following a loss of coolant accident.

2.0 Applicable Code Edition and Addenda

ASME OM Code, 2004 Edition, 2005 and 2006 Addenda

3.0 Applicable Code Requirements

ISTB-3300(e)(1) (Reference Values) requires that reference values shall be established within ±20% of pump design flow rate for comprehensive tests.

4.0 Reason for Request

The test loop for the containment spray pumps is shown in Figure P-5.1. The containment spray pumps take suction from the refueling water storage tank (RWST) and discharge back to the RWST. With this test loop, it is difficult to consistently achieve reference flow rates that are within 20% of the pump design flow rate of 2000 gpm. Therefore, relief from the Code requirement is requested for Surry Unit 1.

RELIEF REQUEST P-5 (Cont.)

Pump Design Flow Rate Basis

The containment spray system resistance limits a single pump delivery flow to 2000 gpm at 238.6 total developed head (TDH) in feet. This TDH corresponds to the accident analysis conditions when a containment spray pump starts and is subject to its most limiting operating conditions. Specifically, the Surry accident analysis assumes a minimum pump flow rate of 2000 gpm when the RWST, which is the containment spray suction source, is at the Technical Specifications minimum allowable level and the containment is at the design pressure of 45 psig.

As containment pressure decreases during a design basis accident following spray actuation, the containment spray pump TDH will decrease and the flow will increase above 2000 gpm as the pump operating point moves out on the pump curve. The pump response along the pump curve as modeled in the accident analysis is for a degraded pump. The actual pump head performance at 1600 gpm (the approximate test flow rate) is well above the corresponding head of the accident analysis degraded pump curve requirement.

A model of the containment spray system hydraulic circuit for each pump has confirmed the limiting accident analysis assumptions for containment spray pump flow versus head.

An additional consideration is that the containment spray pumps are expected to operate for less than 2 hours after a design basis accident. Accident analyses demonstrate that the RWST is exhausted quickly, depending on the number of containment spray and safety injection pumps that are running. The operators stop the containment spray pumps when RWST level reaches less than 3% indication.

Surry has determined that the containment spray pump design flow rate is 2000 gpm based on the plant safety analyses. The Code requires that the containment spray pump flow be tested within 80% of the design flow rate, or 1600 gpm. The average test flow rate for tests conducted since 2004 is 1593 gpm for Unit 1. The containment spray system is a fixed resistance system and the test flow rates tend to vary several gpm based on initial RWST level. Although the Unit 1 pumps have met the Code requirements, there are tests where 1600 gpm cannot be achieved.

RELIEF REQUEST P-5 (Cont.)

Pre-Operational Testing

During the construction period, the containment spray headers were fitted with blind flanges that allowed the connection of temporary drain lines for initial testing of the subsystem. After the subsystem was completely installed, temporary connections between the spray headers were made using blind flanges on the spray headers, and pipe plugs were placed in the spray nozzle sockets. The containment spray pumps were started and operated over a range of flows, circulating water through the spray header supply line to the spray headers, out the temporary drain connections and to the opposite spray headers. The water was then directed to the RWST through the 4" recirculation line. Although the pre-operational test did not produce full flow conditions, it provided a full-system capability test and demonstrated that the pumps were operating on the manufacturer pump curve. It also flushed the system to remove any particulate matter that could plug the spray nozzles at a future time. At the completion of this test, the temporary drain connections were removed, the blind flanges replaced, the pipe plugs removed, the nozzle pipe nipple inspected, and the spray nozzles installed.

Additional Full Flow Testing

In addition to the pre-operational testing performed on the containment spray system, a special RWST/Chemical Addition Tank draw down test was performed on April 30, 1980 using pump 2-CS-P-1A at flow rates substantially greater than the current achievable test flow rates. The purpose of the draw down test was to validate the analytical model used to perform the Surry site boundary dose analysis. Temporary 8" discharge piping was installed from the bonnet of check valve 2-CS-13, located downstream of the pump and inside containment at elevation 15' 9", to the reactor cavity at elevation 48' 1". Flow rates up to 2133 gpm were achieved during the test. This test demonstrates that the containment spray pump 2-CS-P-1A has been operated at design flow conditions in its installed configuration. The four containment spray pumps on Surry Units 1 and 2 are essentially identical, so the conclusion from the Unit 2 containment spray pump test that pump 2-CS-P-1A can achieve the design flow rate is applicable to the Unit 1 pumps.

RELIEF REQUEST P-5 (Cont.)

Surry Predictive Maintenance Program

In addition to the testing described above, the containment spray pumps are included in the Surry Predictive Maintenance Program. For the containment spray pumps, this program employs predictive monitoring techniques, such as vibration monitoring and analysis beyond that required by ISTB, and oil sampling and analysis.

If the measured parameters are outside the normal operating range or are determined by analysis to be trending toward an unacceptable degraded state, appropriate actions are taken that may include:

- increased monitoring to establish rate of change,
- review of component specific information to identify cause, and
- removal of the pump from service to perform maintenance.

Detection of Pump Degradation

Testing the containment spray pumps at or near 1600 gpm will detect degradation in performance and verify that the pumps are operating acceptably. The 1600 gpm point (50% of the point of best efficiency of approximately 3200 gpm) is in a portion of the pump curve where degradation will be detected. Also, there is significant margin available above the minimum acceptable pump curve when testing the pump on the test loop. For pump 1-CS-P-1A, the margin is approximately 20 feet of TDH and for pump 1-CS-P-1B the margin is approximately 18 feet. A decrease in the available margin is detectable before the pump performance becomes unacceptable.

Figure P-5.2 shows the nominal vendor pump curve for 1-CS-P-1A, a typical test point, the minimum test point below which is unacceptable performance, and the design point (2000 gpm at 238.6 feet TDH), and Figure P-8.3 shows the same information for 1-CS-P-1B. The proposed alternative to ISTB-3300(e)(1) provides an acceptable level of quality and safety.

5.0 Proposed Alternative and Bases for Use

A comprehensive test reference flow rate will be established for each pump at or near 80% of the pump design flow rate but not less than 76% of design flow rate (1520 gpm).

RELIEF REQUEST P-5 (Cont.)

The containment spray pumps will be subject to additional testing, trending and diagnostic analysis of the Surry Predictive Maintenance Program.

Using the provisions of this relief request as an alternative to the specific requirements of ISTB-3300(e)(1) identified above will provide adequate indication of pump performance and continue to provide an acceptable level of quality and safety. Therefore, pursuant to 10 CFR 50.55a(a)(3)(i) we request relief from the specific ISTB Code requirements identified in this relief request.

6.0 Duration of the Proposed Alternative

The proposed alternative described in Relief Request P-4 will be used for the Surry Power Station Unit 1 Fifth Ten Year Inservice Testing Interval.

7.0 Precedents

A similar relief request was approved by the NRC in their safety evaluation entitled "Surry Power Station, Unit 1 – American Society of Mechanical Engineers Inservice Testing Program Fourth 10-Year Interval Request for Revised Relief P-8 (TAC NO. MC6528)" dated April 8, 2005.

The following relief requests for other plants that are similar to portions of P-5 were approved by the NRC.

Pump Relief Request P-6 for North Anna 1 was approved by the NRC by letter dated 11/15/2010 (TAC NOS. ME2776 and ME2777) and applies to ISTB-3300(e)(1).

Pump Relief Request PRR11 for Beaver Valley 1 was approved by the NRC by letter dated 9/27/2007 (TAC NOS. MD5118 – MD5131).

8.0 References

1. ASME OM Code, 2004 Edition, 2005 and 2006 Addenda

RELIEF REQUEST P-5 (Cont.)

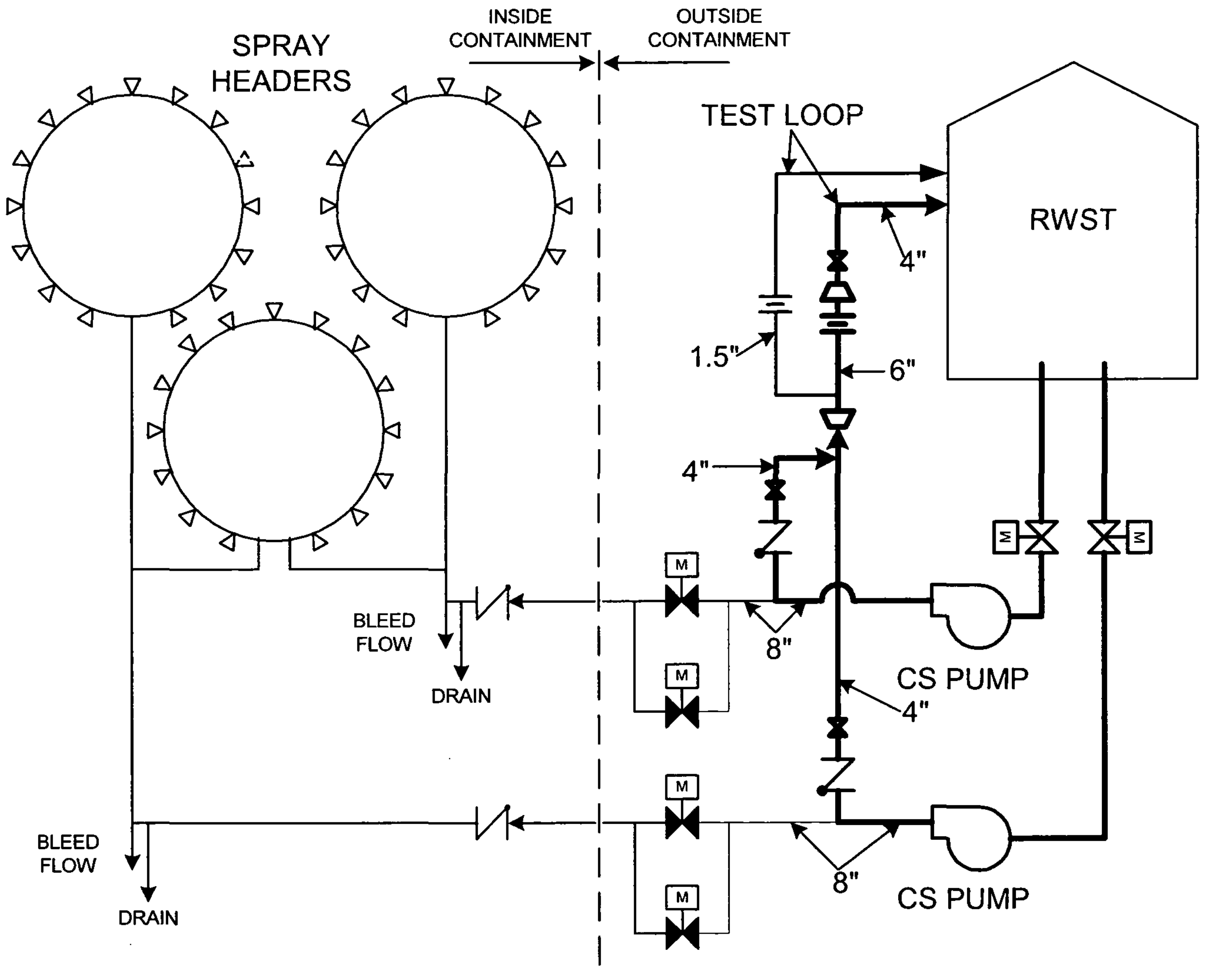

Figure P-5.1 Containment Spray System

Relief Request P-5 (Cont.)

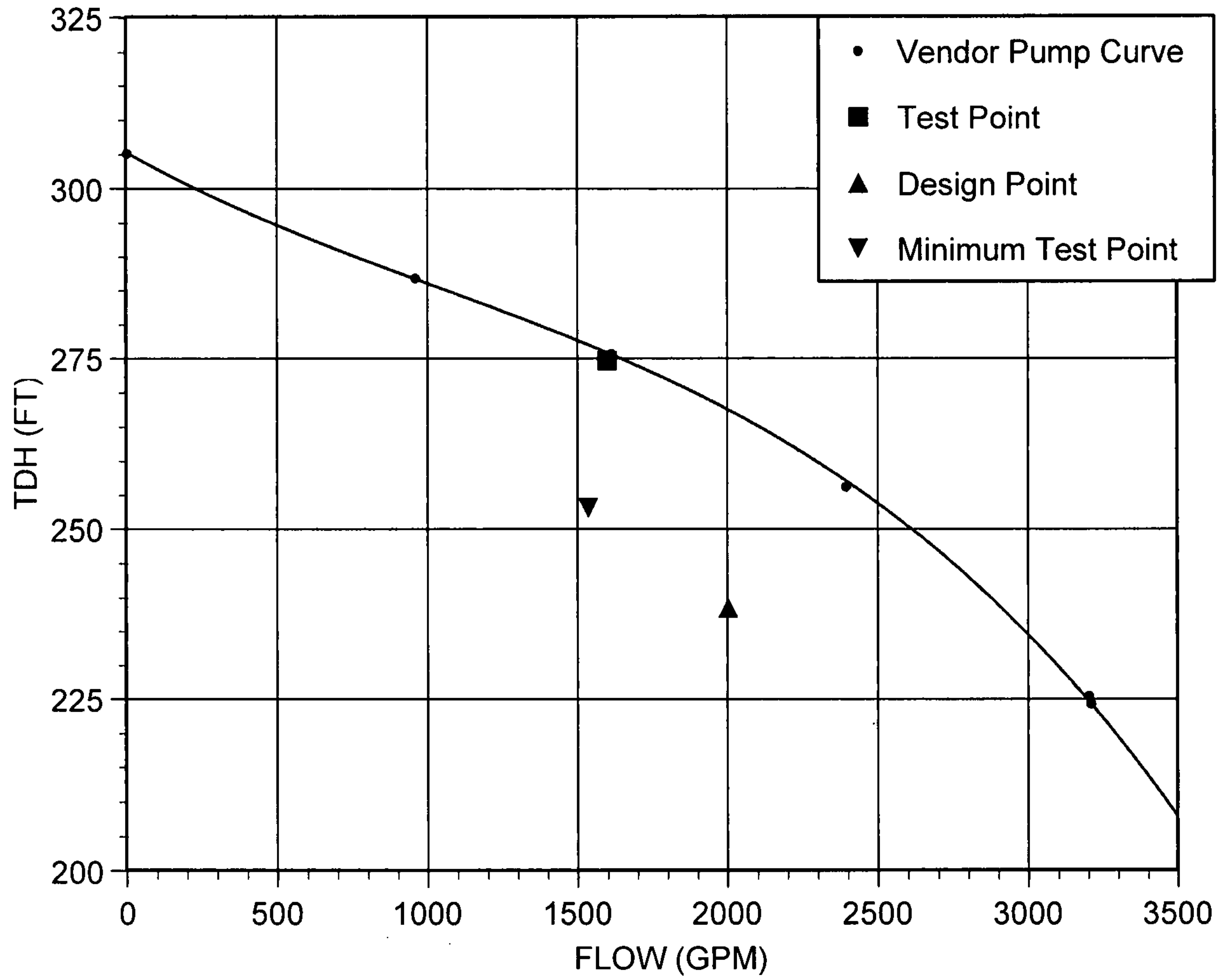

Figure P-5.2 Containment Spray Pump 1-CS-P-1A

Relief Request P-5 (Cont.)

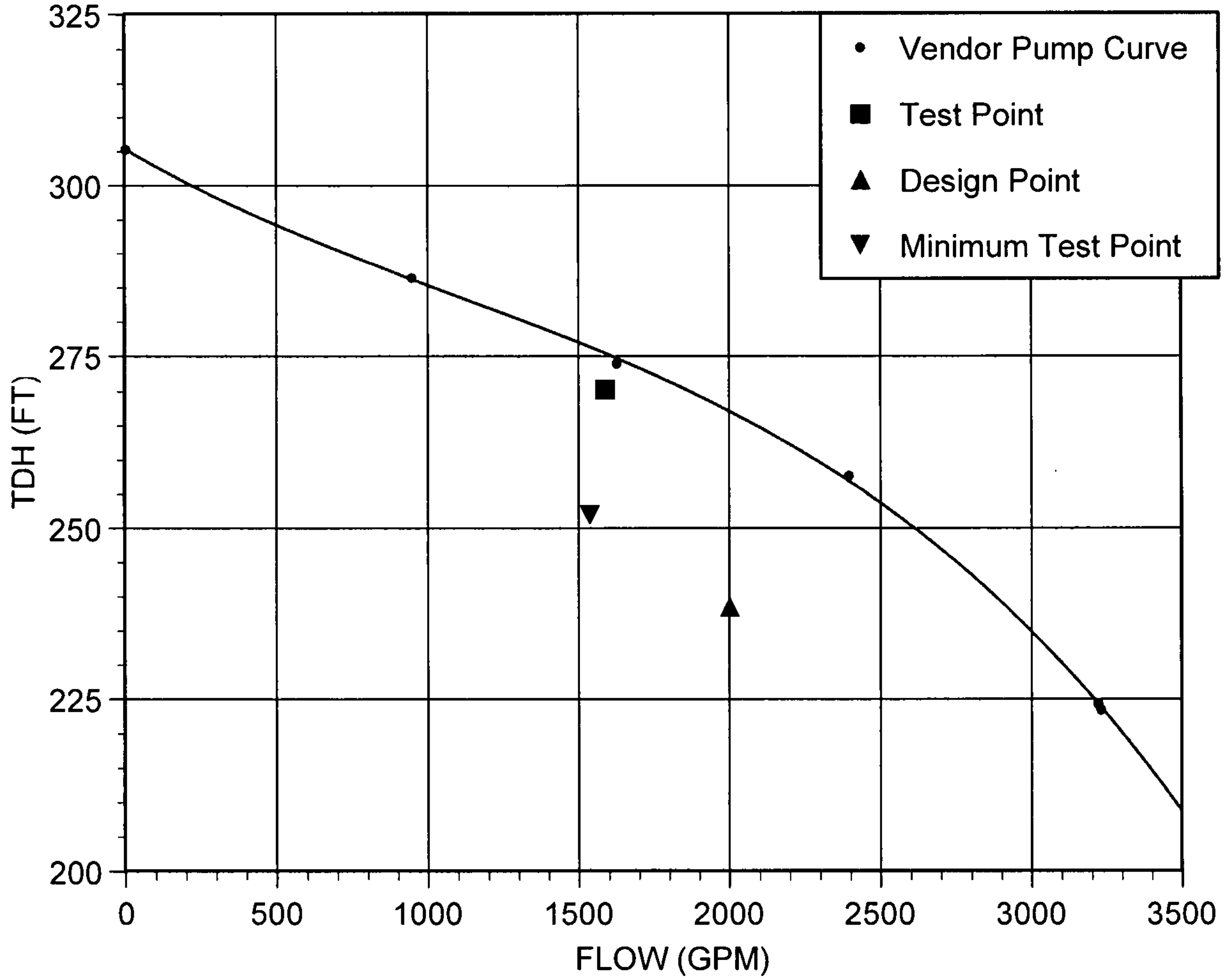

Figure P-5.3 Containment Spray Pump 1-CS-P-1B

RELIEF REQUEST P-6

Proposed alternative in accordance with 10CFR50.55a(a)(3)(i).
Alternative provides acceptable level of quality and safety.

1.0 ASME Code Components Affected

Refer to Table P-6.1.

2.0 Applicable Code Edition and Addenda

ASME OM Code, 2004 Edition, 2005 and 2006 Addenda

3.0 Applicable Code Requirements

ISTB-5123, "Comprehensive Test Procedure" refers to Table ISTB-5121-1, "Centrifugal Pump Test Acceptance Criteria" that requires an upper required action limit of $1.03Q_r$ and $1.03DP_r$ where Q_r is the reference flow rate and DP_r is the reference differential pressure.

ISTB-5223, "Comprehensive Test Procedure" refers to Table ISTB-5221-1, "Vertical Line Shaft Centrifugal Pump Test Acceptance Criteria" that requires an upper required action limit of $1.03Q_r$ and $1.03DP_r$ where Q_r is the reference flow rate and DP_r is the reference differential pressure.

Note: There are no ASME Code Classed positive displacement pumps in the Surry IST Program.

4.0 Reason for Request

For some pump tests, Surry Power Station has had difficulty implementing the upper required action range limit of 1.03% above the established hydraulic parameter reference value for the comprehensive pump test. The difficulty arises when normal data scatter yields (1) a low measured reference value, and (2) high measured values for subsequent inservice tests. In these cases, some of the test data trend high near the upper required action range limit and may exceed the upper limit on occasion. The problem can be more severe for pumps with low differential pressures (50 psid or less) due to the smaller acceptable range.

RELIEF REQUEST P-6 (Cont.)

5.0 Proposed Alternative and Basis for Use

For the pumps listed in Table P-6.1, an upper required action limit of 1.06% times the reference value will be applied to the comprehensive pump test in accordance with ASME OM Code Case OMN-19, Alternative Upper Limit for the Comprehensive Pump Test. Also, for pumps that have a design basis accident flow rate, a pump periodic verification (PPV) test will be performed. Table P-6.1 identifies the pumps that have a design basis accident flow rate and indicates that a pump periodic verification test will be performed for these pumps.

Table P-6.1 includes all of the ASME Code Class pumps in the Surry IST program except for the containment spray (CS) pumps. The design basis accident flow rate cannot be achieved for the CS pumps with the existing test loop configuration. Therefore, the upper limit of 1.03% times the reference value will still be applied to the comprehensive pump test for the CS pumps. The reason the remaining pumps are included in the relief request is that data scatter can affect future tests for any of these pumps.

The following requirements shall be applied to the PPV test.

1) Apply the PPV test to pumps with a design basis accident flow rate as identified in Table P-6.1.
2) Performed the PPV test at least once every 2 years.
3) Determine if a PPV test is required before declaring a pump operable following replacement, repair, or maintenance on the pump.
4) Declared the pump inoperable if the PPV test flow rate and associated differential pressure cannot be achieved.
5) Maintain the necessary records for PPV test, including the applicable test parameters (e.g., flow rate and the associated differential pressure and speed for variable speed pumps) and their basis.
6) Account for the PPV test instrument accuracies in the test acceptance criteria.

Using the provisions of this relief request as an alternative to the specific requirements of ISTB-5123 and ISTB-5223, and Table ISTB-5121-1 and Table ISTB-5221-1 as described above will provide adequate indication of pump performance and continue to provide an acceptable level of quality and safety. Therefore, pursuant to 10CFR50.55a(a)(3)(i), Relief Request P-6 requests relief from the specific ISTB requirements identified in this request.

RELIEF REQUEST P-6 (Cont.)

6.0 Duration of the Proposed Alternative

The proposed alternative described in Relief Request P-6 will be used for the Surry Power Station Unit 1 Fifth Ten Year Inservice Testing Interval.

7.0 Precedents

None

8.0 References

1. ASME OM Code, 2004 Edition, 2005 and 2006 Addenda

RELIEF REQUEST P-6 (Cont.)

Table P-6.1

Pump Groups	System	Code Class	Description	Pump Type	Design Basis Accident Flow Rate (gpm)	Pump Periodic Verification Test Required
1-CC-P-1A 1-CC-P-1B	Component Cooling	3	Component Cooling Water Pumps	Centrifugal	None	No
1-CC-P-2A 1-CC-P-2B	Component Cooling	3	Component Cooling Water Pump to Charging Pump	Centrifugal	30	Yes
1-CH-P-1A 1-CH-P-1B 1-CH-P-1C	Chemical and Volume Control/Safety Injection	2	High Head Safety Injection/Charging Pump	Centrifugal	436	Yes
1-CH-P-2A 1-CH-P-2B	Chemical and Volume Control	2	Boric Acid Transfer Pumps	Centrifugal	None	No
1-FW-P-2	Auxiliary Feedwater	3	Auxiliary Feedwater Turbine Driven Pump	Centrifugal	400	Yes
1-FW-P-3A 1-FW-P-3B	Auxiliary Feedwater	3	Auxiliary Feedwater Motor Driven Pump	Centrifugal	300	Yes
1-RH-P-1A 1-RH-P-1B	Residual Heat Removal	2	Residual Heat Removal Pump	Centrifugal	None	No
1-RS-P-1A 1-RS-P-1B	Recirculation Spray	3	Inside Containment Recirculation Spray Pump	Vertical Line Shaft Centrifugal	3100	Yes
1-RS-P-2A 1-RS-P-2B	Recirculation Spray	3	Outside Containment Recirculation Spray Pump	Vertical Line Shaft Centrifugal	2900	Yes
1-SI-P-1A 1-SI-P-1B	Safety Injection	3	Low Head Safety Injection Pump	Vertical Line Shaft Centrifugal	2901	Yes

RELIEF REQUEST P-6 (Cont.)

Table P-6.1 (Cont.)

Pump Groups	System	Code Class	Description	Pump Type	Design Basis Accident Flow Rate (gpm)	Pump Periodic Verification Test Required
1-SW-P-1A 1-SW-P-1B 1-SW-P-1C	Service Water	3	Emergency Service Water Pump	Vertical Line Shaft Centrifugal	14550	Yes
1-SW-P-10A 1-SW-P-10B	Service Water	3	Service Water Pump to Charging Pump	Centrifugal	42	Yes
1-VS-P-1A 1-VS-P-1B 1-VS-P-1C 1-VS-P-1D 1-VS-P-1E	Ventilation	3	Main Control Room Air Conditioning System Condenser Water Pumps	Centrifugal	None	No
1-VS-P-2A 1-VS-P-2B 1-VS-P-2C 1-VS-P-2D 1-VS-P-2E	Ventilation	3	Main Control Room Air Conditioning System Chilled Water Pumps	Centrifugal	None	No

RELIEF REQUEST P-7

Proposed alternative in accordance with 10CFR50.55a(a)(3)(i).
Alternative provides acceptable level of quality and safety.

1.0 ASME Code Components Affected

Pump(s): 1-SW-P-1A
1-SW-P-1B
1-SW-P-1C

System: Service Water

Group: B

Class: 3

Function: The emergency service water pumps supply the required service water to the canal to provide for minimum safeguards operation in the unlikely event of a loss of site power coincident with a design basis accident.

2.0 Applicable Code Edition and Addenda

ASME OM Code, 2004 Edition, 2005 and 2006 Addenda

3.0 Applicable Code Requirements

ISTB-5222 requires that "Group B tests shall be conducted with the pump operating at a specified reference point."

ISTB-5223 requires that "Comprehensive tests shall be conducted with the pump operating at a specified reference point."

4.0 Reason for Request

The emergency service water pumps take suction from the James River and discharge into the intake canal. The James River near the plant is subject to a tide level variation of approximately five feet. Therefore, the total static head for the system can vary from test to test. There are no valves in the lines to throttle flow and to compensate for the change in system static head. The only way to duplicate flow and differential pressure from test to test is to perform the test at the same tide level each time. Trying to perform this test within a small enough

RELIEF REQUEST P-7 (Cont.)

tide level range to produce repeatable results has proven impractical. To compensate for the change in total system head, a pump reference curve will be prepared based on test results taken at different tide levels. Tests will be conducted within the tide level limits of the curve, and results will be compared to acceptance criteria based on the reference curve and the ranges given in Table ISTB-5200-1. Inlet pressure will be calculated from tide level. The guidelines set forth in Code Case OMN-16, "Use of a Pump Curve for Testing" will be followed.

Past vibration data for the subject pumps have been reviewed and it has been determined that pump vibration does not vary significantly with flow rate over the range of the test flow rates. This alternative to the requirements of ISTB-5222 and ISTB-5223 provides an acceptable level of quality and safety.

5.0 Proposed Alternative and Bases for Use

Tests will be conducted within the tide level limits of the pump reference curve, and flow will be compared to acceptance criteria based on the reference curve. The guidelines set forth in Code Case OMN-16, "Use of a Pump Curve for Testing" will be followed.

Using the provisions of this relief request as an alternative to the specific requirements of ISTB-5222 and ISTB-5223 identified above will provide adequate indication of pump performance and continue to provide an acceptable level of quality and safety. Therefore, pursuant to 10 CFR 50.55a(a)(3)(i) we request relief from the specific ISTB Code requirements identified in this relief request.

6.0 Duration of the Proposed Alternative

The proposed alternative described in Relief Request P-7 will be used for the Surry Power Station Unit 1 Fifth Ten Year Inservice Testing Interval until Code Case OMN-16 is approved for use by the NRC in Regulatory Guide 1.192, Operation and Maintenance Code Case Acceptability. When OMN-16 is approved by the NRC, OMN-16 can be used without a relief request and Relief Request P-7 will no longer be necessary.

7.0 Precedents

A similar relief request was approved by the NRC in their safety evaluation entitled "Surry Power Station, Units 1 and 2 – American Society of Mechanical Engineers Inservice Testing Program (TAC NOS. MC0120 through MC0146)" dated July 2, 2004.

RELIEF REQUEST P-7 (Cont.)

The following relief requests for other plants that are similar to P-7 were approved by the NRC.

Pump Relief Request P-3 for North Anna 1 was approved by the NRC by letter dated 9/30/2010 (TAC NOS. ME2748, ME2749, ME2753 to ME2760, ME2763 to ME2772, ME2778 to ME2789).

Pump Relief Request PRR4 for Beaver Valley 2 was approved by the NRC by letter dated 2/14/2008 (TAC NOS. MD5595 – MD5604). PRR4 references NUREG-1482, Section 5.2.2, "Reference Curves.," which gives guidance based on OMN-9 and the conditions in Regulatory Guide 1.192. OMN-16 incorporates the conditions identified in Regulatory Guide 1.192.

These relief requests are similar to P-7 in that they use a portion of the pump curve instead of a reference point. However, the plant systems and conditions for not using a reference point differ.

8.0 References

1. ASME OM Code, 2004 Edition, 2005 and 2006 Addenda

RELIEF REQUEST P-8

Proposed alternative in accordance with 10CFR50.55a(a)(3)(i).
Alternative provides acceptable level of quality and safety.

1.0 ASME Code Components Affected

Pump(s): 1-VS-P-2A
1-VS-P-2B
1-VS-P-2C
1-VS-P-2D
1-VS-P-2E

System: Main Control Room Air Conditioning

Group: A

Class: 3

Function: The main control room air conditioning system chiller water pumps circulated chilled water to the main control room and switch gear room air handling units.

2.0 Applicable Code Edition and Addenda

ASME OM Code, 2004 Edition, 2005 and 2006 Addenda

3.0 Applicable Code Requirements

ISTB-5121 requires that "Group A tests shall be conducted with the pump operating at a specified reference point."

ISTB-5123 requires that "Comprehensive tests shall be conducted with the pump operating at a specified reference point."

4.0 Reason for Request

The chilled water circulating pumps for the main control room air conditioning system service two trains each with of four air handling units connected in a parallel configuration. Total flow for each pump is determined by summing the recorded flows from flow instruments placed downstream of the four air handling units in one of the trains. Test flow is controlled by throttling a gate valve near

RELIEF REQUEST P-8 (Cont.)

each air handling unit, which has proven to be a crude flow control method. Having to throttle to a specific reference flow using the sum of flows from four instruments with a gate valve that is not suited for fine flow control is not very practical.

5.0 Proposed Alternative and Bases for Use

The chilled water circulating pumps will be tested in a range of flows, and the results will be compared to acceptance criteria based on a portion of the pump curve and the hydraulic acceptance criteria given in ISTB. The guidelines set forth in Code Case OMN-16, "Use of a Pump Curve for Testing" will be followed.

Using the provisions of this relief request as an alternative to the specific requirements of ISTB-5121 and ISTB-5123 identified above will provide adequate indication of pump performance and continue to provide an acceptable level of quality and safety. Therefore, pursuant to 10 CFR 50.55a(a)(3)(i) we request relief from the specific ISTB Code requirements identified in this relief request.

6.0 Duration of the Proposed Alternative

The proposed alternative described in Relief Request P-8 will be used for the Surry Power Station Unit 1 Fifth Ten Year Inservice Testing Interval until Code Case OMN-16 is approved for use by the NRC in Regulatory Guide 1.192, Operation and Maintenance Code Case Acceptability. When OMN-16 is approved by the NRC, OMN-16 can be used without a relief request and Relief Request P-8 will no longer be necessary.

7.0 Precedents

A similar relief request was approved by the NRC in their safety evaluation entitled "Surry Power Station, Units 1 and 2 – American Society of Mechanical Engineers Inservice Testing Program (TAC NOS. MC0120 through MC0146)" dated July 2, 2004.

Pump Relief Request P-4 for North Anna 1 was approved by the NRC by letter dated 9/30/2010 (TAC NOS. ME2748, ME2749, ME2753 to ME2760, ME2763 to ME2772, ME2778 to ME2789).

RELIEF REQUEST P-8 (Cont.)

Pump Relief Request PRR3 for Beaver Valley 1 was approved by the NRC by letter dated 9/27/2007 (TAC NOS. MD5118 – MD5131). PRR3 references NUREG-1482, Section 5.2.2, "Reference Curves.," which gives guidance based on OMN-9 and the conditions in Regulatory Guide 1.192. OMN-16 incorporates the conditions identified in Regulatory Guide 1.192.

These relief requests are similar to P-8 in that they use a portion of the pump curve instead of a reference point. However, the plant systems and conditions for not using a reference point differ.

8.0 References

1. ASME OM Code, 2004 Edition, 2005 and 2006 Addenda

RELIEF REQUEST P-9

Proposed alternative in accordance with 10CFR50.55a(a)(3)(i).
Alternative provides acceptable level of quality and safety.

1.0 ASME Code Components Affected

Pump(s): 1-CC-P-1A
1-CC-P-1B

System: Component Cooling

Group: A

Class: 3

Function: The component cooling water pumps supply cooling water to transfer heat from heat exchangers containing reactor coolant or other radioactive fluids.

2.0 Applicable Code Edition and Addenda

ASME OM Code, 2004 Edition, 2005 and 2006 Addenda

3.0 Applicable Code Requirements

ISTB-5121 requires that "Group A tests shall be conducted with the pump operating at a specified reference point."

ISTB-5123 requires that "Comprehensive tests shall be conducted with the pump operating at a specified reference point."

4.0 Reason for Request

During testing of the component cooling water pumps, flow is adjusted to the reference flow rate using an 18 inch butterfly valve. The butterfly valve is a crude throttling device and does not provide the fine tuning that is required to duplicate the reference flow rate from test to test. Consequently, throttling to the same reference flow rate during each test is not practical.

RELIEF REQUEST P-9 (Cont.)

5.0 Proposed Alternative and Bases for Use

The component cooling water pumps will be tested in a range of flows, and the results will be compared to acceptance criteria based on a portion of the pump curve and the hydraulic acceptance criteria given in ISTB. The guidelines set forth in Code Case OMN-16, "Use of a Pump Curve for Testing" will be followed.

Using the provisions of this relief request as an alternative to the specific requirements of ISTB-5121 and ISTB-5123 identified above will provide adequate indication of pump performance and continue to provide an acceptable level of quality and safety. Therefore, pursuant to 10 CFR 50.55a(a)(3)(i) we request relief from the specific ISTB Code requirements identified in this relief request.

6.0 Duration of the Proposed Alternative

The proposed alternative described in Relief Request P-9 will be used for the Surry Power Station Unit 1 Fifth Ten Year Inservice Testing Interval until Code Case OMN-16 is approved for use by the NRC in Regulatory Guide 1.192, Operation and Maintenance Code Case Acceptability. When OMN-16 is approved by the NRC, OMN-16 can be used without a relief request and Relief Request P-9 will no longer be necessary.

7.0 Precedents

A similar relief request was approved by the NRC in their safety evaluation entitled "Surry Power Station, Units 1 and 2 – American Society of Mechanical Engineers Inservice Testing Program (TAC NOS. MC0120 through MC0146)" dated July 2, 2004.

Pump Relief Request P-4 for North Anna 1 was approved by the NRC by letter dated 9/30/2010 (TAC NOS. ME2748, ME2749, ME2753 to ME2760, ME2763 to ME2772, ME2778 to ME2789).

Pump Relief Request PRR3 for Beaver Valley 1 was approved by the NRC by letter dated 9/27/2007 (TAC NOS. MD5118 – MD5131). PRR3 references NUREG-1482, Section 5.2.2, "Reference Curves.," which gives guidance based on OMN-9 and the conditions in Regulatory Guide 1.192. OMN-16 incorporates the conditions identified in Regulatory Guide 1.192.

RELIEF REQUEST P-9 (Cont.)

These relief requests are similar to P-9 in that they use a portion of the pump curve instead of a reference point. However, the plant systems and conditions for not using a reference point differ.

8.0 References

1. ASME OM Code, 2004 Edition, 2005 and 2006 Addenda

RELIEF REQUEST P-10

Proposed alternative in accordance with 10CFR50.55a(a)(3)(i).
Alternative provides acceptable level of quality and safety.

1.0 ASME Code Components Affected

Pump(s): 1-CH-P-1A
1-CH-P-1B
1-CH-P-1C

System: Chemical and Volume Control

Group: A

Class: 2

Function: These centrifugal pumps supply high pressure borated water to the reactor coolant system following a safety injection signal, and to provide normal charging to the reactor coolant system.

2.0 Applicable Code Edition and Addenda

ASME OM Code, 2004 Edition, 2005 and 2006 Addenda

3.0 Applicable Code Requirements

ISTB-5121 requires that "Group A tests shall be conducted with the pump operating at a specified reference point."

4.0 Reason for Request

Plant conditions may not be the same as when the reference values were established when performing the quarterly Group A tests. In the Chemical and Volume Control System, charging system flow must be balanced with seal injection, letdown and seal return flows to maintain a constant pressurizer level and pressure. Adjusting the charging flow rate to a specific reference test flow rate and then returning the charging system to the original flow rate places an unnecessary transient on the charging system and causes undesirable perturbations within the Reactor Coolant System.

RELIEF REQUEST P-10 (Cont.)

Therefore, pumps will be tested in a range of flows and the results will be compared to acceptance criteria based a portion of the pump curve and the hydraulic acceptance criteria given in ISTB.

Past vibration data for the subject pumps have been reviewed and it has been determined that pump vibration does not vary significantly with flow rate over the range of the test flow rates. This alternative to the requirements of ISTB-5121 provides an acceptable level of quality and safety.

5.0 Proposed Alternative and Bases for Use

The charging/safety Injection pumps will be tested in a range of flows, and the results will be compared to acceptance criteria based on a portion of the pump curve and the hydraulic acceptance criteria given in ISTB. The guidelines set forth in Code Case OMN-16, "Use of a Pump Curve for Testing" will be followed.

Using the provisions of this relief request as an alternative to the specific requirements of ISTB-5121 identified above will provide adequate indication of pump performance and continue to provide an acceptable level of quality and safety. Therefore, pursuant to 10 CFR 50.55a(a)(3)(i) we request relief from the specific ISTB Code requirements identified in this relief request.

6.0 Duration of the Proposed Alternative

The proposed alternative described in Relief Request P-10 will be used for the Surry Power Station Unit 1 Fifth Ten Year Inservice Testing Interval until Code Case OMN-16 is approved for use by the NRC in Regulatory Guide 1.192, Operation and Maintenance Code Case Acceptability. When OMN-16 is approved by the NRC, OMN-16 can be used without a relief request and Relief Request P-10 will no longer be necessary.

7.0 Precedents

The following relief requests for other plants that are similar to P-10 were approved by the NRC.

Pump Relief Request P-8 for North Anna 1 was approved by the NRC by letter dated 9/30/2010 (TAC NOS. ME2748, ME2749, ME2753 to ME2760, ME2763 to ME2772, ME2778 to ME2789).

RELIEF REQUEST P-10 (Cont.)

Pump Relief Request PRR3 for Beaver Valley 1 was approved by the NRC by letter dated 9/27/2007 (TAC NOS. MD5118 – MD5131). PRR3 references NUREG-1482, Section 5.2.2, "Reference Curves.," which gives guidance based on OMN-9 and the conditions in Regulatory Guide 1.192. OMN-16 incorporates the conditions identified in Regulatory Guide 1.192.

8.0 References

1. ASME OM Code, 2004 Edition, 2005 and 2006 Addenda

RELIEF REQUEST V-1

Proposed alternative in accordance with 10CFR50.55a(a)(3)(i).
Alternative provides acceptable level of quality and safety.

1.0 ASME Code Components Affected

Valve(s):	1-CH-MOV-1115B	1-SI-MOV-1885A
	1-CH-MOV-1115D	1-SI-MOV-1885B
	1-SI-25	1-SI-MOV-1885C
		1-SI-MOV-1885D

System: Chemical and Volume Control and Safety Injection

Category: A for 1-CH-MOV-1115B and D, and 1-SI-MOV-1885A-D
AC for 1-SI-25

Class: 2

Function: RWST Isolation Valves

2.0 Applicable Code Edition and Addenda

ASME OM Code, 2004 Edition, 2005 and 2006 Addenda

3.0 Applicable Code Requirements

ISTC-3630(f) - Valves or valve combinations with leakage rates exceeding the values specified by the Owner in ISTC-3630(e) above shall be declared inoperable and be either repaired or replaced.

4.0 Reason for Request

Valves 1-CH-MOV-1115B and D, and 1-SI-25 are in the supply line to the charging pumps from the RWST. Valves 1-SI-MOV-1885A, B, C and D are on test lines that run from the discharge of the low head SI pumps to the RWST. During recirculation mode transfer, the RWST is isolated and the low head SI pumps recirculate highly contaminated water from the containment sump to the reactor vessel.

RELIEF REQUEST V-1 (Cont.)

The RWST isolation valves work as a system of valves to protect the RWST from the contaminated sump water. Permissible valve leakage rates are based on each valve's possible contribution to the total allowable leakage rate to the RWST. When the leakages from each valve have been measured and summed, an individual valve's permissible leakage rate may have been exceeded but the overall allowable leakage to the RWST may not have been exceeded. In these cases, a repair or replacement may not be necessary because the system of isolation valves has been verified to be performing adequately.

In addition to repair or replacement as corrective actions, an evaluation can be performed which demonstrates that even if a valve has exceeded its permissible leakage rate, the overall leakage rate to the RWST will be maintained below the overall allowable RWST leakage rate and hence the system function is satisfied. This evaluation should provide a high level of assurance that delaying the repair or replacement will not result in exceeding the overall limit before the next leak rate test. The evaluation should include a determination of the cause for the individual valve leakage. The evaluation should also address the effect of the degradation mechanism for the valve on the ability of the valve group to maintain overall leakage to the RWST below the overall allowable leakage rate during the subsequent 24 month interval. Evaluations will be documented and retained in plant records, and are available for subsequent review. This alternative to the requirements ISTC-3630(f) provides an acceptable level of quality and safety.

5.0 Proposed Alternatives and Bases for Use

In addition to repair or replacement as corrective actions, an evaluation can be performed which demonstrates that even if a valve has exceeded its permissible leakage rate, the overall leakage rate to the RWST will be maintained below the overall allowable RWST leakage rate. No repair or replacement is necessary if the evaluation is performed and system leakage is projected to be maintained below the overall permissible leakage rate throughout the subsequent 24 month interval.

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

RELIEF REQUEST V-1 (Cont.)

6.0 Duration of the Proposed Alternative

The proposed alternatives described in Relief Request V-1 will be used for the Surry Power Station Unit 1 Fifth Ten Year Inservice Testing Interval.

7.0 Precedents

A similar relief request for the Surry Unit 1 Fourth Ten Year Inservice Testing Interval was approved by the NRC in their safety evaluation entitled "Surry Power Station, Units 1 and 2 – American Society of Mechanical Engineers Inservice Testing Program (TAC NOS. MC0120 through MC0146)" dated July 2, 2004.

The following relief request for another plant that is similar to V-1 was approved by the NRC.

Pump Relief Request V-1 for North Anna 1 was approved by the NRC by letter dated 9/30/2010 (TAC NOS. ME2748, ME2749, ME2753 to ME2760, ME2763 to ME2772, ME2778 to ME2789).

8.0 References

1. ASME OM Code, 2004 Edition, 2005 and 2006 Addenda

ATTACHMENT 3

SURRY POWER STATION UNIT 1
INSERVICE TESTING PROGRAM
FIFTH TESTING INTERVAL UPDATE SUMMARY

VIRGINIA ELECTRIC AND POWER COMPANY
(DOMINION)

SURRY POWER STATION UNIT 1
INSERVICE TESTING PROGRAM
FIFTH TESTING INTERVAL UPDATE SUMMARY

The Surry Unit 1 ASME Inservice Testing (IST) Program for Pumps and Valves has been updated for the fifth 10 year testing interval which starts on May 10th, 2014. The Unit 2 IST program has the same fifth 10 year testing interval start date as Unit 1.

This update is required every 10 years by the Code of Federal Regulations, 10 CFR 50.55a(f)(4)(ii) which states in part that the IST programs "must comply with the requirements in the latest edition and addenda of the Code incorporated by reference in paragraph (b) of this section 12 months prior to the start of the 120-month interval." The Code of Federal Regulations, paragraph 10CFR50.55a(b)(3) refers to the ASME Code for Operation and Maintenance (OM) of Nuclear Power Plants, and includes the 2004 Edition, the 2005 Addenda and the 2006 Addenda. The Code reference became effective on July 21st, 2011 and applies to the fifth IST interval for Surry Unit 1. The Surry Unit 1 IST program has been updated to comply with the latest OM Code edition.

There are no significant technical changes to the ASME OM Code scope and testing requirements between the Surry IST Program fourth interval, which was based on the ASME OM Code, 1998 Edition and 2000 Addenda, and the fifth interval.

Fifth Interval IST Program Update Summary

Below is a section by section summary of changes between the fourth interval IST program and the fifth interval IST program for Surry Unit 1.

Section 1.0 INTRODUCTION

The starting and ending dates for the fifth interval are described

Section 2.0 GENERAL PROGRAM DEVELOPMENT

References to the ASME OM Code, 1998 Edition and 2000 Addenda, were replaced by references to the ASME OM Code, 2004 Edition 2005 Addenda and 2006 Addenda. A new subsection, Section 2.3 Program Relief Requests, was added.

Section 2.1 Program Scope

Revision number was deleted for RG 1.26 reference. General reference to the RG is adequate.

Section 2.21 Program Update

Interval reference was updated.

Section 2.3 Program Relief Requests

This section was added in order to document Relief Request G-1. Relief Request G-1 allows for grace on the time period between periodic tests. For tests with a frequency of less than 2 years, a grace period of 25% of the frequency is allowed and for tests with a frequency greater than two years, 6 months are allowed. This relief request is supported by the ASME Code Case OMN-20.

Section 3.0 PUMP INSERVICE TEST PROGRAM DESCRIPTION

Section 3.1 Program Development Philosophy

Minor editorial changes were made to this section.

Section 3.2 Program Implementation

No changes were made to this section.

Section 3.3 Program Administration

There were no changes to this section.

Section 3.4 Pump Reference List

There were no changes to this section.

Section 3.5 Pump Inservice Test Table

Minor editorial changes were made. Changes to relief requests are described in Section 3.6. Specific vibration points were removed from the tables.

In addition to minor editorial changes, the following changes were made to the PUMP INSERVICE TEST TABLE:

Unit 1 Pump No.	Comments/Program Change
1-CC-P-1A 1-CC-P-1B	Program Change: Relief Request P-6 was added to allow for the use of a hydraulic parameter upper limit of 1.06% for the comprehensive pump test. The Interval 4 Relief Request P-5 was renumbered to P-9 for Interval 5. Relief Request P-1 for smooth running pumps was added to 1-CC-P-1A.
1-CC-P-2A 1-CC-P-2B	Program Change: Relief Request P-6 was added to allow for the use of a hydraulic parameter upper limit of 1.06% for the comprehensive pump test. The Interval 4 Relief Request P-7 was renumbered to P-4 for Interval 5.
1-CH-P-1A 1-CH-P-1B 1-CH-P-1C	Program Change: Relief Request P-6 was added to allow for the use of a hydraulic parameter upper limit of 1.06% for the comprehensive pump test. Relief Request P-10 was added to allow for the use of a pump curve for the Group A quarterly pump test per ASME OM Code Case OMN-16.
1-CH-P-2A 1-CH-P-2B	Program Change: Relief Request P-6 was added to allow for the use of a hydraulic parameter upper limit of 1.06% for the comprehensive pump test. The Interval 4 Relief Request P-6 was renumbered to P-3 for Interval 5. Relief Request P-1 for smooth running pumps was added to 1-CH-P-2A.
1-CS-P-1A 1-CS-P-1B	Program Change: The Interval 4 Relief Request P-8 was renumbered to P-5 for Interval 5.
1-FW-P-2 1-FW-P-3A 1-FW-P-3B	Program Change: Relief Request P-6 was added to allow for the use of a hydraulic parameter upper limit of 1.06% for the comprehensive pump test. Relief Request P-1 for smooth running pumps was added to 1-FW-P-3B.

Unit 1 Pump No.	Comments/Program Change
1-RH-P-1A 1-RH-P-1B	Program Change: Relief Request P-6 was added to allow for the use of a hydraulic parameter upper limit of 1.06% for the comprehensive pump test. Relief Request P-1 for smooth running pumps was added to both pumps. There was a provision in the Surry Interval 4 Relief Request P-2 that stated, "These pumps will be tested every cold shutdown outage and reactor refueling outage at the first practical opportunity after containment sub-atmospheric pressure is relieved, unless the pump has been tested within the previous three months." The provision "at the first practical opportunity after containment sub-atmospheric pressure is relieved" was removed for the Interval 5 relief request Relief.
1-RS-P-1A 1-RS-P-1B	Program Change: Relief Request P-6 was added to allow for the use of a hydraulic parameter upper limit of 1.06% for the comprehensive pump test.
1-RS-P-2A 1-RS-P-2B	Program Change: Relief Request P-6 was added to allow for the use of a hydraulic parameter upper limit of 1.06% for the comprehensive pump test.
1-SI-P-1A 1-SI-P-1B	Program Change: Relief Request P-6 was added to allow for the use of a hydraulic parameter upper limit of 1.06% for the comprehensive pump test.
1-SW-P-10A 1-SW-P-10B	Program Change: Relief Request P-6 was added to allow for the use of a hydraulic parameter upper limit of 1.06% for the comprehensive pump test. Relief Request P-1 for smooth running pumps was added to 1-SW-P-10B.
1-SW-P-1A 1-SW-P-1B 1-SW-P-1C	Program Change: Relief Request P-6 was added to allow for the use of a hydraulic parameter upper limit of 1.06% for the comprehensive pump test. The Interval 4 Relief Request P-3 was renumbered to P-7 for Interval 5.

Unit 1 Pump No.	Comments/Program Change
1-VS-P-1A 1-VS-P-1B 1-VS-P-1C 1-VS-P-1D 1-VS-P-1E	Program Change: Relief Request P-6 was added to allow for the use of a hydraulic parameter upper limit of 1.06% for the comprehensive pump test. Relief Request P-1 for smooth running pumps was added to 1-VS-P-1C and removed from 1-VS-P-1A.
1-VS-P-2A 1-VS-P-2B 1-VS-P-2C 1-VS-P-2D 1-VS-P-2E	Program Change: Relief Request P-6 was added to allow for the use of a hydraulic parameter upper limit of 1.06% for the comprehensive pump test. The Interval 4 Relief Request P-4 was renumbered to P-8 for Interval 5. Relief Request P-1 for smooth running pumps was added to 1-VS-P-2A and 1-VS-P-2B.

Section 3.6 Pump Test Program Relief Requests

The relief requests that were carried over from the fourth interval were approved for use by the NRC for the fourth interval. All relief requests for the fifth interval have to be approved by the NRC regardless of their approval status from the fourth interval.

Unit 1 Relief Request	Program Change
P-1	Relief Request P-1 was carried over from the fourth interval and establishes a minimum reference value of 0.05 ips to be used for vibration testing for the pumps listed in Table P-1.1. The Code references were updated. The bases for including pumps in Table P-1.1 is that there is at least one vibration reference value (V_r) that is currently less than 0.05 inches per second (ips) assigned to each pump.

Unit 1 Relief Request	Program Change
P-2	Relief Request P-2 was carried over from the fourth interval and allows residual heat removal pumps 1-RH-P-1A and 1-RH-P-1B to be tested during cold shutdowns. There was a provision in the Surry Interval 4 Relief Request P-2 that stated, "These pumps will be tested every cold shutdown outage and reactor refueling outage at the first practical opportunity after containment sub-atmospheric pressure is relieved, unless the pump has been tested within the previous three months." The provision "at the first practical opportunity after containment sub-atmospheric pressure is relieved" was removed for the Interval 5 relief request Relief.
P-3	Relief Request P-3 was carried over from the fourth interval (formally P-6). This request allows relief from requiring 2% accuracy on the inlet pressure gauges of 1-CH-P-2A and 1-CH-P-2B for group A tests as well as relief from requiring full scale range to be less than or equal to 3 times the reference value.
P-4	Relief Request P-4 was carried over from the fourth interval (formally P-7). This request provides relief from requiring full scale range to be less than or equal to 3 times the reference value for the inlet pressure gauges monitoring 1-CH-P-2A and 1-CH-P-2B.
P-5	Relief Request P-5 was carried over from the fourth interval (formally P-8) and allows relief from testing 1-CS-P-1A and 1-CS-P-1B within 20% of the pump design flow rate.
P-6	Relief Request P-6 has been added to the IST Program and increases the upper required action limit on comprehensive pump tests from 1.03% to 1.06% per OM Code Case OMN-19. This applies to all ASME classed pumps except for the CS pumps due to the test loop configurations ability to meet the design basis accident flow rate.

Unit 1 Relief Request	Program Change
P-7	Relief Request P-7 was carried over from the fourth interval (formally P-3). The former P-3 relief was based off of OM Code Case OMN-9. OMN-9 is being replaced by OMN-16 and carries that same title. Relief Request P-7 allows for the use of a pump curve for testing the emergency SW pumps 1-SW-P-1A, 1-SW-P-1B and 1-SW-P-1C.
P-8	Relief Request P-8 was carried over from the fourth interval (formally P-4). The former P-4 relief was based off of OM Code Case OMN-9. OMN-9 is being replaced by OMN-16 and carries that same title. Relief Request P-8 allows for the use of a pump curve for testing the main control room air conditioning chilled water pumps 1-VS-P-2A, 1-VS-P-2B, 1-VS-P-2C, 1-VS-P-2D and 1-VS-P-2E.
P-9	Relief Request P-9 was carried over from the fourth interval (formally P-5). The former P-5 relief was based off of OM Code Case OMN-9. OMN-9 is being replaced by OMN-16 and carries that same title. Relief Request P-9 allows for the use of a pump curve for testing the main component cooling pumps 1-CC-P-1A and 1-CC-P-1B.
P-10	Relief Request P-10 has been added to the IST Program and allows for the use of a pump curve for quarterly testing the charging pumps 1-CH-P-1A, 1-CH-P-1B and 1-CH-P-1C per ASME OM Code Case OMN-16.

Section 3.7 Alternative Testing for Non-Code Pumps.

This section deals with pumps that are outside the ASME Class 1, 2 and 3 boundaries and considered non-Code pumps. Relief from Code provisions is not required for non-Code pumps. However, cases where the Code provisions are not met are documented in this section. The Code references were updated in this section.

Unit 1 Non-Code Alternative Testing	Comments/Program Change
PNC-1	PNC-1 was carried over from the fourth interval and applies to 1-EE-P-1A, 1C, 1D and 1F. The Code references were updated and verified.

Section 4.0 VALVE INSERVICE TEST PROGRAM DESCRIPTON

Section 4.1 Program Development Philosophy

Minor editorial changes were made to this section.

Section 4.2 Program Implementation

The Code references were updated.

Section 4.3 Program Administration

There were no changes to this section.

Section 4.4 Valve Inservice Test Table

Minor editorial changes were made in the valve table description and the valve table. Note 1 was updated to reflect the change of ASME OM Code Case OMN-8 being incorporated into ISTC-5100. There were no scope changes from Interval 4 to Interval 5 for valve testing. The cold shutdown and reactor refueling justifications were renumbered as described in Sections 4.6 and 4.7 below.

Section 4.5 Valve Test Program Relief Requests

Unit 1 Relief Request	Program Change
V-1	Relief Request V-1 was carried over from the fourth interval (formally V-2) and allows for flexibility with combined leak rates of valves on flow paths to the RWST.

Interval 4 Relief Request V-1 was withdrawn because the NRC found it unnecessary in their safety revaluation report. Interval 4 Relief Requests V-3, V-4, V-5 and V-6 were deleted from the Interval 4 program as check valves were moved to the check valve condition monitoring program.

4.6 Valve Test Program Cold Shutdown Justifications

During the course of the fourth interval, certain cold shutdown justifications were either withdrawn or replaced. The cold shutdown justification numbers for the fifth interval have been reordered to eliminate gaps in the number sequence. Also, the technical specification (TS) references were updated and minor editorial changes were made. Cold shutdown justifications with a change are discussed below.

Unit 1 Cold Shutdown Justification	Program Change
CSV-4	CSV number changed from CSV-5 to CSV-4.
CSV-5	CSV number changed from CSV-6 to CSV-5.
CSV-6	CSV number changed from CSV-7 to CSV-6.
CSV-7	CSV number changed from CSV-8 to CSV-7. Valve category for 1-CH-MOV-1289A was revised from A to B.
CSV-8	CSV number changed from CSV-9 to CSV-8. Valve category was revised from A to B. TS reference revised from TS 3.3.A.8 to TS 3.3.A.3 and the verbiage revised to reflect the current TS. The technical basis for the deferral did not change.
CSV-9	CSV number changed from CSV-10 to CSV-9. Valve category was revised from A to B.
CSV-10	CSV number changed from CSV-11 to CSV-10.
CSV-11	CSV number changed from CSV-12 to CSV-11.
CSV-12	CSV number changed from CSV-13 to CSV-12. Valve category was revised from A to B. Reference to TS 3.3.A.9 was deleted from the CSV. TS 3.3.A.9 was deleted from the current TS. The technical basis for the deferral did not change.

Unit 1 Cold Shutdown Justification	Program Change
CSV-13	CSV number changed from CSV-14 to CSV-13.
CSV-14	CSV number changed from CSV-15 to CSV-14.
CSV-15	CSV number changed from CSV-16 to CSV-15.
CSV-16	CSV number changed from CSV-17 to CSV-16.
CSV-17	CSV number changed from CSV-18 to CSV-17. TS reference revised from TS 3.3.A.10 to TS 3.3.A.2.d to reflect the current TS. The technical basis for the deferral did not change.
CSV-18	CSV number changed from CSV-19 to CSV-18.
CSV-19	CSV number changed from CSV-24 to CSV-19. Valve class for valves 1-CW-MOV-100A to 100D was revised from 3 to NC (non-Class).

4.7 Valve Test Program Reactor Refueling Justifications

During the course of the fourth interval, certain reactor refueling justifications were either withdrawn or replaced. The reactor refueling justification numbers for the fifth interval have been reordered to eliminate gaps in the number sequence as described below. There were no technical changes or the need for TS or Code reference changes to any of the reactor refueling justifications.

Unit 1 Reactor Refueling Justification	Program Change
RRV-1	RRV number changed from RRV-18 to RRV-1.
RRV-2	RRV number changed from RRV-23 to RRV-2.
RRV-3	RRV number changed from RRV-24 to RRV-3.
RRV-4	RRV number changed from RRV-29 to RRV-4.

Section 4.8 Alternative Testing for Non-Code Valves

This section deals with valves that are outside the ASME Class 1, 2 and 3 boundaries and considered non-Code valves. Relief from Code provisions is not required for non-Code valves. However, cases where the Code provisions are not met are documented in this section. The non-Code alternative test numbers for the fifth interval have been reordered to eliminate gaps in the number sequence as described below. There were no technical changes or the need for TS reference changes to any of the non-Code alternative test descriptions.

Unit 1 Non-Code Alternative Test	Program Change
VNC-1	VNC number changed from VNC-2 to VNC-1 and minor editorial changes were made.
VNC-2	VNC number changed from VNC-3 to VNC-2.
VNC-3	VNC number changed from VNC-5 to VNC-3. VNC-3 was updated to reflect the change of ASME OM Code Case OMN-8 being incorporated into ISTC-5100.
VNC-4	VNC number changed from VNC-7 to VNC-4. Valve category was revised from B to C.

Section 5.0 REPORTING OF INSERVICE TEST RESULTS

There were no changes to this section.

Section 6.0 QUALITY ASSURANCE PROGRAM

There were no changes to this section.

ATTACHMENT 4

SURRY UNIT 1
INSERVICE TESTING PROGRAM PLAN
FIFTH TESTING INTERVAL

REVISION 0

VIRGINIA ELECTRIC AND POWER COMPANY
(DOMINION)

VIRGINIA ELECTRIC AND POWER COMPANY (DOMINION)

SURRY POWER STATION

UNIT 1

INSERVICE TESTING PROGRAM PLAN

FOR PUMPS AND VALVES

FIFTH TESTING INTERVAL

MAY 10, 2014 - MAY 09, 2024

REVISION 0

COMMERCIAL OPERATION: DECEMBER 22, 1972

ADDRESSES:

VIRGINIA ELECTRIC AND POWER COMPANY
P. O. BOX 26666
RICHMOND, VIRGINIA 23261

SURRY POWER STATION
5570 HOG ISLAND RD
SURRY, VIRGINIA 23883

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INSERVICE TESTING PROGRAM FOR PUMPS AND VALVES

1.0 INTRODUCTION

This Pump and Valve Inservice Test (IST) Program Plan is applicable to the Surry Power Station Unit 1 which received its construction permit on June 25, 1968 and began commercial operation on December 22, 1972. Surry Power Station Unit 1 is a Pressurized Water Reactor located in Surry County, Virginia. The plant employs a Westinghouse Electric Corp. Nuclear Steam System.

The IST Program Plan is comprised of two subprograms – the IST Program for Pumps and the IST Program for Valves. The development, implementation and administration of these programs are detailed in subsequent sections. This IST Program Plan applies to the fifth 10-year IST interval for Surry Power Station Unit 1 which starts on May 10, 2014 and ends May 9, 2024.

Surry Power Station requested an exemption from Section XI of the ASME Code to extend the Surry Unit 1 second 10-year IST interval for pumps and valves from December 22, 1992 to May 10, 1994 to coincide with the end of the second 10-year IST interval for Unit 2. This extension was granted in the form of an exemption to the Code of Federal Regulations, 10CFR50.55a(g)(4) per NRC letter dated February 16, 1993 (Serial No. 93-119). For IST, 10CFR50.55a(g) was subsequently replaced by 10CFR50.55a(f).

2.0 GENERAL PROGRAM DEVELOPMENT

The Code of Federal Regulations, paragraph 10CFR50.55a(f) describes the inservice testing requirements for pumps and valves which are classified as ASME Code Class 1, Class 2 and Class 3. Paragraph 10CFR50.55a(f)(4)(ii) states that,

> "Inservice tests to verify operational readiness of pumps and valves, whose function is required for safety, conducted during successive 120-month intervals must comply with the requirements of the latest edition and addenda of the Code incorporated by reference in paragraph (b) of this section 12 months prior to the start of the 120-month interval, subject to the limitations and modifications listed in paragraph (b) of this section."

The Code of Federal Regulations, paragraph 10CFR50.55a(b)(3) refers to the ASME Code for Operation and Maintenance (OM) of Nuclear Power Plants, and includes the 2004 Edition, the 2005 Addenda and the 2006 Addenda. The Code reference became effective on July 21st, 2011 and applies to the fifth IST interval for Surry Unit 1. The IST Program for the fifth IST interval complies with these edition and addenda.

The ASME OM Code requires that the owner of each nuclear power plant prepare a "plan" for testing and inspection of systems and components under the jurisdiction of 10CFR50.55a. The Code, Subsection ISTA, General Requirements, Subsection ISTB, Inservice Testing of Pumps, and Subsection ISTC, Inservice Testing of Valves apply to the IST program. Subsections ISTA, ISTB and ISTC establish the IST program scope with the provision that the rules apply only to ASME Code Classes 1, 2 and 3 as stated by the NRC in the Code of Federal Regulations.

In accordance with ASME OM Code, the following are required to be included in the testing program:

1) Centrifugal and positive displacement pumps that are provided with an emergency power source and required to perform a specific function in shutting down the reactor to the safe shutdown condition, maintaining the safe shutdown condition or mitigating the consequences of an accident.

2) Active or passive valves (and their actuating and position indicating systems) which are required to perform a specific function in shutting down the reactor to the safe shutdown condition, maintaining the safe shutdown condition or mitigating the consequences of an accident.

3) Pressure relief devices that protect systems or portions of systems which perform a required function in shutting down the reactor to the safe shutdown condition, maintaining the safe shutdown condition or mitigating the consequences of an accident.

In addition to the general Code requirements outlined above, there are other interpretations and positions that have come about as a result of past regulatory and licensee actions including Generic Letter 89-04 and NUREG-1482, Guidelines for Inservice Testing at Nuclear Power Plants, Revision 1. Other than these guides, there is no specific guidance for developing the IST Program scope of testing. Therefore, a set of rules was established by which the scope of the Surry ASME IST Program is determined including components that are to be included and the extent and type of testing required for each. Based on these rules, the philosophy and assumptions used in determining the test requirements for selected pumps and valves were documented.

2.1 PROGRAM SCOPE

In the course of developing the Program scope, each of the significant safety systems included within the ISI Class boundaries and certain safety systems outside of the ISI Class boundaries (such as the emergency diesel fuel oil transfer system) were evaluated with respect to the function of each component and the need for its operability as it relates to the scope of the ASME OM Code. Supporting documents used include,

Final Safety Analysis Report (FSAR),
Technical Specifications,
USNRC Regulatory Guide 1.26,
Past program correspondence,
Operating Procedures (normal, emergency and abnormal) and
Plant System Descriptions.

The sequence followed during the development effort was as follows:

1) Each of the plant systems was subjected to an overview to determine any potential active safety function as described in the scope statement. Those systems with no safety functions related to the ASME OM Code scope were excluded from further consideration. Plant documents as well as operating staff comments were utilized in this phase.

2) For the remaining systems, flow diagrams were studied and any component that could possibly have an active or passive safety function (other than simply maintaining the pressure boundary) was identified for further evaluation.

3) The function of each component identified from the flow diagrams was determined based on available documentation, staff review or general experience of the evaluator. Testing requirements were derived based on the component function(s) and Code requirements.

4) Available documents were reviewed and specific or implied component operational requirements were compared to the component functions.

5) The results of the steps described above were reviewed by several knowledgeable members of the plant staff and evaluated for accuracy and consistency, and compiled in an IST basis document. Based on this review, the final program scope was derived and the IST Program Plan developed.

2.2 PROGRAM UPDATE

During the fifth 10-year interval it is expected that the scope of the Program will occasionally be modified in response to unrelated activities including, but not limited to:

1) plant design changes,

2) changes in operating conditions (e.g. normal valve lineup),

3) changes in accident mitigating procedures philosophy and

4) later editions and addenda to the ASME OM Code.

As a result, it is expected that the IST Program may be revised to ensure continued compliance with the Code requirements relating to the scope of the test program. The site supervisor responsible for the IST Program is provided copies of plant modifications that are designated by engineering to have a potential IST impact. Should a change require a program revision, the IST corporate and site coordinators would then implement the change to the program plan and the appropriate test procedure(s) in a timely manner.

2.3 PROGRAM RELIEF REQUESTS

The relief requests in this section apply to the general administration of the IST Program.

RELIEF REQUEST G-1

Proposed alternative in accordance with 10CFR50.55a(a)(3)(ii), Hardship or Unusual Difficulty Without Compensating Increase in Level of Quality or Safety.
Alternative provides acceptable level of quality and safety.

1.0 ASME Code Components Affected

All Pumps and Valves contained within the Inservice Testing Program scope

2.0 Applicable Code Edition and Addenda

ASME OM Code, 2004 Edition, 2005 and 2006 Addenda

3.0 Applicable Code Requirements

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

Code Paragraph	Description
ISTA-3120(a)	"The frequency for the inservice testing shall be in accordance with the requirements of Section 1ST."
ISTB-3400	Frequency of Inservice Tests
Table ISTB-3400-1	Inservice Test Frequency
ISTC-3510	Exercising Test Frequency
ISTC-3540	Manual Valves
ISTC-3630(a)	Frequency
ISTC-3700	Position Verification Testing
ISTC-5221 (c)(3)	"At least one valve from each group shall be disassembled and examined at each refueling outage; all valves in a group shall be disassembled and examined at least once every 8 years."
Appendix I, I-1320	Test Frequencies, Class 1 Pressure Relief Valves
Appendix I, I-1330	Test Frequencies, Class 1 Nonreclosing Pressure Relief Devices
Appendix I, I-1340	Test Frequencies - Class 1 Pressure Relief Valves that are used for Thermal Relief Application
Appendix I, I-1350	Test Frequencies - Class 2 and 3 Pressure Relief Valves
Appendix I, I-1360	Test Frequencies - Class 2 and 3 Nonreclosing Pressure Relief Devices
Appendix 1, I-1370	Test Frequencies - Class 2 and 3 Primary Containment Vacuum Relief Valves

RELIEF REQUEST G-1 (Cont.)

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

4.0 Reason for Request

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

ASME OM Code Section 1ST establishes the inservice test frequency for all components within the scope of the Code. The frequencies (e.g., quarterly) have always been interpreted as "nominal" frequencies (generally as defined in the Table 3.2 of NUREG 1482, Revision 1) and Owners routinely applied the surveillance extension time period (i.e., grace period) contained in the plant Technical Specifications (TS) Surveillance Requirements (SRs). The TS typically allow for a less than or equal to 25% extension of the surveillance test interval to accommodate plant conditions that may not be suitable for conducting the surveillance (TS 4.0.2). However, regulatory issues have been raised concerning the applicability of the TS "Grace Period" to ASME OM Code required inservice test frequencies irrespective of allowances provided under TS Administrative Controls (i.e., TS 6.4.I, "Inservice Testing Program," invokes TS 4.0.2 for various OM Code frequencies).

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

RELIEF REQUEST G-1 (Cont.)

The NRC recognized this potential issue in the TS by allowing a frequency tolerance as described in TS 4.0.2. The lack of a similar tolerance applied to OM Code testing places an unusual hardship on the plant to adequately schedule work tasks without operational flexibility.

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

5.0 Proposed Alternative and Bases for Use

Code Case OMN-20 is included in the ASME OM Code, 2009 Edition and will be used as the alternative to the frequencies of the ASME OM Code.

The requirements of Code Case OMN-20 are described below.

ASME OM Division: 1 Section IST and earlier editions and addenda of ASME OM Code specify component test frequencies based either on elapsed time periods (e.g., quarterly, 2 years, etc.) or based on the occurrence of plant conditions or events (e.g., cold shutdown, refueling outage, upon detection of a sample failure, following maintenance, etc.).

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

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

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

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

RELIEF REQUEST G-1 (Cont.)

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

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

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

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

b) Components whose test frequencies are based on the occurrence of plant conditions or events may not have their period between tests extended except as allowed by ASME OM Code 2004 Edition, 2005 and 2006 Addenda, and earlier editions and addenda of ASME OM Code.

6.0 Duration of the Proposed Alternative

The proposed alternative described in Relief Request G-1 will be used for the Surry Power Station Unit 1 Fifth Ten Year Inservice Testing Interval.

7.0 Precedents

The following relief request for another plant that is similar to Relief Request G-1 was approved by the NRC.

Request Number RV-01 for Quad Cities Units 1 and 2 was approved by the NRC by letter dated 2/14/2013 (TAC Nos. ME7981 through ME7988, ME7990 through ME7995.)

RELIEF REQUEST G-1 (Cont.)

8.0 References

1. ASME OM Code, 2004 Edition, 2005 and 2006 Addenda
2. Surry TS Paragraph 4.0.2
3. Surry TS 6.4.I, Inservice Testing Program

3.0 PUMP INSERVICE TEST PROGRAM DESCRIPTION

3.1 PROGRAM DEVELOPMENT PHILOSOPHY

Surry Unit 1 Technical Specification 6.4.I describes the surveillance requirements that apply to the inservice testing of ASME Code Class 1, 2 and 3 pumps. The Surry Unit 1 Inservice Testing (IST) Program for Pumps has been established to meet the requirements of 10CFR50, the ASME OM Code, Subsection ISTB and Technical Specifications.

The scope of the program includes ASME Code Class 1, 2 and 3, and certain non-Code class pumps that are required to perform a specific function in shutting down the reactor to the safe shutdown condition, maintaining the safe shutdown condition or mitigating the consequences of an accident.

ISTB defines the rules and requirements of inservice testing of Code Class 1, 2, and 3 pumps and states that each pump to be tested by the rules of this subsection shall be identified by the owner and listed in the plant records.

The purpose of the IST Program Plan is to identify the pumps that are considered by Virginia Electric and Power (Dominion) Company as having a safety function and are therefore subject to the testing requirements of ISTB. The intent of the Code is to assess operational readiness and detect potentially adverse changes in the mechanical condition of these pumps. The relief requests for the IST Program Plan identify Code requirements considered to be impractical, provide technical basis for the request and propose alternate testing when warranted, or provide acceptable alternatives to Code requirements.

3.2 PROGRAM IMPLEMENTATION

Surveillance testing is performed to detect equipment malfunction or degradation and to initiate corrective action. The Surry Power Station Unit 1 IST Program provides a schedule for testing safety-grade pumps and is implemented as part of normal periodic surveillance testing.

Reference data are gathered during initial surveillance tests. With the ASME OM Code, these initial reference tests can be a preservice test as described in ISTB-3100 or the first inservice test as described in ISTB-3200. ISTB-3100 requires that at least five points along the pump curve be measured for pumps where the system resistance can be varied. ISTB-3200 refers to Group A tests, Group B tests and comprehensive

tests. Group A tests apply to Group A pumps which are pumps that are operated continuously or routinely during normal operation, cold shutdown, or refueling operations. Group B tests apply to Group B pumps which are pumps in standby systems that are not operated routinely except for testing. Comprehensive tests apply to both Group A and B pumps and require more accurate pressure instrumentation (0.5% versus 2% for the Group A and B tests), but are performed on a less frequent basis.

The Group A test parameters include differential pressure (or discharge pressure for positive displacement pumps), flow rate, vibration and speed for variable speed pumps. The Group B test parameters include differential pressure for pumps other than positive displacement pumps, flow rate and speed for variable speed pumps. Differential pressure need not be measured for positive displacement pumps. The Group A and B test parameters are typically measured with normal plant instrumentation. If practicable, the Group A and B reference tests shall be performed within ± 20% of the pump design flow rate. If not practicable, the reference test shall be performed at the highest practical flow rate. Comprehensive test parameters include differential pressure (or discharge pressure for positive displacement pumps), flow rate, vibration and speed for variable speed pumps. The comprehensive reference test shall be performed within ± 20% of the pump design flow rate. Any deviation from this requirement for comprehensive tests requires a request for relief from Code provisions.

Group A and B inservice tests shall be performed every three months as required by Table ISTB-3400-1. Any deviation from this test frequency requires a request for relief from Code provisions. During subsequent surveillance tests, flow rate is normally selected as the independent test parameter and is set to match the reference flow rate. Other hydraulic and mechanical performance parameters are measured and evaluated against the appropriate reference values. The results of such evaluations determine whether or not corrective action is warranted. Comprehensive tests are performed every two years in a manner similar to the Group A and B inservice tests.

Each pump in the IST Program is tested according to a detailed test procedure. The procedure includes, as a minimum:

1) <u>References</u>: This section identifies references applicable to Technical Specifications and other necessary material as drawings.

2) <u>Purpose</u>: This section identifies test objectives.

3) Initial Conditions: Each procedure should identify those independent actions or procedures which shall be completed and station conditions which shall exist prior to use.

4) Precautions: Precautions should be established to alert the individual performing the task to those situations in which important measures should be taken early or where extreme care should be used to protect equipment and personnel. Cautionary notes applicable to specific steps in the procedure should be included in the main body of the procedure as appropriate and should be identified as such.

5) Instructions: The main body of a procedure should contain step by step instructions in the degree of detail necessary for performing a required test.

6) Acceptance Criteria: The ranges within which test data are considered acceptable are established and included in the test procedure. In the event that data fall outside the acceptable range, operator action is governed by approved station procedures.

Finally, it is recognized that the IST Program for Pumps sets forth minimum testing requirements. Additional testing is performed, as required, after pump maintenance or as determined necessary by personnel at Surry Power Station.

3.3 PROGRAM ADMINISTRATION

The engineering staff at Surry is responsible for the administration of the IST Program for Pumps. The operations staff is responsible for performing the periodic tests as required by this program. The IST Program for Pumps is implemented by station periodic test procedures.

3.4 PUMP REFERENCE LIST

This list gives a brief description of each pump identified in the Pump Inservice Test Program.

1-CC-P-1A	Component Cooling Water Pumps
1-CC-P-1B	Drawing: 11448-CBM-72D, Sheet 1

Description: These centrifugal pumps supply cooling water to transfer heat from heat exchangers containing reactor coolant or other radioactive fluids. The component cooling water pumps are constant speed pumps

that operate routinely during normal operation and are defined as Group A pumps.

1-CC-P-2A Charging Pump Cooling Water Pumps
1-CC-P-2B Drawing: 11448-CBM-71B, Sheet 2

Description: These centrifugal pumps supply cooling water to transfer heat from the charging pump mechanical seals. The charging pump cooling water pumps are constant speed pumps that operate routinely during normal operation and are defined as Group A pumps.

1-CH-P-1A High Head Safety Injection/Charging Pumps
1-CH-P-1B Drawing: 11448-CBM-88B, Sheet 2
1-CH-P-1C

Description: These centrifugal pumps supply high pressure borated water to the reactor coolant system following a safety injection signal, and to provide normal charging to the reactor coolant system. The high head safety injection/charging pumps are constant speed pumps that operate routinely during normal operation and are defined as Group A pumps.

1-CH-P-2A Boric Acid Transfer Pumps
1-CH-P-2B Drawing: 11448-CBM-88A, Sheet 1

Description: These centrifugal pumps supply boric acid to the suction of the charging pumps for emergency boration. The boric acid transfer pumps operate at two constant speeds. The low speed is used when recirculating the contents of the boric acid storage tanks, and the high speed (approximately double the low speed) is used when the pumps discharge to the charging pump suction header during emergency boration events and blender operations. The tests are conducted with the pumps on high speed. The pumps operate routinely during normal operation and are defined as Group A pumps.

1-CS-P-1A Containment Spray Pumps
1-CS-P-1B Drawing: 11448-CBM-84A, Sheet 2

Description: These centrifugal pumps provide a cooled, chemically treated, borated spray to reduce containment pressure following a loss of coolant accident. The containment spray pumps are in a standby system and are defined as Group B pumps. The pumps are constant speed pumps.

1-EE-P-1A 1-EE-P-1C 1-EE-P-1D 1-EE-P-1F	Emergency Diesel Generator Fuel Oil Transfer Pumps Drawing: 11448-FB-38A, Sheet 2

Description: These positive displacement pumps supply fuel oil to the emergency diesel generator fuel oil day tank which directly supplies the emergency diesel generator. The emergency diesel generator fuel oil pumps are in a standby system and are defined as Group B pumps. The pumps are constant speed pumps.

1-FW-P-2 1-FW-P-3A 1-FW-P-3B	Auxiliary Feedwater Pumps Drawing: 11448-CBM-68A, Sheet 3

Description: These centrifugal pumps supply auxiliary feedwater to the steam generators following a loss of normal feedwater flow. The auxiliary feedwater pumps are in a standby system and are defined as Group B pumps. The steam driven pump 1-FW-P-2 is a variable speed pump, and the motor driven pumps 1-FW-P-3A and 3B are constant speed pumps.

1-RH-P-1A 1-RH-P-1B	Residual Heat Removal Pumps Drawing: 11448-CBM-87A, Sheet 1

Description: These centrifugal pumps remove decay heat from the reactor core and the reactor coolant system during plant cool down. The residual heat removal pumps are constant speed pumps that operate routinely during cold shutdowns and reactor refuelings and are defined as Group A pumps.

1-RS-P-1A 1-RS-P-1B	Inside Recirculation Spray Pumps Drawing: 11448-CBM-84B, Sheet 1

Description: These vertical line shaft pumps supply a borated spray to cool and depressurize the containment atmosphere following a containment depressurization actuation signal and maintain containment subatmospheric following an accident. The inside recirculation spray pumps are in a standby system and are defined as Group B pumps. Also, the pump sumps are maintained dry. According to ISTB-3430, they require a comprehensive test at least once every two years. No quarterly testing is required. Because the pumps are inside containment, they will receive the comprehensive test during reactor refueling outages. The pumps are constant speed pumps.

1-RS-P-2A	Outside Recirculation Spray Pumps
1-RS-P-2B	Drawing: 11448-CBM-84B, Sheet 2

Description: These vertical line shaft pumps supply borated spray to cool and depressurize the containment atmosphere following a containment depressurization actuation signal and maintain containment subatmospheric following an accident. The outside recirculation spray pumps are in a standby system and are defined as Group B pumps. Also, the pump sumps are maintained dry. According to ISTB-3430, they require a comprehensive test at least once every two years. No quarterly testing is required. The pumps are constant speed pumps.

1-SI-P-1A	Low Head Safety Injection Pumps
1-SI-P-1B	Drawing: 11448-CBM-89A, Sheet 1

Description: These vertical line shaft pumps supply low pressure borated water to the reactor coolant system following a safety injection signal. The low head safety injection pumps are in a standby system and are defined as Group B pumps. The pumps are constant speed pumps.

1-SW-P-1A	Emergency Service Water Pumps
1-SW-P-1B	Drawing: 11448-CBM-71A, Sheet 1
1-SW-P-1C	

Description: These deep draft pumps supply the required service water to the canal to provide for minimum safeguards operation in the unlikely event of a loss of off-site power coincident with a design basis accident. The emergency service water pumps are in a standby system and are defined as Group B pumps. Each pump is powered by a diesel connected to the pump by an angled reduction gear drive. The tests are conducted with the diesel at or near full throttle. A review of the as-found values for the speed measured on the vertical pump shaft when the diesel is at full throttle shows that the speeds are routinely within 2 rpm of the target speed of 880 rpm. However, the speed is then typically adjusted to a value closer to the target speed. Therefore, for testing purposes, these pumps are considered variable speed pumps.

1-SW-P-10A	Charging Pump Service Water Pumps
1-SW-P-10B	Drawing: 11448-CBM-71B, Sheet 1

Description: These centrifugal pumps provide cooling water for Charging Pump Cooling Water Systems. The charging pump service water pumps

are constant speed pumps that operate routinely during normal operation and are defined as Group A pumps.

1-VS-P-1A	Main Control Room Air Conditioning System
1-VS-P-1B	Condenser Water Pumps
1-VS-P-1C	Drawing: 11448-CBM-71D, Sheets 1 and 2
1-VS-P-1D	
1-VS-P-1E	

Description: These centrifugal pumps supply service water to the main control room air conditioning system chillers. The control room condenser water pumps are constant speed pumps that operate routinely during normal operation and are defined as Group A pumps.

1-VS-P-2A	Main Control Room Air Conditioning System
1-VS-P-2B	Chiller Water Pumps
1-VS-P-2C	Drawing: 11448-CBB-41A, Sheets 2 and 3
1-VS-P-2D	
1-VS-P-2E	

Description: These centrifugal pumps circulated chilled water to the main control room and switch gear room air handling units. The control room chiller water pumps are constant speed pumps that operate routinely during normal operation and are defined as Group A pumps.

3.5 PUMP INSERVICE TEST TABLE

The Pump Inservice Test Table identifies the pumps to be tested, code classes, required test quantities and frequencies. Relief from test requirements is requested in cases where Code requirements are determined to be impractical or where alternatives to the Code requirements are acceptable. Where relief is requested, technical justification is provided along with alternative test methods when applicable. Relief requests are contained in Section 3.6.

For non-Code pumps, a request for relief is not necessary when provisions of the Code are determined to be impractical. Section 3.7 contains a discussion of the testing requirements for non-Code pumps and descriptions of alternative testing in cases where the provisions of the Code are not met.

To aid the reader in interpreting the Pump Inservice Test Table, brief explanations of the table headings and abbreviations are provided below.

1) Pump Number - Each pump in the plant has a unique "mark" number which identifies the system to which the pump belongs.

2) Drawing and Sheet Number, Coordinate - The specific coordinates of each valve are supplied to facilitate location of the valves on the flow diagrams provided.

3) ASME Class - ASME Code Class of each pump as per 10CFR50.55a and Regulatory Guide 1.26.

Note: NC is for non-Code pumps. These pumps are important to safety but are not in systems that are classified ASME Class 1, 2 or 3.

4) ISTB Group - Pump group as defined in ISTB-2000 where:

Group A pumps - pumps that are operated continuously or routinely during normal operation, cold shutdown, or refueling operations and

Group B pumps - pumps in standby systems that are not operated routinely except for testing.

5) Flow Path - The flow path used for the test can either be the normal flow path for the system, a recirculation flow path or a flow path dedicated to testing.

6) System Resist - Either FIXED for a test loop with a fixed system resistance or VARIABLE for a test loop with a system resistance that can be varied.

7) Test Type - The required ISTB test quantities. Test types with "C_" as a prefix represent comprehensive tests that are conducted every 24 months. Test types without the prefix "C_" represent either Group A or B tests that are conducted every three months unless the test frequency has been deferred to cold shutdown or reactor refueling by a relief request. Examples of test type abbreviations are given below.

DEV_HEAD - developed pump head

DIFF_PRESSURE - differential pressure

DISCH_PRESSURE - discharge pressure

FLOW - flow

FLOW_TOTAL - flow total is the sum of branch flows

PUMP_SPEED - pump speed for variable speed pumps

VIB - vibration measured at a given bearing

8) Test Freq - The test frequency with the following abbreviations:

03 - the test will be performed every three months (Group A and B pump tests shall be performed every three months as required by Table ISTB-3400-1.)

CS - the test will be performed every cold shutdown (a relief request explains the need for deviating from Table ISTB-3400-1 test frequency requirements)

RR - the test will be performed every reactor refueling (a relief request explains the need for deviating from Table ISTB-3400-1 test frequency requirements)

24 - the test will be performed every 24 months (pumps with sumps that are maintained dry shall only have a comprehensive test performed every 2 years per ISTB-3430).

9) Ref Flow Status – ISTB-3300 requires that the reference flow rate be within 20% of pump design flow. The reference flow rate is the flow rate used to establish acceptance criteria. For Group A and B tests, ISTB-3300(e)(2) allows for testing outside the 20% range due to impracticality. For comprehensive tests, ISTB-3300(e)(1) requires that the tests to be performed within the 20% range with no exceptions. Therefore, relief from Code provisions is required when testing outside the 20% range for comprehensive tests.

FULL (full flow) in this column indicates that the reference flow rate is within 20% of pump design flow. If the reference flow rate does not meet this requirement a note is provided at the end of the pump table with an explanation.

10) Relief Request - Relief requests are presented in Section 3.6.

11) Non-Code Alter Test - Non-Code alternative tests apply to pumps that are not ASME Code class 1, 2 or 3. These tests are alternatives to Code tests and are described in Section 3.7.

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
PUMP INSERVICE TEST TABLE

PUMP NUMBER	DRAWING NUMBER	SHEET NO	COOR	ASME CLASS	ISTB GROUP	FLOW PATH	SYSTEM RESIST	TEST TYPE	TEST FREQ	REF FLOW STATUS	RELIEF REQUEST (P-)	NON-CODE ALTER TEST (PNC-)
1-CC-P-1A	11448-CBM-072D	1 OF 5	D5	3	A	NORMAL	VARIABLE	C_DIFF_PRESS	24		6,9	
								C_FLOW_TOTAL	24	FULL	6,9	
								C_VIB	24		1	
								DIFF_PRESSURE	03		9	
								FLOW_TOTAL	03	NOTE 1	9	
								VIB	03		1	
COMPONENT COOLING WATER CENTRIFUGAL PUMP												
1-CC-P-1B	11448-CBM-072D	1 OF 5	C5	3	A	NORMAL	VARIABLE	C_DIFF_PRESS	24		6,9	
								C_FLOW_TOTAL	24	FULL	6,9	
								C_VIB	24		1	
								DIFF_PRESSURE	03		9	
								FLOW_TOTAL	03	NOTE 1	9	
								VIB	03		1	
COMPONENT COOLING WATER CENTRIFUGAL PUMP												
1-CC-P-2A	11448-CBM-071B	2 OF 2	C7	3	A	NORMAL	VARIABLE	C_DIFF_PRESS	24		6	
								C_FLOW	24	FULL	6	
								C_VIB	24		1	
								DIFF_PRESSURE	03		4	
								FLOW	03	FULL		
								VIB	03		1	
	COMPONENT COOLING WATER TO CHARGING PUMP CENTRIFUGAL PUMP											
1-CC-P-2B	11448-CBM-071B	2 OF 2	C3	3	A	NORMAL	VARIABLE	C_DIFF_PRESS	24		6	
								C_FLOW	24	FULL	6	
								C_VIB	24			
								DIFF_PRESSURE	03		4	
								FLOW	03	FULL		
								VIB	03			
	COMPONENT COOLING WATER TO CHARGING PUMP CENTRIFUGAL PUMP											

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
PUMP INSERVICE TEST TABLE

PUMP NUMBER	DRAWING NUMBER	SHEET NO	COOR	ASME CLASS	ISTB GROUP	FLOW PATH	SYSTEM RESIST	TEST TYPE	TEST FREQ	REF FLOW STATUS	RELIEF REQUEST (P-)	NON-CODE ALTER TEST (PNC-)
1-CH-P-1A	11448-CBM-088B	2 OF 3	C8	2	A	CAVITY	VARIABLE	C_DIFF_PRESS	24		6	
								C_SUCTION_FLOW	24	FULL	6	
								C_VIB	24			
						NORMAL	VARIABLE	DIFF_PRESSURE	03		10	
								SUCTION_FLOW	03	NOTE 2	10	
								VIB	03			
	HIGH HEAD SAFETY INJECTION/CHARGING CENTRIFUGAL PUMP											
1-CH-P-1B	11448-CBM-088B	2 OF 3	C6	2	A	CAVITY	VARIABLE	C_DIFF_PRESS	24		6	
								C_SUCTION_FLOW	24	FULL	6	
								C_VIB	24		1	
						NORMAL	VARIABLE	DIFF_PRESSURE	03		10	
								SUCTION_FLOW	03	NOTE 2	10	
								VIB	03		1	
	HIGH HEAD SAFETY INJECTION/CHARGING CENTRIFUGAL PUMP											
1-CH-P-1C	11448-CBM-088B	2 OF 3	C4	2	A	CAVITY	VARIABLE	C_DIFF_PRESS	24		6	
								C_SUCTION_FLOW	24	FULL	6	
								C_VIB	24		1	
						NORMAL	VARIABLE	DIFF_PRESSURE	03		10	
								SUCTION_FLOW	03	NOTE 2	10	
								VIB	03		1	
	HIGH HEAD SAFETY INJECTION/CHARGING CENTRIFUGAL PUMP											
1-CH-P-2A	11448-CBM-088A	1 OF 4	B7	2	A	RECIRC	VARIABLE	C_DIFF_PRESS	24		6	
								C_FLOW	24	FULL	6	
								C_VIB	24		1	
								DIFF_PRESSURE	03		3	
								FLOW	03	FULL		
								VIB	03		1	
	BORIC ACID TRANSFER CENTRIFUGAL PUMP											

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
PUMP INSERVICE TEST TABLE

PUMP NUMBER	DRAWING NUMBER	SHEET NO	COOR	ASME CLASS	ISTB GROUP	FLOW PATH	SYSTEM RESIST	TEST TYPE	TEST FREQ	REF FLOW STATUS	RELIEF REQUEST (P-)	NON-CODE ALTER TEST (PNC-)
1-CH-P-2B	11448-CBM-088A	1 OF 4	B6	2	A	RECIRC	VARIABLE	C_DIFF_PRESS	24		6	
								C_FLOW	24	FULL	6	
								C_VIB	24		1	
								DIFF_PRESSURE	03		3	
								FLOW	03	FULL		
								VIB	03		1	
	BORIC ACID TRANSFER CENTRIFUGAL PUMP											
1-CS-P-1A	11448-CBM-084A	2 OF 3	C6	2	B	RECIRC	FIXED	C_DIFF_PRESS	24			
								C_TOTAL_FLOW	24	NOTE 3	5	
								C_VIB	24			
								DIFF_PRESSURE	03			
								TOTAL_FLOW	03	NOTE 3		
	CONTAINMENT SPRAY PUMP											
1-CS-P-1B	11448-CBM-084A	2 OF 3	B5	2	B	RECIRC	FIXED	C_DIFF_PRESS	24			
								C_TOTAL_FLOW	24	NOTE 3	5	
								C_VIB	24			
								DIFF_PRESSURE	03			
								TOTAL_FLOW	03	NOTE 3		
	CONTAINMENT SPRAY PUMP											
1-EE-P-1A	11448-FB-038A	2 OF 4	C7	NC	B	NORMAL	FIXED	C_DISCH_PRESS	NA			1
								C_FLOW	03	FULL		1
								C_VIB	03			1
								DISCH_PRESSURE	NA			1
								FLOW	03	FULL		1
	EMERGENCY DIESEL GENERATOR FUEL OIL TRANSFER POSITIVE DISPLACEMENT PUMP											
1-EE-P-1C	11448-FB-038A	2 OF 4	F7	NC	B	NORMAL	FIXED	C_DISCH_PRESS	NA			1
								C_FLOW	03	FULL		1
								C_VIB	03			1
								DISCH_PRESSURE	NA			1
								FLOW	03	FULL		1
	EMERGENCY DIESEL GENERATOR FUEL OIL TRANSFER POSITIVE DISPLACEMENT PUMP											

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
PUMP INSERVICE TEST TABLE

PUMP NUMBER	DRAWING NUMBER	SHEET NO	COOR	ASME CLASS	ISTB GROUP	FLOW PATH	SYSTEM RESIST	TEST TYPE	TEST FREQ	REF FLOW STATUS	RELIEF REQUEST (P-)	NON-CODE ALTER TEST (PNC-)
1-EE-P-1D	11448-FB-038A	2 OF 4	B6	NC	B	NORMAL	FIXED	C_DISCH_PRESS	NA			1
								C_FLOW	03	FULL		1
								C_VIB	03			1
								DISCH_PRESSURE	NA			1
								FLOW	03	FULL		1
	EMERGENCY DIESEL GENERATOR FUEL OIL TRANSFER POSITIVE DISPLACEMENT PUMP											
1-EE-P-1F	11448-FB-038A	2 OF 4	E6	NC	B	NORMAL	FIXED	C_DISCH_PRESS	NA			1
								C_FLOW	03	FULL		1
								C_VIB	03			1
								DISCH_PRESSURE	NA			1
								FLOW	03	FULL		1
	EMERGENCY DIESEL GENERATOR FUEL OIL TRANSFER POSITIVE DISPLACEMENT PUMP											
1-FW-P-2	11448-CBM-068A	3 OF 4	B8	3	B	RECIRC	VARIABLE	C_DIFF_PRESS	24		6	
								C_FLOW	24	FULL	6	
								C_PUMP_SPEED	24			
								C_VIB	24			
								DIFF_PRESSURE	03			
								FLOW	03	FULL		
								PUMP_SPEED	03			
	AUXILIARY FEEDWATER STEAM DRIVEN CENTRIFUGAL PUMP											
1-FW-P-3A	11448-CBM-068A	3 OF 4	B6	3	B	RECIRC	VARIABLE	C_DIFF_PRESS	24		6	
								C_FLOW	24	FULL	6	
								C_VIB	24			
								DIFF_PRESSURE	03			
								FLOW	03	FULL		
	AUXILIARY FEEDWATER MOTOR DRIVEN CENTRIFUGAL PUMP											
1-FW-P-3B	11448-CBM-068A	3 OF 4	B5	3	B	RECIRC	VARIABLE	C_DIFF_PRESS	24		6	
								C_FLOW	24	FULL	6	
								C_VIB	24		1	
								DIFF_PRESSURE	03			
								FLOW	03	FULL		
	AUXILIARY FEEDWATER MOTOR DRIVEN CENTRIFUGAL PUMP											

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
PUMP INSERVICE TEST TABLE

PUMP NUMBER	DRAWING NUMBER	SHEET NO	COOR	ASME CLASS	ISTB GROUP	FLOW PATH	SYSTEM RESIST	TEST TYPE	TEST FREQ	REF FLOW STATUS	RELIEF REQUEST (P-)	NON-CODE ALTER TEST (PNC-)
1-RH-P-1A	11448-CBM-087A	1 OF 2	D7	2	A	RECIRC	VARIABLE	C_DIFF_PRESS	24		6	
								C_FLOW	24	FULL	6	
								C_VIB	24		1	
								DIFF_PRESSURE	CS		2	
								FLOW	CS	FULL	2	
								VIB	CS		2,1	
	RESIDUAL HEAT REMOVAL PUMP											
1-RH-P-1B	11448-CBM-087A	1 OF 2	D4	2	A	RECIRC	VARIABLE	C_DIFF_PRESS	24		6	
								C_FLOW	24	FULL	6	
								C_VIB	24		1	
								DIFF_PRESSURE	CS		2	
								FLOW	CS	FULL	2	
								VIB	CS		2,1	
	RESIDUAL HEAT REMOVAL PUMP											
1-RS-P-1A	11448-CBM-084B	1 OF 2	C5	2	B	RECIRC	VARIABLE	C_DIFF_PRESS	24		6	
								C_FLOW	24	FULL	6	
								C_VIB	24			
	INSIDE RECIRCULATION SPRAY VERTICAL LINE SHAFT PUMP											
1-RS-P-1B	11448-CBM-084B	1 OF 2	C7	2	B	RECIRC	VARIABLE	C_DIFF_PRESS	24		6	
								C_FLOW	24	FULL	6	
								C_VIB	24			
	INSIDE RECIRCULATION SPRAY VERTICAL LINE SHAFT PUMP											
1-RS-P-2A	11448-CBM-084B	2 OF 2	C6	2	B	RECIRC	FIXED	C_DIFF_PRESS	24		6	
								C_FLOW	24		6	
								C_VIB	24			
	OUTSIDE RECIRCULATION SPRAY VERTICAL LINE SHAFT PUMP											
1-RS-P-2B	11448-CBM-084B	2 OF 2	C7	2	B	RECIRC	FIXED	C_DIFF_PRESS	24		6	
								C_FLOW	24		6	
								C_VIB	24			
	OUTSIDE RECIRCULATION SPRAY VERTICAL LINE SHAFT PUMP											

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
PUMP INSERVICE TEST TABLE

PUMP NUMBER	DRAWING NUMBER	SHEET NO	COOR	ASME CLASS	ISTB GROUP	FLOW PATH	SYSTEM RESIST	TEST TYPE	TEST FREQ	REF FLOW STATUS	RELIEF REQUEST (P-)	NON-CODE ALTER TEST (PNC-)
1-SI-P-1A	11448-CBM-089A	1 OF 3	C6	2	B	CAVITY	VARIABLE	C_DIFF_PRESS	24		6	
								C_FLOW	24	FULL	6	
								C_VIB	24			
						RECIRC	FIXED	DIFF_PRESSURE	03			
								FLOW	03	NOTE 4		
	LOW HEAD SAFETY INJECTION VERTICAL LINE SHAFT PUMP											
1-SI-P-1B	11448-CBM-089A	1 OF 3	C4	2	B	CAVITY	VARIABLE	C_DIFF_PRESS	24		6	
								C_FLOW	24	FULL	6	
								C_VIB	24			
						RECIRC	FIXED	DIFF_PRESSURE	03			
								FLOW	03	NOTE 4		
	LOW HEAD SAFETY INJECTION VERTICAL LINE SHAFT PUMP											
1-SW-P-10A	11448-CBM-071B	1 OF 2	B8	3	A	NORMAL	VARIABLE	C_DIFF_PRESS	24		6	
								C_FLOW	24	FULL	6	
								C_VIB	24		1	
								DIFF_PRESSURE	03			
								FLOW	03	FULL		
								VIB	03		1	
	SERVICE WATER TO CHARGING PUMP CENTRIFUGAL PUMP											
1-SW-P-10B	11448-CBM-071B	1 OF 2	B3	3	A	NORMAL	VARIABLE	C_DIFF_PRESS	24		6	
								C_FLOW	24	FULL	6	
								C_VIB	24		1	
								DIFF_PRESSURE	03			
								FLOW	03	FULL		
								VIB	03		1	
	SERVICE WATER TO CHARGING PUMP CENTRIFUGAL PUMP											

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
PUMP INSERVICE TEST TABLE

PUMP NUMBER	DRAWING NUMBER	SHEET NO	COOR	ASME CLASS	ISTB GROUP	FLOW PATH	SYSTEM RESIST	TEST TYPE	TEST FREQ	REF FLOW STATUS	RELIEF REQUEST (P-)	NON-CODE ALTER TEST (PNC-)
1-SW-P-1A	11448-CBM-071A	1 OF 4	C4	3	B	NORMAL	FIXED	C_DIFF_PRESS	24		6,7	
								C_FLOW	24	FULL	6,7	
								C_PUMP_SPEED	24			
								C_VIB	24			
								DIFF_PRESSURE	03		7	
								FLOW	03	FULL	7	
								PUMP_SPEED	03			
	EMERGENCY SERVICE WATER VERTICAL LINE SHAFT PUMP											
1-SW-P-1B	11448-CBM-071A	1 OF 4	D4	3	B	NORMAL	FIXED	C_DIFF_PRESS	24		6,7	
								C_FLOW	24	FULL	6,7	
								C_PUMP_SPEED	24			
								C_VIB	24			
								DIFF_PRESSURE	03		7	
								FLOW	03	FULL	7	
								PUMP_SPEED	03			
	EMERGENCY SERVICE WATER VERTICAL LINE SHAFT PUMP											
1-SW-P-1C	11448-CBM-071A	1 OF 4	F4	3	B	NORMAL	FIXED	C_DIFF_PRESS	24		6,7	
								C_FLOW	24	FULL	6,7	
								C_PUMP_SPEED	24			
								C_VIB	24			
								DIFF_PRESSURE	03		7	
								FLOW	03	FULL	7	
								PUMP_SPEED	03			
	EMERGENCY SERVICE WATER VERTICAL LINE SHAFT PUMP											

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
PUMP INSERVICE TEST TABLE

PUMP NUMBER	DRAWING NUMBER	SHEET NO	COOR	ASME CLASS	ISTB GROUP	FLOW PATH	SYSTEM RESIST	TEST TYPE	TEST FREQ	REF FLOW STATUS	RELIEF REQUEST (P-)	NON-CODE ALTER TEST (PNC-)
	EMERGENCY SERVICE WATER VERTICAL LINE SHAFT PUMP											
1-VS-P-1A	11448-CBM-071D	1 OF 2	D7	3	A	NORMAL	VARIABLE	C_DIFF_PRESS	24		6	
								C_FLOW	24	FULL	6	
								C_VIB	24			
								DIFF_PRESSURE	03			
								FLOW	03	FULL		
								VIB	03			
	MAIN CONTROL ROOM AIR CONDITIONING SYSTEM CONDENSER SIDE CENTRIFUGAL PUMP											
1-VS-P-1B	11448-CBM-071D	1 OF 2	D6	3	A	NORMAL	VARIABLE	C_DIFF_PRESS	24		6	
								C_FLOW	24	FULL	6	
								C_VIB	24		1	
								DIFF_PRESSURE	03			
								FLOW	03	FULL		
								VIB	03		1	
	MAIN CONTROL ROOM AIR CONDITIONING SYSTEM CONDENSER SIDE CENTRIFUGAL PUMP											
1-VS-P-1C	11448-CBM-071D	1 OF 2	D3	3	A	NORMAL	VARIABLE	C_DIFF_PRESS	24		6	
								C_FLOW	24	FULL	6	
								C_VIB	24		1	
								DIFF_PRESSURE	03			
								FLOW	03	FULL		
								VIB	03		1	
	MAIN CONTROL ROOM AIR CONDITIONING SYSTEM CONDENSER SIDE CENTRIFUGAL PUMP											

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
PUMP INSERVICE TEST TABLE

PUMP NUMBER	DRAWING NUMBER	SHEET NO	COOR	ASME CLASS	ISTB GROUP	FLOW PATH	SYSTEM RESIST	TEST TYPE	TEST FREQ	REF FLOW STATUS	RELIEF REQUEST (P-)	NON-CODE ALTER TEST (PNC-)
1-VS-P-1D	11448-CBM-071D	2 OF 2	D5	3	A	RECIRC	VARIABLE	C_DIFF_PRESS	24		6	
								C_FLOW	24	FULL	6	
								C_VIB	24		1	
								DIFF_PRESSURE	03			
								FLOW	03	FULL		
								VIB	03		1	
	MAIN CONTROL ROOM AIR CONDITIONING SYSTEM CONDENSER SIDE CENTRIFUGAL PUMP											
1-VS-P-1E	11448-CBM-071D	2 OF 2	D4	3	A	RECIRC	VARIABLE	C_DIFF_PRESS	24		6	
								C_FLOW	24	FULL	6	
								C_VIB	24		1	
								DIFF_PRESSURE	03			
								FLOW	03	FULL		
								VIB	03		1	
	MAIN CONTROL ROOM AIR CONDITIONING SYSTEM CONDENSER SIDE CENTRIFUGAL PUMP											
1-VS-P-2A	11448-CBB-041A	2 OF 4	B6	3	A	NORMAL	VARIABLE	C_DIFF_PRESS	24		6,8	
								C_FLOW_TOTAL	24	FULL	6,8	
								C_VIB	24		1	
								DIFF_PRESSURE	03		8	
								FLOW_TOTAL	03	FULL	8	
								VIB	03		1	
	MAIN CONTROL ROOM AIR CONDITIONING SYSTEM CHILLER SIDE CENTRIFUGAL PUMP											
1-VS-P-2B	11448-CBB-041A	2 OF 4	B5	3	A	NORMAL	VARIABLE	C_DIFF_PRESS	24		6,8	
								C_FLOW_TOTAL	24	FULL	6,8	
								C_VIB	24		1	
								DIFF_PRESSURE	03		8	
								FLOW_TOTAL	03	FULL	8	
								VIB	03		1	
	MAIN CONTROL ROOM AIR CONDITIONING SYSTEM CHILLER SIDE CENTRIFUGAL PUMP											

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
PUMP INSERVICE TEST TABLE

PUMP NUMBER	DRAWING NUMBER	SHEET NO	COOR	ASME CLASS	ISTB GROUP	FLOW PATH	SYSTEM RESIST	TEST TYPE	TEST FREQ	REF FLOW STATUS	RELIEF REQUEST (P-)	NON-CODE ALTER TEST (PNC-)
1-VS-P-2C	11448-CBB-041A	2 OF 4	B4	3	A	NORMAL	VARIABLE	C_DIFF_PRESS	24		6,8	
								C_FLOW_TOTAL	24	FULL	6,8	
								C_VIB	24		1	
								DIFF_PRESSURE	03		8	
								FLOW_TOTAL	03	FULL	8	
								VIB	03		1	
	MAIN CONTROL ROOM AIR CONDITIONING SYSTEM CHILLER SIDE CENTRIFUGAL PUMP											
1-VS-P-2D	11448-CBB-041A	3 OF 4	C6	3	A	NORMAL	VARIABLE	C_DIFF_PRESS	24		6,8	
								C_FLOW	24	FULL	6,8	
								C_VIB	24		1	
								DIFF_PRESSURE	03		8	
								FLOW	03	FULL	8	
								VIB	03		1	
	MAIN CONTROL ROOM AIR CONDITIONING SYSTEM CHILLER SIDE CENTRIFUGAL PUMP											
1-VS-P-2E	11448-CBB-041A	3 OF 4	C5	3	A	NORMAL	VARIABLE	C_DIFF_PRESS	24		6,8	
								C_FLOW	24	FULL	6,8	
								C_VIB	24		1	
								DIFF_PRESSURE	03		8	
								FLOW	03	FULL	8	
								VIB	03		1	
	MAIN CONTROL ROOM AIR CONDITIONING SYSTEM CHILLER SIDE CENTRIFUGAL PUMP											

PUMP INSERVICE TEST TABLE NOTES

Note 1 - As described in Relief Request P-9, pumps 1-CC-P-1A and B are tested over a range of flows every three months. The lower end of this range is less than 20% of pump design flow. However, to minimize system perturbations, the range will not be changed to accommodate the 20% of design flow.

Note 2 - The normal charging flow path is the only flow path available for Group A tests that are performed every three months for pumps 1-CH-P-1A, B and C. Flow within 20% of pump design flow cannot be achieved with this flow path.

Note 3- As described in Relief Request P-5, a comprehensive test reference flow rate will be established for each pump at or near 80% of the pump design flow rate but not less than 76% of design flow rate (1520 gpm) for containment spray pumps 1-CS-P-1A and B. The same flow rate range applies to the Group B test.

Note 4 - The low head safety injection recirculation flow path is the only flow path available for Group B tests that are performed every three months for pumps 1-SI-P-1A and B. Flow within 20% of pump design flow cannot be achieved with this flow path.

3.6 PUMP TEST PROGRAM RELIEF REQUESTS

Relief Requests identify code requirements that are impractical for Surry Unit 1 and provide justification for the requested exception. Where appropriate, alternate testing to be performed in lieu of the code requirements is proposed.

RELIEF REQUEST P-1

Proposed alternative in accordance with 10CFR50.55a(a)(3)(i)
Alternative provides acceptable level of quality and safety.

1.0 ASME Code Components Affected

Refer to Table P-1.1

2.0 Applicable Code Edition and Addenda

ASME OM Code, 2004 Edition, 2005 and 2006 Addenda

3.0 Applicable Code Requirements

ISTB-3300, "Reference Values"

ISTB-3300(a) requires that initial reference values shall be determined from the results of testing meeting the requirements of ISTB-3100, "Preservice Testing," or from the results of the first inservice test.

ISTB-3300(d) requires that reference values shall be established at a point(s) of operation (reference point) readily duplicated during subsequent tests.

ISTB-3300(f) requires that all subsequent test results shall be compared to these initial reference values or to new reference values established in accordance with ISTB-3310, ISTB-3320, or ISTB-6200(c).

ISTB-5120, "Inservice Testing" (Centrifugal Pumps, Except Vertical Line Shaft Centrifugal Pumps)

ISTB-5121(e) and ISTB-5123(e), "Group A Test Procedure and Comprehensive Test Procedure", require that all deviations from the reference values shall be compared with the ranges of Table ISTB-5121-1 and corrective action taken as specified in ISTB-6200. Vibration measurements shall be compared to both the relative and absolute criteria shown in the alert and required action ranges of Table ISTB-5121-1. For example, if vibration exceeds either 6Vr, or 0.7 in/sec, the pump is in the required action range.

RELIEF REQUEST P-1 (Cont.)

ISTB-5220, "Inservice Testing" (Vertical Line Shaft Centrifugal Pumps)

ISTB-5221(e) and ISTB-5223(e), "Group A Test Procedure and Comprehensive Test Procedure", require that all deviations from the reference values shall be compared with the ranges of Table ISTB-5221-1 and corrective action taken as specified in ISTB-6200. Vibration measurements shall be compared to both the relative and absolute criteria shown in the alert and required action ranges of Table ISTB-5221-1.

Note: There are no ASME Code Classed positive displacement pumps in the Surry IST Program.

4.0 Reason for Request

The pumps listed in Table P-1.1 tend to be smooth running pumps. Each pump listed in Table P-1.1 has at least one vibration reference value (V_r) that is currently less than 0.05 inches per second (ips). Small values for V_r produce small acceptable ranges for pump operation. The acceptable ranges are defined in Tables ISTB-5121-1 and ISTB-5221-1 as less than or equal to $2.5V_r$. Based on a small acceptable range, a smooth running pump could be subject to unnecessary corrective action if the measured vibration parameter exceeds this acceptable range.

For very small reference values, hydraulic noise and instrument error can be a significant portion of the reading and affect the repeatability of subsequent measurements. Also, experience gathered from the North Anna preventive maintenance program has shown that changes in vibration levels in the range of 0.05 ips do not normally indicate significant degradation in pump performance.

To avoid unnecessary corrective action, a minimum value for V_r of 0.05 ips has been established for velocity measurements. This minimum value will be applied to individual vibration locations for the pumps listed in Table P-1.1 where the measured reference value is less than 0.05 ips.

When new reference values are established per ISTB-3310, ISTB-3320 or ISTB-6200(c), the measured parameters will be evaluated for each location to determine if the provisions of this relief request still apply.

In addition to the requirements of ISTB, the pumps in the ASME Inservice Testing Program are included in the Surry Predictive Maintenance Program. The Surry Predictive Maintenance Program currently employs predictive monitoring techniques such as:

RELIEF REQUEST P-1 (Cont.)

- vibration monitoring and analysis beyond that required by ISTB,
- oil sampling and analysis where applicable (e.g., for pumps with sufficiently large oil reservoirs).

If the measured parameters are outside the normal operating range or are determined by analysis to be trending toward an unacceptable degraded state, appropriate actions are taken that may include:

- increased monitoring to establish rate of change,
- review of component specific information to identify cause, and
- removal of the pump from service to perform maintenance.

It should be noted that all of the pumps in the IST Program will remain in the Predictive Maintenance Program even if certain pumps have very low vibration readings and are considered to be smooth running pumps. This alternative to the requirements of ISTB-3300, ISTB-5120 and ISTB-5220, and Table ISTB-5121-1 and Table ISTB-5221-1 provides an acceptable level of quality and safety.

5.0 Proposed Alternative and Basis for Use

For the pumps listed in Table P-1.1, if a measured reference value is below 0.05 ips for a particular vibration measurement location, then subsequent test results for that location may be compared to an acceptable range based on 0.05 ips. In addition to the Code requirements, all pumps in the IST Program are included in and will remain in the Surry Predictive Maintenance Program regardless of their smooth running status.

Using the provisions of this relief request as an alternative to the specific requirements of ISTB-3300, ISTB-5120 and ISTB-5220, and Table ISTB-5121-1 and Table ISTB-5221-1 will provide adequate indication of pump performance and continue to provide an acceptable level of quality and safety. Therefore, pursuant to 10CFR50.55a(a)(3)(i), Relief Request P-1 requests relief from the specific ISTB requirements identified in this request.

6.0 Duration of the Proposed Alternative

The proposed alternative described in Relief Request P-1 will be used for the Surry Power Station Unit 1 Fifth Ten Year Inservice Testing Interval.

RELIEF REQUEST P-1 (Cont.)

7.0 Precedents

A similar relief request for the Surry Unit 1 Fourth Ten Year Inservice Testing Interval was approved by the NRC in their safety evaluation entitled "Surry Power Station, Units 1 and 2 – American Society of Mechanical Engineers Inservice Testing Program (TAC NOS. MC0120 through MC0146)" dated July 2, 2004.

The following relief requests for other plants that are similar to Relief Request P-1 were approved by the NRC.

Pump Relief Request P-1 for North Anna 1 was approved by the NRC by letter dated 11/15/2010 (TAC NOS. ME2776 and ME2777).

Pump Relief Request PRR8 for Beaver Valley 1 was approved by the NRC by letter dated 9/27/2007 (TAC NOS. MD5118 – MD5131).

Pump Relief Request PRR8 for Beaver Valley 2 was approved by the NRC by letter dated 2/14/2008 (TAC NOS. MD5595 – MD5604).

8.0 References

1. ASME OM Code, 2004 Edition, 2005 and 2006 Addenda

RELIEF REQUEST P-1 (Cont.)
Table P-1.1

Pump Groups	System	Code Class	OM Group	Description	Pump Type	Pump Speed (rpm)
1-CC-P-1A 1-CC-P-1B	Component Cooling	3	A	Component Cooling Water Pumps	Centrifugal	1185
1-CC-P-2A	Component Cooling	3	A	Component Cooling Water Pump to Charging Pump	Centrifugal	3500
1-CH-P-1B 1-CH-P-1C	Chemical and Volume Control/Safety Injection	2	A	High Head Safety Injection/Charging Pump	Centrifugal	6018
1-CH-P-2A 1-CH-P-2B	Chemical and Volume Control	2	A	Boric Acid Transfer Pumps	Centrifugal	3500
1-FW-P-3B	Auxiliary Feedwater	3	B	Auxiliary Feedwater Motor Driven Pump	Centrifugal	3560
1-RH-P-1A 1-RH-P-1B	Residual Heat Removal	2	A	Residual Heat Removal Pump	Centrifugal	1780
1-SW-P-10A 1-SW-P-10B	Service Water	3	A	Service Water Pump to Charging Pump	Centrifugal	3500
1-VS-P-1B 1-VS-P-1C	Ventilation	3	A	Main Control Room Air Conditioning System Condenser Water Pumps	Centrifugal	3550
1-VS-P-1D 1-VS-P-1E	Ventilation	3	A	Main Control Room Air Conditioning System Condenser Water Pumps	Centrifugal	1750
1-VS-P-2A 1-VS-P-2B 1-VS-P-2C	Ventilation	3	A	Main Control Room Air Conditioning System Chilled Water Pumps	Centrifugal	3500
1-VS-P-2D 1-VS-P-2E	Ventilation	3	A	Main Control Room Air Conditioning System Chilled Water Pumps	Centrifugal	3535

RELIEF REQUEST P-2

Proposed alternative in accordance with 50.55a(f)(6)(i) and 10CFR50.55a(a)(3)(i)
Code requirement is impractical.
Alternative provides acceptable level of quality and safety.

1.0 ASME Code Components Affected

Pump(s): 1-RH-P-1A
1-RH-P-1B

System: Residual Heat Removal

Group: A

Class: 2

Function: The residual heat removal pumps remove decay heat from the reactor core and the reactor coolant system during plant cool down.

2.0 Applicable Code Edition and Addenda

ASME OM Code, 2004 Edition, 2005 and 2006 Addenda

3.0 Applicable Code Requirements

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

Table ISTB-3400-1, "Inservice Test Frequency," requires an inservice test be run on each Group A pump nominally every 3 months.

4.0 Reason for Request

ISTB-3400 and Table ISTB-3400-1

The residual heat removal (RHR) pumps are located inside containment. The pumps are low pressure (600 psig design pressure) pumps that take suction from and discharge to the reactor coolant system (RCS). The RCS is maintained at 2235 psig and the containment atmosphere is maintained at sub-atmospheric pressure during normal operation. The RHR motor operated suction and discharge isolation valves are interlocked with an output signal from RCS pressure transmitters which prevent the valves from being opened when the RCS pressure exceeds 460 psig. Therefore, testing the RHR pumps during normal operation is not possible.

RELIEF REQUEST P-2 (Cont.)

5.0 Proposed Alternative and Bases for Use

ISTB-3400 and Table ISTB-3400-1

These pumps will be tested every cold shutdown outage and reactor refueling outage, unless the pump has been tested within the previous three months. (During back-to-back cold shutdown or refueling outages, the test period remains valid for three months following each test, and no additional periodic testing needs to be performed within this three month test period.) For a cold shutdown or reactor refueling that extends longer than three months, the pumps will be tested every three months in accordance with ISTB 3400-1.

Using the provisions of this relief request as an alternative to the specific requirements of Table ISTB-3400-1 identified above, which have been identified to be impractical, will provide adequate indication of pump performance. Therefore, pursuant to 10 CFR 50.55a(f)(6)(i) we request relief from the specific ISTB Code requirements identified in this relief request.

6.0 Duration of the Proposed Alternative

The proposed alternative described in Relief Request P-2 will be used for the Surry Power Station Unit 1 Fifth Ten Year Inservice Testing Interval.

7.0 Precedents

A similar relief request for the Surry Unit 1 Fourth Ten Year Inservice Testing Interval was approved by the NRC in their safety evaluation entitled "Surry Power Station, Units 1 and 2 – American Society of Mechanical Engineers Inservice Testing Program (TAC NOS. MC4251 and MC4252)" dated September 28, 2004.

The following relief requests for other plants that are similar to Relief Request P-2 were approved by the NRC.

Pump Relief Request P-2 for North Anna 1 was approved by the NRC by letter dated 9/30/2010 (TAC NOS. ME2748, ME2749, ME2753 to ME2760, ME2763 to ME2772, ME2778 to ME2789).

Pump Relief Request PRR7 for Beaver Valley 1 was approved by the NRC by letter dated 9/27/2007 (TAC NOS. MD5118 – MD5131) and applies to ISTB-3400 and Table ISTB-3400-1.

8.0 References

1. ASME OM Code, 2004 Edition, 2005 and 2006 Addenda

RELIEF REQUEST P-3

Proposed alternative in accordance with 50.55a(f)(6)(i) and 10CFR50.55a(a)(3)(i).
Code requirement is impractical.
Alternative provides acceptable level of quality and safety.

1.0 ASME Code Components Affected

Pump(s): 1-CH-P-2A
1-CH-P-2B

System: Chemical and Volume Control

Group: A

Class: 2

Function: The boric acid transfer pumps supply boric acid to the suction of the charging pumps for emergency boration.

2.0 Applicable Code Edition and Addenda

ASME OM Code, 2004 Edition, 2005 and 2006 Addenda

3.0 Applicable Code Requirements

Table ISTB-3500-1 requires that Group A test pressure instrument accuracy shall be within ± 2%.

ISTB-3510(b)(1) requires that the full-scale range of each analog instrument shall be not greater than three times the reference value.

4.0 Reason for Request

Table ISTB-3500-1

Calibrating the inlet pressure instruments for the boric acid transfer pumps to an accuracy within ± 2% has proven difficult and may be impractical in the future with the current instruments. Calibrating the inlet pressure instruments to an accuracy within ± 3% would be practical.

RELIEF REQUEST P-3 (Cont.)

ISTB-3510(b)(1)

The inlet pressure gauges have a full scale range of 0 to 15 psig. These instruments were sized by evaluating the static pressures present at the suction side of the pumps and applying the three times rule of ISTB-3510(b)(1). The static pressures range from 6 to 7 psig.

When the pumps are started, the pressure at the suction side of the pumps drops to approximately 2 psig; therefore, the inlet pressure gauges do not meet the three times rule for dynamic inlet pressure.

Using a lower range pressure gauge (i.e. 0 to 5 psig) would meet the three times rule for dynamic inlet pressure; however, the lower range gauge would be repeatedly exposed to an over range condition (static pressures in excess of 5 psig) which would damage the instruments.

Using a lower range temporary gauge on a quarterly basis presents a hardship because the process fluid contains boric acid and is contaminated. If contaminated, the temporary instruments would probably become waste material. However, with the current 0 to 15 psig inlet pressure gauges calibrated to ± 3%, a differential pressure can be determined that exceeds the accuracy requirements for differential pressure.

Each boric acid transfer pump discharge pressure gauge (0 to 150 psig range) has an instrument loop accuracy of 1.59%. Computing the maximum error for differential pressure using the current instrument configuration and an inlet pressure gauge accuracy of ± 3%, yields an error of 2.85 psid.

Computing the Code allowed error for differential pressure for an inlet pressure gauge with a 2% accuracy and a 0 to 5 psig range and a discharge pressure instrument with a 2% accuracy and a 0 to 150 psig range yields an error of 3.1 psid. With the current instrument configuration, the loop accuracy of each discharge pressure instrument could be as high as 1.75%, which equates to a 3.075 psid error, and still be within the Code allowed error of 3.1 psid for differential pressure. Therefore, for purposes of trending pump degradation using differential pressure and flow, the current instrument is adequate as long as the discharge pressure instrument loop accuracies remain at or below 1.75%.

RELIEF REQUEST P-3 (Cont.)

5.0 Proposed Alternative and Bases for Use

The inlet pressure gauges with a full scale range of 0 to 15 psig and calibrated to an accuracy within ± 3%, will be used to measure dynamic inlet pressures. Also, the loop accuracies for the discharge pressure gauges will be maintained at or below an accuracy of 1.75% to ensure that the differential pressure error is below the differential pressure error allowed by the Code.

Using the provisions of this relief request as an alternative to the specific requirements of Table ISTB-3500-1 and ISTB-3510(b)(1) identified above, which have been identified to be impractical, will provide adequate indication of pump performance. Therefore, pursuant to 10 CFR 50.55a(f)(6)(i) we request relief from the specific ISTB Code requirements identified in this relief request.

6.0 Duration of the Proposed Alternative

The proposed alternative described in Relief Request P-3 will be used for the Surry Power Station Unit 1 Fifth Ten Year Inservice Testing Interval.

7.0 Precedents

A similar relief request was approved by the NRC in their safety evaluation entitled "Surry Power Station, Units 1 and 2 – American Society of Mechanical Engineers Inservice Testing Program (TAC NOS. MC0120 through MC0146)" dated July 2, 2004.

The following relief requests for other plants that are similar to portions of P-3 were approved by the NRC.

Pump Relief Request PRR-03 for Brunswick Steam Electric Plant, Unit 1 and 2 was approved by the NRC by letter dated May 8, 2008 (TAC NOS. MD7425 through MD7438, and MD 7440 and MD7441). Note that Relief Request PRR-03 only applies to the full scale range requirements in ISTB-3510(b)(1), and not to the instrument accuracy requirements in Table ISTB-3500-1.

Pump Relief Request PRR006 for Fermi 2 was approved by the NRC by letter dated 76/2010 (TAC NOS. ME2548, ME2549, ME2551) and applies to Table ISTB-3510-1.

8.0 References

1. ASME OM Code, 2004 Edition, 2005 and 2006 Addenda

RELIEF REQUEST P-4

Proposed alternative in accordance with 10CFR50.55a(a)(3)(i).
Alternative provides acceptable level of quality and safety.

1.0 ASME Code Components Affected

Pump(s): 1-CC-P-2A
1-CC-P-2B

System: Component Cooling Water

Group: A

Class: 3

Function: The charging pump cooling water pumps supply cooling water to transfer heat from the charging pump mechanical seals coolers.

2.0 Applicable Code Edition and Addenda

ASME OM Code, 2004 Edition, 2005 and 2006 Addenda

3.0 Applicable Code Requirements

ISTB-3510(b)(1) requires that the full-scale range of each analog instrument shall be not greater than three times the reference value.

4.0 Reason for Request

Installed inlet pressure gauges used for the Group A tests have a full scale range of 0 to 3.5 psig. Readings from these inlet pressure gauges over the past year indicate that the dynamic pressures fall within the bottom third of full scale. However, the difference in the error between the 0 to 3.5 psig gauges and gauges that would meet the three times full-scale rule are so small that the 0 to 3.5 psig gauges can be considered to be equivalent in terms of accuracy for determining differential pressure.

RELIEF REQUEST P-4 (Cont.)

For example, inlet pressures as low as 0.8 psig have been recorded for pump 1-CC-P-2B. A gauge that meets the three times full-scale rule would have a full scale of 2.4 psig or less. A 2% accuracy for the 2.4 psig gauge translates to an error of 0.05 psig. A 2% accuracy for the 3.5 psig gauge translates to an error of 0.07 psig. The difference in error of 0.02 psig is insignificant when determining the differential pressures for these pumps which range between 50 and 60 psig. Therefore, the two gauges can be considered to be equivalent in terms of accuracy for determining differential pressure.

5.0 Proposed Alternative and Bases for Use

Inlet pressure for the Group A tests will be measured with gauges that have a full-scale of 0 to 3.5 psig.

Using the provisions of this relief request as an alternative to the specific requirements of ISTB-3510(b)(1) identified above will provide adequate indication of pump performance and continue to provide an acceptable level of quality and safety. Therefore, pursuant to 10 CFR 50.55a(a)(3)(i) we request relief from the specific ISTB Code requirements identified in this relief request.

6.0 Duration of the Proposed Alternative

The proposed alternative described in Relief Request P-4 will be used for the Surry Power Station Unit 1 Fifth Ten Year Inservice Testing Interval.

7.0 Precedents

A similar relief request was approved by the NRC in their safety evaluation entitled "Surry Power Station, Units 1 and 2 – American Society of Mechanical Engineers Inservice Testing Program (TAC NOS. MC0120 through MC0146)" dated July 2, 2004.

The following relief request for another plant that is similar to portions of P-4 was approved by the NRC.

Pump Relief Request PRR-03 for Brunswick Steam Electric Plant, Unit 1 and 2 was approved by the NRC by letter dated May 8, 2008 (TAC NOS. MD7425 through MD7438, and MD 7440 and MD7441).

8.0 References

1. ASME OM Code, 2004 Edition, 2005 and 2006 Addenda

RELIEF REQUEST P-5

Proposed alternative in accordance with 10CFR50.55a(a)(3)(i).
Alternative provides acceptable level of quality and safety.

1.0 ASME Code Components Affected

Pump(s): 1-CS-P-1A
1-CS-P-1B

System: Containment Spray

Group: B

Class: 2

Function: The containment spray pumps provide a cooled, chemically treated, borated spray to reduce containment pressure following a loss of coolant accident.

2.0 Applicable Code Edition and Addenda

ASME OM Code, 2004 Edition, 2005 and 2006 Addenda

3.0 Applicable Code Requirements

ISTB-3300(e)(1) (Reference Values) requires that reference values shall be established within $\pm$20% of pump design flow rate for comprehensive tests.

4.0 Reason for Request

The test loop for the containment spray pumps is shown in Figure P-5.1. The containment spray pumps take suction from the refueling water storage tank (RWST) and discharge back to the RWST. With this test loop, it is difficult to consistently achieve reference flow rates that are within 20% of the pump design flow rate of 2000 gpm. Therefore, relief from the Code requirement is requested for Surry Unit 1.

RELIEF REQUEST P-5 (Cont.)

Pump Design Flow Rate Basis

The containment spray system resistance limits a single pump delivery flow to 2000 gpm at 238.6 total developed head (TDH) in feet. This TDH corresponds to the accident analysis conditions when a containment spray pump starts and is subject to its most limiting operating conditions. Specifically, the Surry accident analysis assumes a minimum pump flow rate of 2000 gpm when the RWST, which is the containment spray suction source, is at the Technical Specifications minimum allowable level and the containment is at the design pressure of 45 psig.

As containment pressure decreases during a design basis accident following spray actuation, the containment spray pump TDH will decrease and the flow will increase above 2000 gpm as the pump operating point moves out on the pump curve. The pump response along the pump curve as modeled in the accident analysis is for a degraded pump. The actual pump head performance at 1600 gpm (the approximate test flow rate) is well above the corresponding head of the accident analysis degraded pump curve requirement.

A model of the containment spray system hydraulic circuit for each pump has confirmed the limiting accident analysis assumptions for containment spray pump flow versus head.

An additional consideration is that the containment spray pumps are expected to operate for less than 2 hours after a design basis accident. Accident analyses demonstrate that the RWST is exhausted quickly, depending on the number of containment spray and safety injection pumps that are running. The operators stop the containment spray pumps when RWST level reaches less than 3% indication.

Surry has determined that the containment spray pump design flow rate is 2000 gpm based on the plant safety analyses. The Code requires that the containment spray pump flow be tested within 80% of the design flow rate, or 1600 gpm. The average test flow rate for tests conducted since 2004 is 1593 gpm for Unit 1. The containment spray system is a fixed resistance system and the test flow rates tend to vary several gpm based on initial RWST level. Although the Unit 1 pumps have met the Code requirements, there are tests where 1600 gpm cannot be achieved.

RELIEF REQUEST P-5 (Cont.)

Pre-Operational Testing

During the construction period, the containment spray headers were fitted with blind flanges that allowed the connection of temporary drain lines for initial testing of the subsystem. After the subsystem was completely installed, temporary connections between the spray headers were made using blind flanges on the spray headers, and pipe plugs were placed in the spray nozzle sockets. The containment spray pumps were started and operated over a range of flows, circulating water through the spray header supply line to the spray headers, out the temporary drain connections and to the opposite spray headers. The water was then directed to the RWST through the 4" recirculation line. Although the pre-operational test did not produce full flow conditions, it provided a full-system capability test and demonstrated that the pumps were operating on the manufacturer pump curve. It also flushed the system to remove any particulate matter that could plug the spray nozzles at a future time. At the completion of this test, the temporary drain connections were removed, the blind flanges replaced, the pipe plugs removed, the nozzle pipe nipple inspected, and the spray nozzles installed.

Additional Full Flow Testing

In addition to the pre-operational testing performed on the containment spray system, a special RWST/Chemical Addition Tank draw down test was performed on April 30, 1980 using pump 2-CS-P-1A at flow rates substantially greater than the current achievable test flow rates. The purpose of the draw down test was to validate the analytical model used to perform the Surry site boundary dose analysis. Temporary 8" discharge piping was installed from the bonnet of check valve 2-CS-13, located downstream of the pump and inside containment at elevation 15' 9", to the reactor cavity at elevation 48' 1". Flow rates up to 2133 gpm were achieved during the test. This test demonstrates that the containment spray pump 2-CS-P-1A has been operated at design flow conditions in its installed configuration. The four containment spray pumps on Surry Units 1 and 2 are essentially identical, so the conclusion from the Unit 2 containment spray pump test that pump 2-CS-P-1A can achieve the design flow rate is applicable to the Unit 1 pumps.

RELIEF REQUEST P-5 (Cont.)

Surry Predictive Maintenance Program

In addition to the testing described above, the containment spray pumps are included in the Surry Predictive Maintenance Program. For the containment spray pumps, this program employs predictive monitoring techniques, such as vibration monitoring and analysis beyond that required by ISTB, and oil sampling and analysis.

If the measured parameters are outside the normal operating range or are determined by analysis to be trending toward an unacceptable degraded state, appropriate actions are taken that may include:

- increased monitoring to establish rate of change,
- review of component specific information to identify cause, and
- removal of the pump from service to perform maintenance.

Detection of Pump Degradation

Testing the containment spray pumps at or near 1600 gpm will detect degradation in performance and verify that the pumps are operating acceptably. The 1600 gpm point (50% of the point of best efficiency of approximately 3200 gpm) is in a portion of the pump curve where degradation will be detected. Also, there is significant margin available above the minimum acceptable pump curve when testing the pump on the test loop. For pump 1-CS-P-1A, the margin is approximately 20 feet of TDH and for pump 1-CS-P-1B the margin is approximately 18 feet. A decrease in the available margin is detectable before the pump performance becomes unacceptable.

Figure P-5.2 shows the nominal vendor pump curve for 1-CS-P-1A, a typical test point, the minimum test point below which is unacceptable performance, and the design point (2000 gpm at 238.6 feet TDH), and Figure P-8.3 shows the same information for 1-CS-P-1B. The proposed alternative to ISTB-3300(e)(1) provides an acceptable level of quality and safety.

5.0 Proposed Alternative and Bases for Use

A comprehensive test reference flow rate will be established for each pump at or near 80% of the pump design flow rate but not less than 76% of design flow rate (1520 gpm).

RELIEF REQUEST P-5 (Cont.)

The containment spray pumps will be subject to additional testing, trending and diagnostic analysis of the Surry Predictive Maintenance Program.

Using the provisions of this relief request as an alternative to the specific requirements of ISTB-3300(e)(1) identified above will provide adequate indication of pump performance and continue to provide an acceptable level of quality and safety. Therefore, pursuant to 10 CFR 50.55a(a)(3)(i) we request relief from the specific ISTB Code requirements identified in this relief request.

6.0 Duration of the Proposed Alternative

The proposed alternative described in Relief Request P-4 will be used for the Surry Power Station Unit 1 Fifth Ten Year Inservice Testing Interval.

7.0 Precedents

A similar relief request was approved by the NRC in their safety evaluation entitled "Surry Power Station, Unit 1 – American Society of Mechanical Engineers Inservice Testing Program Fourth 10-Year Interval Request for Revised Relief P-8 (TAC NO. MC6528)" dated April 8, 2005.

The following relief requests for other plants that are similar to portions of P-5 were approved by the NRC.

Pump Relief Request P-6 for North Anna 1 was approved by the NRC by letter dated 11/15/2010 (TAC NOS. ME2776 and ME2777) and applies to ISTB-3300(e)(1).

Pump Relief Request PRR11 for Beaver Valley 1 was approved by the NRC by letter dated 9/27/2007 (TAC NOS. MD5118 – MD5131).

8.0 References

1. ASME OM Code, 2004 Edition, 2005 and 2006 Addenda

RELIEF REQUEST P-5 (Cont.)

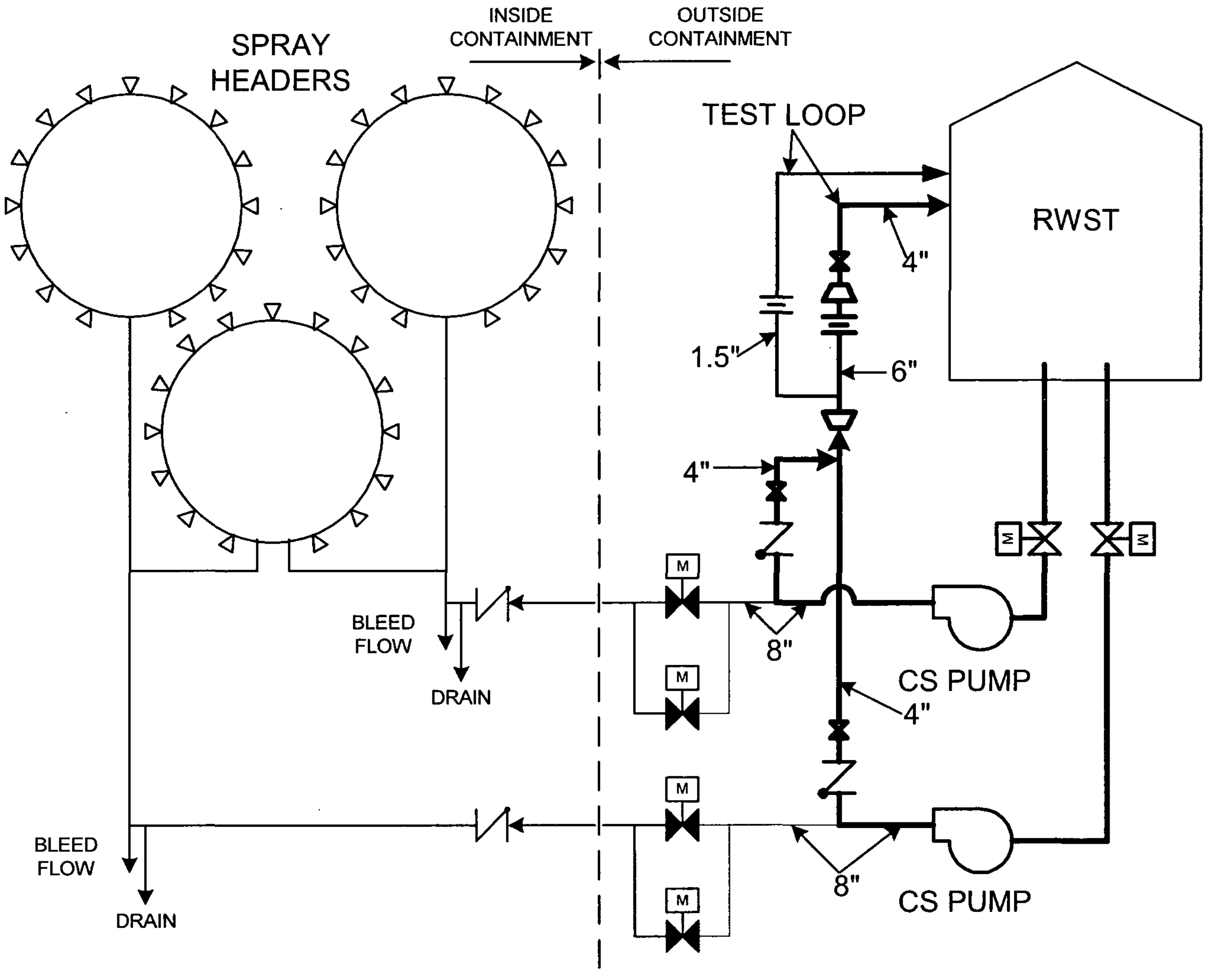

Figure P-5.1 Containment Spray System

Relief Request P-5 (Cont.)

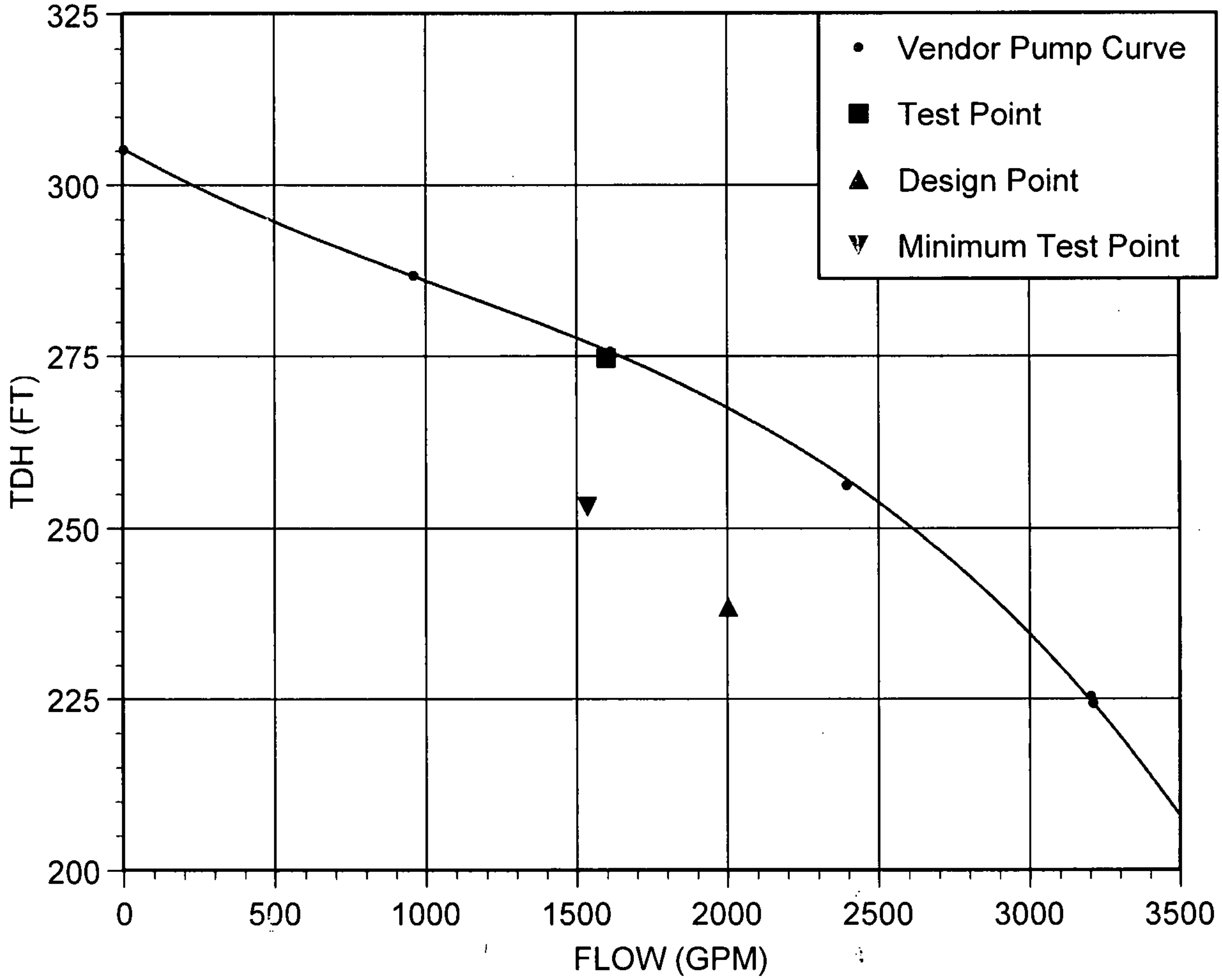

Figure P-5.2 Containment Spray Pump 1-CS-P-1A

Relief Request P-5 (Cont.)

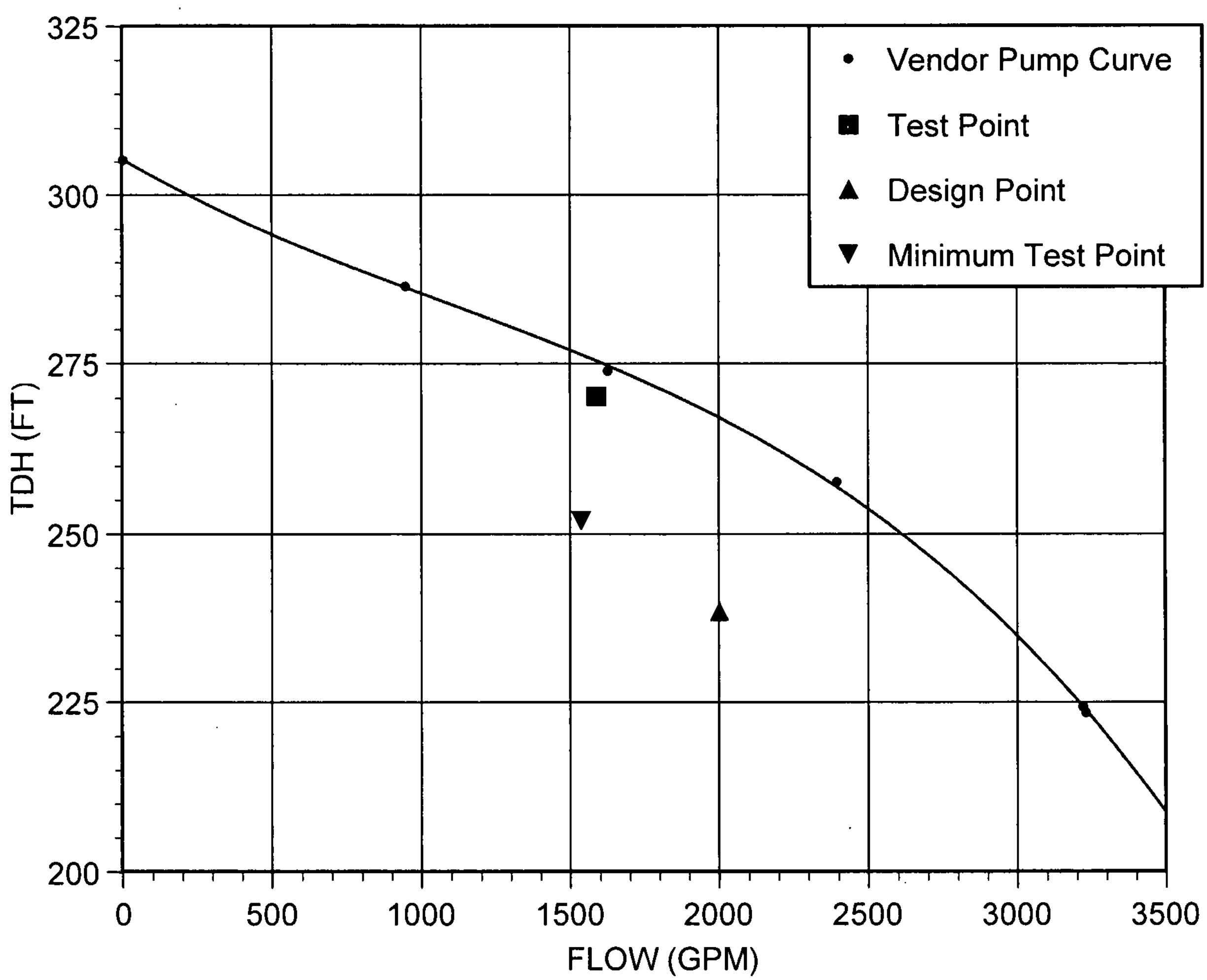

Figure P-5.3 Containment Spray Pump 1-CS-P-1B

RELIEF REQUEST P-6

Proposed alternative in accordance with 10CFR50.55a(a)(3)(i).
Alternative provides acceptable level of quality and safety.

1.0 ASME Code Components Affected

Refer to Table P-6.1

4.0 Applicable Code Edition and Addenda

ASME OM Code, 2004 Edition, 2005 and 2006 Addenda

5.0 Applicable Code Requirements

ISTB-5123, "Comprehensive Test Procedure" refers to Table ISTB-5121-1, "Centrifugal Pump Test Acceptance Criteria" that requires an upper required action limit of $1.03Q_r$ and $1.03DP_r$ where Q_r is the reference flow rate and DP_r is the reference differential pressure.

ISTB-5223, "Comprehensive Test Procedure" refers to Table ISTB-5221-1, "Vertical Line Shaft Centrifugal Pump Test Acceptance Criteria" that requires an upper required action limit of $1.03Q_r$ and $1.03DP_r$ where Q_r is the reference flow rate and DP_r is the reference differential pressure.

Note: There are no ASME Code Classed positive displacement pumps in the Surry IST Program.

4.0 Reason for Request

For some pump tests, Surry Power Station has had difficulty implementing the upper required action range limit of 1.03% above the established hydraulic parameter reference value for the comprehensive pump test. The difficulty arises when normal data scatter yields (1) a low measured reference value, and (2) high measured values for subsequent inservice tests. In these cases, some of the test data trend high near the upper required action range limit and may exceed the upper limit on occasion. The problem can be more severe for pumps with low differential pressures (50 psid or less) due to the smaller acceptable range.

RELIEF REQUEST P-6 (Cont.)

5.0 Proposed Alternative and Basis for Use

For the pumps listed in Table P-6.1, an upper required action limit of 1.06% times the reference value will be applied to the comprehensive pump test in accordance with ASME OM Code Case OMN-19, Alternative Upper Limit for the Comprehensive Pump Test. Also, for pumps that have a design basis accident flow rate, a pump periodic verification (PPV) test will be performed. Table P-6.1 identifies the pumps that have a design basis accident flow rate and indicates that a pump periodic verification test will be performed for these pumps.

Table P-6.1 includes all of the ASME Code Class pumps in the Surry IST program except for the containment spray (CS) pumps. The design basis accident flow rate cannot be achieved for the CS pumps with the existing test loop configuration. Therefore, the upper limit of 1.03% times the reference value will still be applied to the comprehensive pump test for the CS pumps. The reason the remaining pumps are included in the relief request is that data scatter can affect future tests for any of these pumps.

The following requirements shall be applied to the PPV test.

1) Apply the PPV test to pumps with a design basis accident flow rate as identified in Table P-6.1.
2) Performed the PPV test at least once every 2 years.
3) Determine if a PPV test is required before declaring a pump operable following replacement, repair, or maintenance on the pump.
4) Declared the pump inoperable if the PPV test flow rate and associated differential pressure cannot be achieved.
5) Maintain the necessary records for PPV test, including the applicable test parameters (e.g., flow rate and the associated differential pressure and speed for variable speed pumps) and their basis.
6) Account for the PPV test instrument accuracies in the test acceptance criteria.

Using the provisions of this relief request as an alternative to the specific requirements of ISTB-5123 and ISTB-5223, and Table ISTB-5121-1 and Table ISTB-5221-1 as described above will provide adequate indication of pump performance and continue to provide an acceptable level of quality and safety. Therefore, pursuant to 10CFR50.55a(a)(3)(i), Relief Request P-6 requests relief from the specific ISTB requirements identified in this request.

RELIEF REQUEST P-6 (Cont.)

6.0 Duration of the Proposed Alternative

The proposed alternative described in Relief Request P-6 will be used for the Surry Power Station Unit 1 Fifth Ten Year Inservice Testing Interval.

7.0 Precedents

None

8.0 References

1. ASME OM Code, 2004 Edition, 2005 and 2006 Addenda

RELIEF REQUEST P-6 (Cont.)

Table P-6.1

Pump Groups	System	Code Class	Description	Pump Type	Design Basis Accident Flow Rate (gpm)	Pump Periodic Verification Test Required
1-CC-P-1A 1-CC-P-1B	Component Cooling	3	Component Cooling Water Pumps	Centrifugal	None	No
1-CC-P-2A 1-CC-P-2B	Component Cooling	3	Component Cooling Water Pump to Charging Pump	Centrifugal	30	Yes
1-CH-P-1A 1-CH-P-1B 1-CH-P-1C	Chemical and Volume Control/Safety Injection	2	High Head Safety Injection/Charging Pump	Centrifugal	436	Yes
1-CH-P-2A 1-CH-P-2B	Chemical and Volume Control	2	Boric Acid Transfer Pumps	Centrifugal	None	No
1-FW-P-2	Auxiliary Feedwater	3	Auxiliary Feedwater Turbine Driven Pump	Centrifugal	400	Yes
1-FW-P-3A 1-FW-P-3B	Auxiliary Feedwater	3	Auxiliary Feedwater Motor Driven Pump	Centrifugal	300	Yes
1-RH-P-1A 1-RH-P-1B	Residual Heat Removal	2	Residual Heat Removal Pump	Centrifugal	None	No
1-RS-P-1A 1-RS-P-1B	Recirculation Spray	3	Inside Containment Recirculation Spray Pump	Vertical Line Shaft Centrifugal	3100	Yes
1-RS-P-2A 1-RS-P-2B	Recirculation Spray	3	Outside Containment Recirculation Spray Pump	Vertical Line Shaft Centrifugal	2900	Yes
1-SI-P-1A 1-SI-P-1B	Safety Injection	3	Low Head Safety Injection Pump	Vertical Line Shaft Centrifugal	2901	Yes

RELIEF REQUEST P-6 (Cont.)

Table P-6.1 (Cont.)

Pump Groups	System	Code Class	Description	Pump Type	Design Basis Accident Flow Rate (gpm)	Pump Periodic Verification Test Required
1-SW-P-1A 1-SW-P-1B 1-SW-P-1C	Service Water	3	Emergency Service Water Pump	Vertical Line Shaft Centrifugal	14550	Yes
1-SW-P-10A 1-SW-P-10B	Service Water	3	Service Water Pump to Charging Pump	Centrifugal	42	Yes
1-VS-P-1A 1-VS-P-1B 1-VS-P-1C 1-VS-P-1D 1-VS-P-1E	Ventilation	3	Main Control Room Air Conditioning System Condenser Water Pumps	Centrifugal	None	No
1-VS-P-2A 1-VS-P-2B 1-VS-P-2C 1-VS-P-2D 1-VS-P-2E	Ventilation	3	Main Control Room Air Conditioning System Chilled Water Pumps	Centrifugal	None	No

RELIEF REQUEST P-7

Proposed alternative in accordance with 10CFR50.55a(a)(3)(i).
Alternative provides acceptable level of quality and safety.

1.0 ASME Code Components Affected

Pump(s): 1-SW-P-1A
1-SW-P-1B
1-SW-P-1C

System: Service Water

Group: B

Class: 3

Function: The emergency service water pumps supply the required service water to the canal to provide for minimum safeguards operation in the unlikely event of a loss of site power coincident with a design basis accident.

2.0 Applicable Code Edition and Addenda

ASME OM Code, 2004 Edition, 2005 and 2006 Addenda

3.0 Applicable Code Requirements

ISTB-5222 requires that "Group B tests shall be conducted with the pump operating at a specified reference point."

ISTB-5223 requires that "Comprehensive tests shall be conducted with the pump operating at a specified reference point."

4.0 Reason for Request

The emergency service water pumps take suction from the James River and discharge into the intake canal. The James River near the plant is subject to a tide level variation of approximately five feet. Therefore, the total static head for the system can vary from test to test. There are no valves in the lines to throttle flow and to compensate for the change in system static head. The only way to duplicate flow and differential pressure from test to test is to perform the test at the same tide level each time. Trying to perform this test within a small enough

RELIEF REQUEST P-7 (Cont.)

tide level range to produce repeatable results has proven impractical. To compensate for the change in total system head, a pump reference curve will be prepared based on test results taken at different tide levels. Tests will be conducted within the tide level limits of the curve, and results will be compared to acceptance criteria based on the reference curve and the ranges given in Table ISTB-5200-1. Inlet pressure will be calculated from tide level. The guidelines set forth in Code Case OMN-16, "Use of a Pump Curve for Testing" will be followed.

Past vibration data for the subject pumps have been reviewed and it has been determined that pump vibration does not vary significantly with flow rate over the range of the test flow rates. This alternative to the requirements of ISTB-5222 and ISTB-5223 provides an acceptable level of quality and safety.

5.0 Proposed Alternative and Bases for Use

Tests will be conducted within the tide level limits of the pump reference curve, and flow will be compared to acceptance criteria based on the reference curve. The guidelines set forth in Code Case OMN-16, "Use of a Pump Curve for Testing" will be followed.

Using the provisions of this relief request as an alternative to the specific requirements of ISTB-5222 and ISTB-5223 identified above will provide adequate indication of pump performance and continue to provide an acceptable level of quality and safety. Therefore, pursuant to 10 CFR 50.55a(a)(3)(i) we request relief from the specific ISTB Code requirements identified in this relief request.

6.0 Duration of the Proposed Alternative

The proposed alternative described in Relief Request P-7 will be used for the Surry Power Station Unit 1 Fifth Ten Year Inservice Testing Interval until Code Case OMN-16 is approved for use by the NRC in Regulatory Guide 1.192, Operation and Maintenance Code Case Acceptability. When OMN-16 is approved by the NRC, OMN-16 can be used without a relief request and Relief Request P-7 will no longer be necessary.

RELIEF REQUEST P-7 (Cont.)

7.0 Precedents

A similar relief request was approved by the NRC in their safety evaluation entitled "Surry Power Station, Units 1 and 2 – American Society of Mechanical Engineers Inservice Testing Program (TAC NOS. MC0120 through MC0146)" dated July 2, 2004.

The following relief requests for other plants that are similar to P-7 were approved by the NRC.

Pump Relief Request P-3 for North Anna 1 was approved by the NRC by letter dated 9/30/2010 (TAC NOS. ME2748, ME2749, ME2753 to ME2760, ME2763 to ME2772, ME2778 to ME2789).

Pump Relief Request PRR4 for Beaver Valley 2 was approved by the NRC by letter dated 2/14/2008 (TAC NOS. MD5595 – MD5604). PRR4 references NUREG-1482, Section 5.2.2, "Reference Curves.," which gives guidance based on OMN-9 and the conditions in Regulatory Guide 1.192. OMN-16 incorporates the conditions identified in Regulatory Guide 1.192.

These relief requests are similar to P-7 in that they use a portion of the pump curve instead of a reference point. However, the plant systems and conditions for not using a reference point differ.

8.0 References

1. ASME OM Code, 2004 Edition, 2005 and 2006 Addenda

RELIEF REQUEST P-8

Proposed alternative in accordance with 10CFR50.55a(a)(3)(i).
Alternative provides acceptable level of quality and safety.

1.0 ASME Code Components Affected

Pump(s): 1-VS-P-2A
1-VS-P-2B
1-VS-P-2C
1-VS-P-2D
1-VS-P-2E

System: Main Control Room Air Conditioning

Group: A

Class: 3

Function: The main control room air conditioning system chiller water pumps circulated chilled water to the main control room and switch gear room air handling units.

2.0 Applicable Code Edition and Addenda

ASME OM Code, 2004 Edition, 2005 and 2006 Addenda

3.0 Applicable Code Requirements

ISTB-5121 requires that "Group A tests shall be conducted with the pump operating at a specified reference point."

ISTB-5123 requires that "Comprehensive tests shall be conducted with the pump operating at a specified reference point."

4.0 Reason for Request

The chilled water circulating pumps for the main control room air conditioning system service two trains each with of four air handling units connected in a parallel configuration. Total flow for each pump is determined by summing the recorded flows from flow instruments placed downstream of the four air handling units in one of the trains. Test flow is controlled by throttling a gate valve near

RELIEF REQUEST P-8 (Cont.)

each air handling unit, which has proven to be a crude flow control method. Having to throttle to a specific reference flow using the sum of flows from four instruments with a gate valve that is not suited for fine flow control is not very practical.

5.0 Proposed Alternative and Bases for Use

The chilled water circulating pumps will be tested in a range of flows, and the results will be compared to acceptance criteria based on a portion of the pump curve and the hydraulic acceptance criteria given in ISTB. The guidelines set forth in Code Case OMN-16, "Use of a Pump Curve for Testing" will be followed.

Using the provisions of this relief request as an alternative to the specific requirements of ISTB-5121 and ISTB-5123 identified above will provide adequate indication of pump performance and continue to provide an acceptable level of quality and safety. Therefore, pursuant to 10 CFR 50.55a(a)(3)(i) we request relief from the specific ISTB Code requirements identified in this relief request.

6.0 Duration of the Proposed Alternative

The proposed alternative described in Relief Request P-8 will be used for the Surry Power Station Unit 1 Fifth Ten Year Inservice Testing Interval until Code Case OMN-16 is approved for use by the NRC in Regulatory Guide 1.192, Operation and Maintenance Code Case Acceptability. When OMN-16 is approved by the NRC, OMN-16 can be used without a relief request and Relief Request P-8 will no longer be necessary.

7.0 Precedents

A similar relief request was approved by the NRC in their safety evaluation entitled "Surry Power Station, Units 1 and 2 – American Society of Mechanical Engineers Inservice Testing Program (TAC NOS. MC0120 through MC0146)" dated July 2, 2004.

Pump Relief Request P-4 for North Anna 1 was approved by the NRC by letter dated 9/30/2010 (TAC NOS. ME2748, ME2749, ME2753 to ME2760, ME2763 to ME2772, ME2778 to ME2789).

Pump Relief Request PRR3 for Beaver Valley 1 was approved by the NRC by letter dated 9/27/2007 (TAC NOS. MD5118 – MD5131). PRR3 references NUREG-1482, Section 5.2.2, "Reference Curves.," which gives guidance based on OMN-9 and the conditions in Regulatory Guide 1.192. OMN-16 incorporates the conditions identified in Regulatory Guide 1.192.

RELIEF REQUEST P-8 (Cont.)

These relief requests are similar to P-8 in that they use a portion of the pump curve instead of a reference point. However, the plant systems and conditions for not using a reference point differ.

8.0 References

1. ASME OM Code, 2004 Edition, 2005 and 2006 Addenda

RELIEF REQUEST P-9

Proposed alternative in accordance with 10CFR50.55a(a)(3)(i).
Alternative provides acceptable level of quality and safety.

1.0 ASME Code Components Affected

Pump(s): 1-CC-P-1A
1-CC-P-1B

System: Component Cooling

Group: A

Class: 3

Function: The component cooling water pumps supply cooling water to transfer heat from heat exchangers containing reactor coolant or other radioactive fluids.

2.0 Applicable Code Edition and Addenda

ASME OM Code, 2004 Edition, 2005 and 2006 Addenda

3.0 Applicable Code Requirements

ISTB-5121 requires that "Group A tests shall be conducted with the pump operating at a specified reference point."

ISTB-5123 requires that "Comprehensive tests shall be conducted with the pump operating at a specified reference point."

4.0 Reason for Request

During testing of the component cooling water pumps, flow is adjusted to the reference flow rate using an 18 inch butterfly valve. The butterfly valve is a crude throttling device and does not provide the fine tuning that is required to duplicate the reference flow rate from test to test. Consequently, throttling to the same reference flow rate during each test is not practical.

RELIEF REQUEST P-9 (Cont.)

5.0 Proposed Alternative and Bases for Use

The component cooling water pumps will be tested in a range of flows, and the results will be compared to acceptance criteria based on a portion of the pump curve and the hydraulic acceptance criteria given in ISTB. The guidelines set forth in Code Case OMN-16, "Use of a Pump Curve for Testing" will be followed.

Using the provisions of this relief request as an alternative to the specific requirements of ISTB-5121 and ISTB-5123 identified above will provide adequate indication of pump performance and continue to provide an acceptable level of quality and safety. Therefore, pursuant to 10 CFR 50.55a(a)(3)(i) we request relief from the specific ISTB Code requirements identified in this relief request.

6.0 Duration of the Proposed Alternative

The proposed alternative described in Relief Request P-9 will be used for the Surry Power Station Unit 1 Fifth Ten Year Inservice Testing Interval until Code Case OMN-16 is approved for use by the NRC in Regulatory Guide 1.192, Operation and Maintenance Code Case Acceptability. When OMN-16 is approved by the NRC, OMN-16 can be used without a relief request and Relief Request P-9 will no longer be necessary.

7.0 Precedents

A similar relief request was approved by the NRC in their safety evaluation entitled "Surry Power Station, Units 1 and 2 – American Society of Mechanical Engineers Inservice Testing Program (TAC NOS. MC0120 through MC0146)" dated July 2, 2004.

Pump Relief Request P-4 for North Anna 1 was approved by the NRC by letter dated 9/30/2010 (TAC NOS. ME2748, ME2749, ME2753 to ME2760, ME2763 to ME2772, ME2778 to ME2789).

Pump Relief Request PRR3 for Beaver Valley 1 was approved by the NRC by letter dated 9/27/2007 (TAC NOS. MD5118 – MD5131). PRR3 references NUREG-1482, Section 5.2.2, "Reference Curves.," which gives guidance based on OMN-9 and the conditions in Regulatory Guide 1.192. OMN-16 incorporates the conditions identified in Regulatory Guide 1.192.

These relief requests are similar to P-9 in that they use a portion of the pump curve instead of a reference point. However, the plant systems and conditions for not using a reference point differ.

RELIEF REQUEST P-9 (Cont.)

8.0 References

1. ASME OM Code, 2004 Edition, 2005 and 2006 Addenda

RELIEF REQUEST P-10

Proposed alternative in accordance with 10CFR50.55a(a)(3)(i).
Alternative provides acceptable level of quality and safety.

1.0 ASME Code Components Affected

Pump(s): 1-CH-P-1A
1-CH-P-1B
1-CH-P-1C

System: Chemical and Volume Control

Group: A

Class: 2

Function: These centrifugal pumps supply high pressure borated water to the reactor coolant system following a safety injection signal, and to provide normal charging to the reactor coolant system.

2.0 Applicable Code Edition and Addenda

ASME OM Code, 2004 Edition, 2005 and 2006 Addenda

3.0 Applicable Code Requirements

ISTB-5121 requires that "Group A tests shall be conducted with the pump operating at a specified reference point."

4.0 Reason for Request

Plant conditions may not be the same as when the reference values were established when performing the quarterly Group A tests. In the Chemical and Volume Control System, charging system flow must be balanced with seal injection, letdown and seal return flows to maintain a constant pressurizer level and pressure. Adjusting the charging flow rate to a specific reference test flow rate and then returning the charging system to the original flow rate places an unnecessary transient on the charging system and causes undesirable perturbations within the Reactor Coolant System.

RELIEF REQUEST P-10 (Cont.)

Therefore, pumps will be tested in a range of flows and the results will be compared to acceptance criteria based a portion of the pump curve and the hydraulic acceptance criteria given in ISTB.

Past vibration data for the subject pumps have been reviewed and it has been determined that pump vibration does not vary significantly with flow rate over the range of the test flow rates. This alternative to the requirements of ISTB-5121 provides an acceptable level of quality and safety.

5.0 Proposed Alternative and Bases for Use

The charging/safety Injection pumps will be tested in a range of flows, and the results will be compared to acceptance criteria based on a portion of the pump curve and the hydraulic acceptance criteria given in ISTB. The guidelines set forth in Code Case OMN-16, "Use of a Pump Curve for Testing" will be followed.

Using the provisions of this relief request as an alternative to the specific requirements of ISTB-5121 identified above will provide adequate indication of pump performance and continue to provide an acceptable level of quality and safety. Therefore, pursuant to 10 CFR 50.55a(a)(3)(i) we request relief from the specific ISTB Code requirements identified in this relief request.

6.0 Duration of the Proposed Alternative

The proposed alternative described in Relief Request P-10 will be used for the Surry Power Station Unit 1 Fifth Ten Year Inservice Testing Interval until Code Case OMN-16 is approved for use by the NRC in Regulatory Guide 1.192, Operation and Maintenance Code Case Acceptability. When OMN-16 is approved by the NRC, OMN-16 can be used without a relief request and Relief Request P-10 will no longer be necessary.

7.0 Precedents

The following relief requests for other plants that are similar to P-10 were approved by the NRC.

Pump Relief Request P-8 for North Anna 1 was approved by the NRC by letter dated 9/30/2010 (TAC NOS. ME2748, ME2749, ME2753 to ME2760, ME2763 to ME2772, ME2778 to ME2789).

RELIEF REQUEST P-10 (Cont.)

Pump Relief Request PRR3 for Beaver Valley 1 was approved by the NRC by letter dated 9/27/2007 (TAC NOS. MD5118 – MD5131). PRR3 references NUREG-1482, Section 5.2.2, "Reference Curves.," which gives guidance based on OMN-9 and the conditions in Regulatory Guide 1.192. OMN-16 incorporates the conditions identified in Regulatory Guide 1.192.

8.0 References

1. ASME OM Code, 2004 Edition, 2005 and 2006 Addenda

RELIEF REQUEST V-1

Proposed alternative in accordance with 10CFR50.55a(a)(3)(i).
Alternative provides acceptable level of quality and safety.

1.0 ASME Code Components Affected

Valve(s):	1-CH-MOV-1115B	1-SI-MOV-1885A
	1-CH-MOV-1115D	1-SI-MOV-1885B
	1-SI-25	1-SI-MOV-1885C
		1-SI-MOV-1885D

System: Chemical and Volume Control and Safety Injection

Category: A for 1-CH-MOV-1115B and D, and 1-SI-MOV-1885A-D
AC for 1-SI-25

Class: 2

Function: RWST Isolation Valves

2.0 Applicable Code Edition and Addenda

ASME OM Code, 2004 Edition, 2005 and 2006 Addenda

3.0 Applicable Code Requirements

ISTC-3630(f) - Valves or valve combinations with leakage rates exceeding the values specified by the Owner in ISTC-3630(e) above shall be declared inoperable and be either repaired or replaced.

4.0 Reason for Request

Valves 1-CH-MOV-1115B and D, and 1-SI-25 are in the supply line to the charging pumps from the RWST. Valves 1-SI-MOV-1885A, B, C and D are on test lines that run from the discharge of the low head SI pumps to the RWST. During recirculation mode transfer, the RWST is isolated and the low head SI pumps recirculate highly contaminated water from the containment sump to the reactor vessel.

RELIEF REQUEST V-1 (Cont.)

The RWST isolation valves work as a system of valves to protect the RWST from the contaminated sump water. Permissible valve leakage rates are based on each valve's possible contribution to the total allowable leakage rate to the RWST. When the leakages from each valve have been measured and summed, an individual valve's permissible leakage rate may have been exceeded but the overall allowable leakage to the RWST may not have been exceeded. In these cases, a repair or replacement may not be necessary because the system of isolation valves has been verified to be performing adequately.

In addition to repair or replacement as corrective actions, an evaluation can be performed which demonstrates that even if a valve has exceeded its permissible leakage rate, the overall leakage rate to the RWST will be maintained below the overall allowable RWST leakage rate and hence the system function is satisfied. This evaluation should provide a high level of assurance that delaying the repair or replacement will not result in exceeding the overall limit before the next leak rate test. The evaluation should include a determination of the cause for the individual valve leakage. The evaluation should also address the effect of the degradation mechanism for the valve on the ability of the valve group to maintain overall leakage to the RWST below the overall allowable leakage rate during the subsequent 24 month interval. Evaluations will be documented and retained in plant records, and are available for subsequent review. This alternative to the requirements ISTC-3630(f) provides an acceptable level of quality and safety.

5.0 Proposed Alternatives and Bases for Use

In addition to repair or replacement as corrective actions, an evaluation can be performed which demonstrates that even if a valve has exceeded its permissible leakage rate, the overall leakage rate to the RWST will be maintained below the overall allowable RWST leakage rate. No repair or replacement is necessary if the evaluation is performed and system leakage is projected to be maintained below the overall permissible leakage rate throughout the subsequent 24 month interval.

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

RELIEF REQUEST V-1 (Cont.)

6.0 Duration of the Proposed Alternative

The proposed alternatives described in Relief Request V-1 will be used for the Surry Power Station Unit 1 Fifth Ten Year Inservice Testing Interval.

7.0 Precedents

A similar relief request for the Surry Unit 1 Fourth Ten Year Inservice Testing Interval was approved by the NRC in their safety evaluation entitled "Surry Power Station, Units 1 and 2 – American Society of Mechanical Engineers Inservice Testing Program (TAC NOS. MC0120 through MC0146)" dated July 2, 2004.

The following relief request for another plant that is similar to V-1 was approved by the NRC.

Pump Relief Request V-1 for North Anna 1 was approved by the NRC by letter dated 9/30/2010 (TAC NOS. ME2748, ME2749, ME2753 to ME2760, ME2763 to ME2772, ME2778 to ME2789).

8.0 References

1. ASME OM Code, 2004 Edition, 2005 and 2006 Addenda

3.7 ALTERNATIVE TESTING FOR NON-CODE PUMPS

According to the minutes of public meeting on Generic Letter 89-04, "Paragraph (g) of 10 CFR 50.55a requires the use of Section XI of the ASME Code for inservice testing of components covered by the Code. Paragraph (g) has been replaced by Paragraph (f) in the currently approved 10 CFR 50.55a. For other components important to safety, the licensee also has the burden of demonstrating their continued operability." The minutes go on to state that, "The Code-required IST program is a reasonable vehicle to provide a periodic demonstration of the operability of pumps and valves not covered by the Code. If non-Code components are included in the ASME Code IST program (or some other licensee-developed inservice testing program) and certain Code provisions cannot be met, the Commission regulations (10 CFR 50.55a) do not require a 'request for relief' to be submitted to the staff. Nevertheless, documentation that provides assurance of the continued operability of the non-Code components through the performed tests should be available at the plant site." Non-Code components are components that are important to safety but are not in systems or portions of systems that are classified ASME Class 1, 2 or 3.

Surry Power Station has elected to include certain non-Code components in the ASME IST program. Where the Code provisions cannot be met for non-Code components, alternative testing is performed that is adequate to ensure continued operability. The alternate testing is described in this section. There may be other deviations from Code provisions that are not described in this section. For these cases, documentation is available at the plant site.

As indicated in the minutes of public meeting on Generic Letter 89-04, a 'request for relief' need not be submitted for non-Code components. Therefore, the alternative tests described in this section are not 'requests for relief' but are provided for information.

NON-CODE ALTERNATIVE TESTING PNC-1

System : Fuel Oil

Pump(s): 1-EE-P-1A
1-EE-P-1C
1-EE-P-1D
1-EE-P-1F

Group: B

Class: NC

Function: Emergency diesel generator fuel oil transfer pumps supply fuel oil to the emergency diesel generator fuel oil day tank which directly supplies the emergency diesel generator.

ISTB Code Requirements
Which Will Not Be Met

ISTB-3300 requires that reference values be determined from the results of preservice testing or from the results of the first inservice test.

ISTB-3310 requires that after maintenance, repair, or pump replacement either a Group A or Comprehensive Test shall be run. If there is a deviation from previous reference value, this test will be used to set new reference criteria.

Table ISTB-3400-1 requires that a comprehensive test be run biennially.

ISTB-3510(e) requires that the frequency response range of the vibration measuring transducers and their readout system shall be from one-third minimum pump shaft rotational speed to at least 1000 HZ.

ISTB-5300(a)(1) requires that for the Group A and comprehensive pump tests each pump shall be run at least 2 minutes before the test quantities are measured. This requirement does not apply to the quarterly Group B tests.

Basis for Alternate Testing For ISTB-3300

The pumps listed above have at least one vibration reference value (V_r) that is currently less than 0.05 inches per second (ips). Small values for V_r produce small acceptable ranges for pump operation. The acceptable ranges are defined in Table ISTB-5300-1 as less than or equal to $2.5V_r$. Based on a small acceptable range, a smooth running pump could be subject to unnecessary corrective action.

NON-CODE ALTERNATIVE TESTING PNC-1 (Cont.)

For very small reference values, hydraulic noise and instrument error can be a significant portion of the reading and affect the repeatability of subsequent measurements. Also, experience gathered from the Surry preventive maintenance program has shown that changes in vibration levels in the range of 0.05 ips do not normally indicate significant degradation in pump performance.

To avoid unnecessary corrective action, a minimum value for V_r of 0.05 ips has been established for velocity measurements. This minimum value will be applied to individual vibration locations for the pumps listed in Table P-1 where the measured reference value is less than 0.05 ips.

When new reference values are established per ISTB-3310, ISTB-3320 or ISTB-6200(c), the measured parameters will be evaluated for each location to determine if the provisions of this non-Code alternative test description still apply. If the measured V_r is greater than 0.05 ips, the requirements of ISTB-3300 will be applied. Conversely, if the measured V_r is less than 0.05 ips, a minimum value of 0.05 ips will be used for V_r even if the previous reference value was above 0.05 ips.

In addition to the requirements of ISTB, the pumps in the ASME Inservice Testing Program are included in the Surry Predictive Maintenance Program. The main attributes of the Surry Predictive Maintenance Program are described in Relief Request P-1.

It should be noted that all of the pumps in the IST Program will remain in the Predictive Maintenance Program even if certain pumps have very low vibration readings and are considered to be smooth running pumps. This alternative to the requirements of ISTB-3300 provides an acceptable level of quality and safety.

Basis for Alternate Testing For ISTB-3310

A Group B test with vibrations measurements will be used in lieu of the Group A or Comprehensive test after maintenance, repairs, or pump replacement. The basis for using the Group B test with vibration measurements in lieu of the Group A or Comprehensive test is given below.

Basis for Alternate Testing For Table ISTB-3400-1

For positive displacement pumps, the comprehensive test acceptable range for flow rate is 0.95 to 1.03 times the reference value as described in Table ISTB-5321-1. The flow rate reference valves (Q_r) for the fuel oil transfer pumps are typically between 9 and 10 gpm, which translates to total acceptable bands from 0.72 gpm (for Q_r = 9 gpm) to 0.8 gpm (for Q_r = 10 gpm). A review of test data shows that seasonal variations in

NON-CODE ALTERNATIVE TESTING PNC-1 (Cont.)

recorded flow rates either come close to or exceed the acceptable bands allowed by the Code. The Group A test acceptable range for flow rate is 0.95 to 1.1 times the reference value as described in Table ISTB-5321-1. Although this range bounds the seasonal variations, there is little margin on the low end of the band.

The Group B test acceptable range for flow rate is 0.9 to 1.1 times the reference value as described in Table ISTB-5321-1. This acceptable range translates to total acceptable bands from 1.8 gpm (for Qr = 9 gpm) to 2.0 gpm (for Qr = 10 gpm). These acceptable bands bound the seasonal variations in recorded flow rates. It should be noted that the pumps are tested every quarter at a flow rate that satisfies the comprehensive test requirements for flow rate.

Applying the comprehensive test or Group A acceptance criteria to the fuel oil transfer pumps could result in pumps failing the test and being declared inoperable, when in fact the pumps are operating acceptably. The pumps are required to deliver 3.42 gpm but were designed for a flow rate of 5 gpm of fuel oil. As described above, the pumps deliver from 9 to 10 gpm, so there is a wide margin of over capacity for the fuel oil transfer pumps.

The Group B test differs from the Group A and Comprehensive test in that it does not require discharge pressure to be compared to acceptance criteria. The Group A test has an acceptable range of 0.93 to 1.10 times the reference discharge pressure and the Comprehensive test has a range of 0.95 to 1.03 times the reference for discharge pressure. The acceptable range for discharge pressure for a comprehensive test would be 0.88 psi (P_r=11psi). As positive displacement pumps, the flow rate is almost constant over the range of discharge pressures, giving an almost vertical line for the pump curve. System engineering has determined that flow, not discharge pressure is the critical attribute for validating the design function of these pumps and is the only hydraulic parameter that needs to be measured to detect pump degradation. Therefore, the Group B hydraulic acceptance criteria, which exclude discharge pressure, will be used.

The Group B test does not require vibration data. However, to enhance the ability to detect degradation, vibration measurements will be taken in accordance with the requirements of Table 5321-1 for the Comprehensive test during the quarterly Group B test.

Given, the wide margin of over capacity for the fuel oil pumps, and the inclusion of vibration testing, the Group B test is adequate for detecting degradation in the positive displacement fuel oil transfer pumps in lieu of the comprehensive test. This program change was initiated by discussions with System Engineering and Margin Management Issue EE03.

NON-CODE ALTERNATIVE TESTING PNC-1 (Cont.)

Basis for Alternate Testing For ISTB-3510(e)

The minimum pump shaft rotational speed for these pumps is 690 rpm. To meet the one-third shaft speed requirement, the low end of the frequency response range would have to be 3.8 Hz. The transducers used for testing the diesel fuel oil transfer pumps have a low end frequency response of 10 Hz. These transducers are capable of detecting vibrations at frequencies of at least one times the rotational speed of the pump, which is adequate for detecting degradation in positive displacement pumps.

Basis for Alternate Testing For ISTB-5300(a)(1)

The pump operating time is limited due to operational restraints. While the diesels are running, these pumps start automatically when the fuel oil level in the day tank reaches the low level switch, and stop when the level reaches the high level switch. The pump run time can vary depending upon the diesel load and the resulting fuel consumption rate. If the pumps are allowed to run for two minutes prior to measuring the test quantities and the fuel consumption rate is low, not enough time is available to gather all of the required ASME OM test data.

Alternate Testing

Pumps with a measured reference value below 0.05 ips for a particular vibration measurement location shall have subsequent test results for that location compared to an acceptable range based on 0.05 ips. In addition to the Code requirements, all pumps in the IST Program are included in and will remain in the Surry Predictive Maintenance Program regardless of their smooth running status.

The transducers used for testing the diesel fuel oil transfer pumps have a low end frequency response of 10 Hz versus the 3.8 Hz required by the Code for a pump running at 690 rpm.

The measurement of ASME OM quantities will begin when the pump automatically starts on a low tank level signal.

The Group B test with Comprehensive test vibration criteria will be used for the quarterly Group B test, tests after maintenance, repairs, or pump replacement, and the Comprehensive test.

4.0 VALVE INSERVICE TEST PROGRAM DESCRIPTION

4.1 PROGRAM DEVELOPMENT PHILOSOPHY

Surry Unit 1 Technical Specification 6.4.I describes the surveillance requirements that apply to the inservice testing of ASME Code Class 1, 2 and 3 valves. The Surry Unit 1 Inservice Testing (IST) Program for Valves has been established to meet the requirements of 10CFR50, the ASME OM Code, Subsection ISTC and Technical Specifications.

The scope of the program includes ASME Class 1, 2 and 3, and certain non-Code class valves that are required to perform a specific function in shutting down the reactor to the safe shutdown condition, maintaining the safe shutdown condition or mitigating the consequences of an accident.

ISTC defines the rules and requirements of inservice testing of Code Class 1, 2, and 3 valves and states that each valve to be tested by the rules of this subsection shall be identified by the owner and listed in the plant records.

The purpose of the IST Program Plan is to identify the valves that are considered by Virginia Electric and Power (Dominion) Company as having a safety function and are therefore subject to the testing requirements of ISTC. The intent of the Code is to assess operational readiness and detect potentially adverse changes in the mechanical condition of these valves. The relief requests for the IST Program Plan identify Code requirements considered to be impractical, provide technical basis for the request and propose alternate testing when warranted, or provide an acceptable alternative to Code requirements. The relief requests are presented in Section 4.5.

Surry Unit 1 is committed to meeting the leak rate testing requirements of:

1) 10CFR50, Appendix J, Option B for containment isolation valves and

2) ISTC for other valves for which seat leakage is limited to a specific maximum amount (i.e. pressure isolation valves) unless relief is specifically requested from ISTC requirements.

4.2 PROGRAM IMPLEMENTATION

The Valve Inservice Test Program is executed as part of the normal plant surveillance routine. Three types of tests are conducted as part of the Valve Test Program:

1) Valve Exercise Tests,
2) Valve Leakage Tests and
3) Safety Valve Tests

The Exercise Tests verify that:

1) the valve strokes properly,
2) the valve responds to control commands,
3) the valve stroke time is within specific limits and
4) remote position indication accurately reflects the observed valve position. Remote valve position indication will be verified every two years.

Fail safe valves are tested by observing the valve operation upon loss of actuating power. In most cases, this can be accomplished using normal control circuits.

Those valves which are scheduled to be exercised during cold shutdown are subject to the requirements of ISTC-3521(g) which states that:

> "valve exercising during cold shutdown shall commence within 48 hr of achieving cold shutdown and continue until all testing is complete or the plant is ready to return to operation at power. For extended outages, testing need not be commenced in 48 hr provided all valves required to be tested during cold shutdown will be tested before or as part of plant startup. However, it is not the intent of this Subsection to keep the plant in cold shutdown to complete cold shutdown testing;"

Check valves which are scheduled to be exercised during cold shutdown are subject to the requirements of ISTC-3522(e) which is similar to ISTC-3521(g). Relief and Safety valves are required to be tested to the requirements of ISTC, Appendix I.

Certain valves cannot be full stroke exercised during normal operation following maintenance. These valves are described in the cold shutdown justifications (refer to Section 4.6) and reactor refueling justifications (refer to Section 4.7). If maintenance cannot be deferred to a shutdown condition, then an engineering evaluation must be performed prior to the maintenance to determine the effect of the maintenance on valve performance. If the evaluation shows that performance will not be affected, then no post maintenance testing is required. A partial stroke test will be performed if practicable.

To test check valves to the full open position, the maximum required accident condition flow must be measured through the valve. In certain cases, this flow cannot be practically established or verified. Per ISTC-5221(c), disassembly and examination of the check valves on a sampling basis is an acceptable alternative testing method.

As allowed by ISTC-5222, "Condition-Monitoring Program," Surry Power Station will apply Appendix II, "Check Valve Condition Monitoring Program," of the ASME OM Code, Subsection ISTC as an alternative to the requirements of ISTC-3510, ISTC-3520, ISTC-3530, ISTC-3550 and ISTC-5221, subject to the following provisions and limitations.

4.3 PROGRAM ADMINISTRATION

The engineering staff at Surry is responsible for the administration of the IST Program for Valves. The operations staff is responsible for performing the periodic tests as required by this program. The IST Program for Valves is implemented by station periodic test procedures.

4.4 VALVE INSERVICE TEST TABLE

The Valve Inservice Test Table describes how the Valve Program meets ISTC requirements. To aid the reader in the interpretation of the table, brief explanations of the table headings and abbreviations are provided.

For non-Code valves, a request for relief is not necessary when provisions of the Code will not be met. Section 4.8 contains a discussion of the testing requirements for non-Code valves and descriptions of alternative testing in cases where the provisions of the Code will not be met.

1) Valve Number - Each valve in the plant has a unique "mark" number which identifies the system to which the equipment belongs and type of equipment.

2) Drawing and Sheet Number, Coordinate - The specific coordinates of each valve are supplied to facilitate location of the valves on the flow diagrams provided.

3) Valve Type - A brief description of the actuator and valve type.

   The following abbreviations are used to describe actuator types. Valves may be actuated in more than one way.

MO - Motor Operated
AO - Pneumatic (Air Operated)
MAN - Manually Operated
SO - Electronic solenoid Operated Valves

4) Size - Nominal pipe diameter to which valve connects is given in inches.

5) Code Class - ASME Code Class of each valve as per 10 CFR 50.55a and Regulatory Guide 1.26.

   NOTE: NC is for non-Code valves. These valves are important to safety but are not in systems or portions of systems that are classified ASME Class 1, 2 or 3.

6) Category - Categories are defined by ISTC-1300. Each valve has specific testing requirements which are determined by the category to which it belongs. Valves marked with an "E" are passive valves.

7) Isolation Valve Type - Valves that are assigned a maximum leakage. The following abbreviations are used to describe the main isolation valve types:

   CIV - Containment Isolation Valve subject to Appendix J, Option B leakage testing as described in Technical Specification Section 4.4.B.

   PIV - Pressure Isolation Valve which protects low pressure safety related piping from RCS pressure. Technical Specification Section 3.1.C specifies the pressure isolation valves that are tested in accordance with this program.

8) Test Required - Testing requirements identified for the valves are identified here.

   ST - Stroke times shall be measured per ISTC-5100 or as modified by a specific relief request.

   EV - Exercise valve for operability at least once every 3 months per ISTC-5100 or as modified by a specific cold shutdown or reactor refueling justification which is allowed by ISTC-3521.

LT - Leak test shall be performed per ISTC-3600 or as modified by specific relief request.

CV - Check valves shall be exercised at least once every 3 months per ISTC-3510 or as modified by a specific cold shutdown or reactor refueling justification which is allowed by ISTC-3522.

VP - Valve position indication shall be verified per ISTC-3700 or as modified by a specific relief request.

SP - Set points of safety and relief valves shall be tested per ISTC, Appendix I or as modified by a specific relief request. Class 1 power actuated relief valves are tested to the requirements of ISTC, Appendix I, I-7320.

FS - Valves with fail-safe actuators shall be tested by observing the operation of the valves upon loss of the actuator power at least once every 3 months per ISTC-3560 or as modified by a specific cold shutdown or reactor refueling justification which is allowed by ISTC-3521.

9) Test Position - The following abbreviations are used to describe normal valve positions to which the valves are tested (including the valve safety position):

O - Open
C - Close
OC - Open and Close
P - Partially Open

10) Test Frequency - The following abbreviations are used to describe the test frequency:

03 - Nominally every three months

24 - Every 24 months

60 - Every 60 months

120 - Every 120 months

CM - Per the test frequency determined by the Appendix II, Check Valve Condition Monitoring program

CS - Every cold shutdown but not more often than every three months

RR - Every reactor refueling outage

OPB - Per the test frequency determined by the Appendix J, Option B program for leak testing containment isolation valves

11) Relief Request Reference

12) Cold Shutdown Justification Reference

13) Reactor Refueling Justification Reference

14) Non-Code Alternative Test Reference

15) Function - A brief description of the function of the valve.

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
1-BD-TV-100A	11448-CBM-124A	1 OF 4	C-7	AO GATE	2	2	B		EV	C	CS		11		
									FS	C	CS		11		
									ST	C	CS		11		
									VP	OC	24				
	"A" STEAM GENERATOR BLOWDOWN, INSIDE CONTAINMENT ISOLATION VALVE														
1-BD-TV-100B	11448-CBM-124A	1 OF 4	C-6	AO GATE	2	2	B		EV	C	CS		11		
									FS	C	CS		11		
									ST	C	CS		11		
									VP	OC	24				
	"A" STEAM GENERATOR BLOWDOWN, OUTSIDE CONTAINMENT ISOLATION VALVE														
1-BD-TV-100C	11448-CBM-124A	2 OF 4	C-7	AO GATE	2	2	B		EV	C	CS		11		
									FS	C	CS		11		
									ST	C	CS		11		
									VP	OC	24				
	"B" STEAM GENERATOR BLOWDOWN, INSIDE CONTAINMENT ISOLATION VALVE														
1-BD-TV-100D	11448-CBM-124A	2 OF 4	C-6	AO GATE	2	2	B		EV	C	CS		11		
									FS	C	CS		11		
									ST	C	CS		11		
									VP	OC	24				
	"B" STEAM GENERATOR BLOWDOWN, OUTSIDE CONTAINMENT ISOLATION VALVE														
1-BD-TV-100E	11448-CBM-124A	3 OF 4	C-7	AO GATE	2	2	B		EV	C	CS		11		
									FS	C	CS		11		
									ST	C	CS		11		
									VP	OC	24				
	"C" STEAM GENERATOR BLOWDOWN, INSIDE CONTAINMENT ISOLATION VALVE														
1-BD-TV-100F	11448-CBM-124A	3 OF 4	C-6	AO GATE	2	2	B		EV	C	CS		11		
									FS	C	CS		11		
									ST	C	CS		11		

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
1-BD-TV-100F	11448-CBM-124A	3 OF 4	C-6	AO GATE	2	2	B		VP	OC	24				
	"C" STEAM GENERATOR BLOWDOWN, OUTSIDE CONTAINMENT ISOLATION VALVE														

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
1-CC-0001	11448-CBM-072A	2 OF 7	F-7	CHECK VALVE	6	3	C		CV	C	CM				
										O	CM				
	CC SUPPLY TO "A" RC PUMP LO, STATOR SHROUD & THERM BARRIER COOLERS, ISOL CHECK VLV														
1-CC-0058	11448-CBM-072A	3 OF 7	F-7	CHECK VALVE	6	3	C		CV	C	CM				
										O	CM				
	CC SUPPLY TO "B" RC PUMP LO, STATOR SHROUD & THERM BARRIER COOLERS, ISOL CHECK VLV														
1-CC-0059	11448-CBM-072A	4 OF 7	F-7	CHECK VALVE	6	3	C		CV	C	CM				
										O	CM				
	CC SUPPLY TO "C" RC PUMP LO, STATOR SHROUD & THERM BARRIER COOLERS, ISOL CHECK VLV														
1-CC-0176	11448-CBM-072A	1 OF 7	F-7	CHECK VALVE	18	3	C		CV	C	CM				
										O	CM				
	CC SUPPLY TO RHR HEAT EXCHANGER CHECK VALVE														
1-CC-0177	11448-CBM-072A	1 OF 7	F-7	CHECK VALVE	18	3	C		CV	C	CM				
										O	CM				
	CC SUPPLY TO RHR HEAT EXCHANGER CHECK VALVE														
1-CC-0181	11448-CBM-072A	1 OF 7	A-6	MANUAL BFLY	18	3	B		EV	C	24				
										O	24				
	CC RETURN FROM RHR HEAT EXCHANGER MANUAL ISOLATION VALVE														
1-CC-0185	11448-CBM-072A	1 OF 7	A-4	MANUAL BFLY	18	3	B		EV	C	24				
										O	24				
	CC RETURN FROM RHR HEAT EXCHANGER MANUAL ISOLATION VALVE														
1-CC-0224	11448-CBM-072B	2 OF 3	D-2	CHECK VALVE	6	3	C		CV	C	CM				
										O	CM				
	CC SUPPLY TO "C" RECIRC AIR COOLING COILS, INSIDE CONTAINMENT ISOLATION CHECK VALVE														
1-CC-0233	11448-CBM-072B	2 OF 3	D-6	CHECK VALVE	6	3	C		CV	C	CM				
										O	CM				

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
	CC SUPPLY TO "B" RECIRC AIR COOLING COILS, INSIDE CONTAINMENT ISOLATION CHECK VALVE														
1-CC-0242	11448-CBM-072B	2 OF 3	D-8	CHECK VALVE	6	3	C		CV	C O	CM CM				
	CC SUPPLY TO "A" RECIRC AIR COOLING COILS, INSIDE CONTAINMENT ISOLATION CHECK VALVE														
1-CC-0557	11448-CBM-072D	1 OF 5	D-5	CHECK VALVE	18	3	C		CV	C O	CM CM				
	"A" COMPONENT COOLING PUMP DISCHARGE CHECK VALVE														
1-CC-0563	11448-CBM-072D	1 OF 5	C-5	CHECK VALVE	18	3	C		CV	C O	CM CM				
	"B" COMPONENT COOLING PUMP DISCHARGE CHECK VALVE														
1-CC-0752	11448-CBM-071B	2 OF 2	C-3	CHECK VALVE	2	3	C		CV	C O	CM CM				
	CHARGING PUMP COOLING WATER PUMP DISCHARGE CHECK VALVE														
1-CC-0764	11448-CBM-071B	2 OF 2	C-7	CHECK VALVE	2	3	C		CV	C O	CM CM				
	CHARGING PUMP COOLING WATER PUMP DISCHARGE CHECK VALVE														
1-CC-0805	11448-CBM-072C	4 OF 4	C-5	CHECK VALVE	1	3	C		CV	C O	CM CM				
	CHARGING PUMP SEAL COOLING SURGE TANK MAKEUP CHECK VALVE														
1-CC-1105	11448-CBM-072A	4 OF 7	C-6	CHECK VALVE	2	3	C		CV	C O	CM CM				
	COMPONENT COOLING WATER TO RCP THERMAL BARRIER ISOLATION CHECK VALVE														
1-CC-1106	11448-CBM-072A	3 OF 7	C-6	CHECK VALVE	2	3	C		CV	C O	CM CM				
	COMPONENT COOLING WATER TO RCP THERMAL BARRIER ISOLATION CHECK VALVE														

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
1-CC-1107	11448-CBM-072A	2 OF 7	C-6	CHECK VALVE	2	3	C		CV	C	CM				
										O	CM				
	COMPONENT COOLING WATER TO RCP THERMAL BARRIER ISOLATION CHECK VALVE														
1-CC-1188	11448-CBM-072A	2 OF 7	C-6	CHECK VALVE	2	3	C		CV	C	CM				
										O	CM				
	COMPONENT COOLING WATER TO RCP THERMAL BARRIER ISOLATION CHECK VALVE														
1-CC-1189	11448-CBM-072A	3 OF 7	C-6	CHECK VALVE	2	3	C		CV	C	CM				
										O	CM				
	COMPONENT COOLING WATER TO RCP THERMAL BARRIER ISOLATION CHECK VALVE														
1-CC-1190	11448-CBM-072A	4 OF 7	C-6	CHECK VALVE	2	3	C		CV	C	CM				
										O	CM				
	COMPONENT COOLING WATER TO RCP THERMAL BARRIER ISOLATION CHECK VALVE														
1-CC-LCV-101	11448-CBM-071B	2 OF 2	D-5	AO GATE	1	3	B		EV	C	CS		15		
										O	CS		15		
									FS	C	CS		15		
									ST	C	NA	NOTE 1			
										O	NA	NOTE 1			
	CHARGING PUMP SEAL COOLING SURGE TANK LEVEL CONTROL/ISOLATION VALVE														
1-CC-RV-112A	11448-CBM-072B	2 OF 3	C-7	RELIEF VALVE	0.75	3	C		SP	O	120	NOTE 2			
	REACTOR CONTAINMENT AIR RECIRCULATION COOLER RELIEF VALVE														
1-CC-RV-112B	11448-CBM-072B	2 OF 3	C-5	RELIEF VALVE	0.75	3	C		SP	O	120	NOTE 2			
	REACTOR CONTAINMENT AIR RECIRCULATION COOLER RELIEF VALVE														
1-CC-RV-112C	11448-CBM-072B	2 OF 3	C-4	RELIEF VALVE	0.75	3	C		SP	O	120	NOTE 2			
	REACTOR CONTAINMENT AIR RECIRCULATION COOLER RELIEF VALVE														

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
1-CC-RV-116A	11448-CBM-072A	2 OF 7	C-5	RELIEF VALVE	0.75	3	C		SP	O	120	NOTE 2			
	RCP THERMAL BARRIER COOLING WATER THERMAL RELIEF VALVE														
1-CC-RV-116B	11448-CBM-072A	3 OF 7	C-5	RELIEF VALVE	0.75	3	C		SP	O	120	NOTE 2			
	RCP THERMAL BARRIER COOLING WATER THERMAL RELIEF VALVE														
1-CC-RV-116C	11448-CBM-072A	4 OF 7	C-5	RELIEF VALVE	0.75	3	C		SP	O	120	NOTE 2			
	RCP THERMAL BARRIER COOLING WATER THERMAL RELIEF VALVE														
1-CC-RV-119A	11448-CBM-072A	1 OF 7	E-3	RELIEF VALVE	1.5	3	C		SP	O	120	NOTE 2			
	"A" RHR HEAT EXCHANGER COMPONENT COOLING RELIEF VALVE														
1-CC-RV-119B	11448-CBM-072A	1 OF 7	D-3	RELIEF VALVE	1.5	3	C		SP	O	120	NOTE 2			
	"B" RHR HEAT EXCHANGER COMPONENT COOLING RELIEF VALVE														
1-CC-RV-122	11448-CBM-072D	1 OF 5	F-6	RELIEF VALVE	3	3	C		SP	O	120				
	COMPONENT COOLING SURGE TANK RELIEF														
1-CC-RV-123	11448-CBM-072D	1 OF 5	F-7	RELIEF VALVE	3	3	C		SP	O	120				
	COMPONENT COOLING SURGE TANK VACUUM RELIEF														
1-CC-RV-124	11448-CBM-072A	5 OF 7	F-6	RELIEF VALVE	0.75	3	C		SP	O	120	NOTE 2			
	COMPONENT COOLING PIPING RELIEF														
1-CC-RV-138A	11448-CBM-072A	2 OF 7	F-6	RELIEF VALVE	0.75	3	C		SP	O	120	NOTE 2			
	REACTOR SHROULD COOLING COIL RELIEF VALVE														
1-CC-RV-138B	11448-CBM-072A	3 OF 7	F-6	RELIEF VALVE	0.75	3	C		SP	O	120	NOTE 2			
	REACTOR SHROULD COOLING COIL RELIEF VALVE														
1-CC-RV-138C	11448-CBM-072A	4 OF 7	F-6	RELIEF VALVE	0.75	3	C		SP	O	120	NOTE 2			
	REACTOR SHROULD COOLING COIL RELIEF VALVE														
1-CC-TV-105A	11448-CBM-072A	2 OF 7	B-4	AO BALL	6	3	B		EV	C	CS		2		
									FS	C	CS		2		

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
1-CC-TV-105A	11448-CBM-072A	2 OF 7	B-4	AO BALL	6	3	B		ST	C	CS		2		
									VP	OC	24				
	CC RETURN FROM "A" RC PUMP LO,STATOR & SHROUD COOLERS, OUTSIDE CONTAINMENT ISOLATION VALVE														
1-CC-TV-105B	11448-CBM-072A	3 OF 7	B-4	AO BALL	6	3	B		EV	C	CS		2		
									FS	C	CS		2		
									ST	C	CS		2		
									VP	OC	24				
	CC RETURN FROM "B" RC PUMP LO,STATOR & SHROUD COOLERS, OUTSIDE CONTAINMENT ISOLATION VALVE														
1-CC-TV-105C	11448-CBM-072A	4 OF 7	B-4	AO BALL	6	3	B		EV	C	CS		2		
									FS	C	CS		2		
									ST	C	CS		2		
									VP	OC	24				
	CC RETURN FROM "C" RC PUMP LO,STATOR & SHROUD COOLERS, OUTSIDE CONTAINMENT ISOLATION VALVE														
1-CC-TV-109A	11448-CBM-072A	1 OF 7	B-7	AO BFLY	18	3	B		EV	C	03				
										O	03				
									FS	C	03				
									ST	C	03				
										O	03				
									VP	OC	24				
	CC RETURN FROM "A" RHR HEAT EXCHANGER, OUTSIDE CONTAINMENT ISOLATION VALVE														
1-CC-TV-109B	11448-CBM-072A	1 OF 7	C-7	AO BFLY	18	3	B		EV	C	03				
										O	03				
									FS	C	03				
									ST	C	03				
										O	03				
									VP	OC	24				
	CC RETURN FROM "B" RHR HEAT EXCHANGER, OUTSIDE CONTAINMENT ISOLATION VALVE														
1-CC-TV-110A	11448-CBM-072B	2 OF 3	E-7	AO BFLY	6	3	B		EV	C	03				

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
1-CC-TV-110A	11448-CBM-072B	2 OF 3	E-7	AO BFLY	6	3	B		FS	C	03				
									ST	C	03				
									VP	OC	24				
	CC RETURN FROM "A" RECIRC AIR COOLING COILS, OUTSIDE CONTAINMENT ISOLATION VALVE														
1-CC-TV-110B	11448-CBM-072B	2 OF 3	E-5	AO BFLY	6	3	B		EV	C	03				
									FS	C	03				
									ST	C	03				
									VP	OC	24				
	CC RETURN FROM "B" RECIRC AIR COOLING COILS, OUTSIDE CONTAINMENT ISOLATION VALVE														
1-CC-TV-110C	11448-CBM-072B	2 OF 3	E-4	AO BFLY	6	3	B		EV	C	03				
									FS	C	03				
									ST	C	03				
									VP	OC	24				
	CC RETURN FROM "C" RECIRC AIR COOLING COILS, OUTSIDE CONTAINMENT ISOLATION VALVE														
1-CC-TV-120A	11448-CBM-072A	2 OF 7	C-5	AO GATE	1.5	3	B		EV	C	CS		13		
									ST	C	CS		13		
									VP	OC	24				
	CC RETURN FROM REACTOR COOLANT PUMP THERMAL BARRIER ISOLATION VALVE														
1-CC-TV-120B	11448-CBM-072A	3 OF 7	C-5	AO GATE	1.5	3	B		EV	C	CS		13		
									ST	C	CS		13		
									VP	OC	24				
	CC RETURN FROM REACTOR COOLANT PUMP THERMAL BARRIER ISOLATION VALVE														
1-CC-TV-120C	11448-CBM-072A	4 OF 7	C-5	AO GATE	1.5	3	B		EV	C	CS		13		
									ST	C	CS		13		
									VP	OC	24				
	CC RETURN FROM REACTOR COOLANT PUMP THERMAL BARRIER ISOLATION VALVE														

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
1-CC-TV-140A	11448-CBM-072A	1 OF 7	D-7	AO GLOBE	3	3	B		EV	C	CS		13		
									FS	C	CS		13		
									ST	C	CS		13		
									VP	OC	24				
	CC RETURN FROM REACTOR COOLANT PUMP THERMAL BARRIER, INSIDE CONTAINMENT ISOLATION VALVE														
1-CC-TV-140B	11448-CBM-072A	1 OF 7	D-7	AO GLOBE	3	3	B		EV	C	CS		13		
									FS	C	CS		13		
									ST	C	CS		13		
									VP	OC	24				
	CC RETURN FROM REACTOR COOLANT PUMP THERMAL BARRIERS, OUTSIDE CONTAINMENT ISOLATION VALVE														

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
1-CH-076	11448-CBM-088A	1 OF 4	C-7	CHECK VALVE	2	2	C		CV	C O	CM CM				
	"A" BORIC ACID TRANSFER PUMP DISCHARGE CHECK VALVE														
1-CH-092	11448-CBM-088A	1 OF 4	C-6	CHECK VALVE	2	2	C		CV	C O	CM CM				
	"B" BORIC ACID TRANSFER PUMP DISCHARGE CHECK VALVE														
1-CH-225	11448-CBM-088B	1 OF 3	C-3	CHECK VALVE	1	2	C		CV	C O	CM CM				
	MANUAL EMERGENCY BORATION PATH CHECK VALVE														
1-CH-227	11448-CBM-088B	2 OF 3	A-3	CHECK VALVE	2	2	C		CV	C O	CM CM				
	MAIN EMERGENCY BORATION LINE TO CHARGING PUMP SUCTION CHECK VALVE														
1-CH-228	11448-CBM-088B	1 OF 3	B-4	MANUAL GATE	1	2	B		EV	O	24				
	MANUAL EMERGENCY PATH BORATION MANUAL VALVE														
1-CH-229	11448-CBM-088B	2 OF 3	A-4	CHECK VALVE	1	2	C		CV	C O	CM CM				
	MANUAL EMERGENCY BORATION PATH CHECK VALVE, CHARGING PUMP SUCTION CHECK VALVE														
1-CH-230	11448-CBM-088B	1 OF 3	B-6	CHECK VALVE	4	2	C		CV	C O	CM CM				
	CHARGING PUMP SUPPLY FROM VOLUME CONTROL TANK DISCHARGE CHECK VALVE														
1-CH-256	11448-CBM-088B	2 OF 3	D-7	CHECK VALVE	2	2	C		CV	C O	CM CM				
	"A" CHARGING PUMP DISCHARGE RECIRC LINE CHECK VALVE														
1-CH-258	11448-CBM-088B	2 OF 3	D-7	CHECK VALVE	3	2	C		CV	C O	CM CM				

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
	"A" CHARGING PUMP DISCHARGE CHECK VALVE														
1-CH-265	11448-CBM-088B	2 OF 3	D-6	CHECK VALVE	2	2	C		CV	C	CM				
										O	CM				
	"B" CHARGING PUMP DISCHARGE RECIRC LINE CHECK VALVE														
1-CH-267	11448-CBM-088B	2 OF 3	D-6	CHECK VALVE	3	2	C		CV	C	CM				
										O	CM				
	"B" CHARGING PUMP DISCHARGE CHECK VALVE														
1-CH-274	11448-CBM-088B	2 OF 3	D-4	CHECK VALVE	2	2	C		CV	C	CM				
										O	CM				
	"C" CHARGING PUMP DISCHARGE RECIRC LINE CHECK VALVE														
1-CH-276	11448-CBM-088B	2 OF 3	D-4	CHECK VALVE	3	2	C		CV	C	CM				
										O	CM				
	"C" CHARGING PUMP DISCHARGE CHECK VALVE														
1-CH-309	11448-CBM-088C	1 OF 2	D-4	CHECK VALVE	3	2	C		CV	C	CM				
										O	CM				
	MAIN CHARGING SUPPLY HEADER CHECK VALVE														
1-CH-FCV-1113A	11448-CBM-088B	1 OF 3	C-3	AO GLOBE	1	2	B		EV	O	03				
									FS	O	03				
									ST	O	NA	NOTE 1			
									VP	OC	24				
	MANUAL EMERGENCY BORATION PATH FLOW CONTROL VALVE														
1-CH-FCV-1114A	11448-CBM-088B	1 OF 3	C-4	AO GLOBE	2	2	B		EV	C	03				
									FS	C	03				
									ST	C	NA	NOTE 1			
									VP	OC	24				
	PRIMARY GRADE WATER SUPPLY TO BORIC ACID BLENDER ISOLATION VALVE														
1-CH-FCV-1160	11448-CBM-088C	1 OF 2	A-4	AO GLOBE	2	1	E		VP	OC	24				

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
	CHARGING FLOW CONTROL TO LOOP FILL HEADER, OUTSIDE ISOLATION VALVE														
1-CH-LCV-1460A	11448-CBM-088C	1 OF 2	F-7	AO GLOBE	2	1	B		EV	C	CS		6		
									FS	C	CS		6		
									ST	C	CS		6		
									VP	OC	24				
	NORMAL LETDOWN TO REGENERATIVE HEAT EXCHANGER ISOLATION														
1-CH-LCV-1460B	11448-CBM-088C	1 OF 2	F-7	AO GLOBE	2	1	B		EV	C	CS		6		
									FS	C	CS		6		
									ST	C	CS		6		
									VP	OC	24				
	NORMAL LETDOWN TO REGENERATIVE HEAT EXCHANGER ISOLATION														
1-CH-MOV-1115B	11448-CBM-088B	2 OF 3	B-8	MO GATE	8	2	A		EV	C	03				
										O	03				
									LT	C	24	1			
									ST	C	03				
										O	03				
									VP	OC	24				
	CHARGING PUMP SUPPLY ISOLATION VALVE FROM REFUELING WATER STORAGE TANK														
1-CH-MOV-1115C	11448-CBM-088B	1 OF 3	C-6	MO GATE	4	2	B		EV	C	CS		4		
									ST	C	CS		4		
									VP	OC	24				
	CHARGING PUMP SUPPLY ISOLATION FROM VOLUME CONTROL TANK														
1-CH-MOV-1115D	11448-CBM-088B	2 OF 3	C-8	MO GATE	8	2	A		EV	C	03				
										O	03				
									LT	C	24	1			
									ST	C	03				
										O	03				
									VP	OC	24				

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
	CHARGING PUMP SUPPLY ISOLATION VALVE FROM REFUELING WATER STORAGE TANK														
1-CH-MOV-1115E	11448-CBM-088B	1 OF 3	C-6	MO GATE	4	2	B		EV	C	CS		4		
									ST	C	CS		4		
									VP	OC	24				
	CHARGING PUMP SUPPLY ISOLATION VALVE FROM VOLUME CONTROL														
1-CH-MOV-1267A	11448-CBM-088B	2 OF 3	C-7	MO GATE	6	2	E		VP	OC	24				
	CHARGING PUMP SUCTION ISOLATION VALVE FROM RWST, VCT AND LHSI PUMP														
1-CH-MOV-1267B	11448-CBM-088B	2 OF 3	B-7	MO GATE	6	2	E		VP	OC	24				
	LOW HEAD SI PUMP TO CHARGING PUMP SUCTION ISOLATION VALVE														
1-CH-MOV-1269A	11448-CBM-088B	2 OF 3	C-5	MO GATE	6	2	E		VP	OC	24				
	CHARGING PUMP SUCTION ISOLATION VALVE FROM RWST, VCT AND LHSI PUMP														
1-CH-MOV-1269B	11448-CBM-088B	2 OF 3	B-5	MO GATE	6	2	E		VP	OC	24				
	LOW HEAD SI PUMP TO CHARGING PUMP SUCTION ISOLATION VALVE														
1-CH-MOV-1270A	11448-CBM-088B	2 OF 3	C-3	MO GATE	6	2	E		VP	OC	24				
	CHARGING PUMP SUCTION ISOLATION VALVE FROM RWST, VCT AND LHSI PUMP														
1-CH-MOV-1270B	11448-CBM-088B	2 OF 3	B-3	MO GATE	6	2	E		VP	OC	24				
	LOW HEAD SI PUMP TO CHARGING PUMP SUCTION ISOLATION VALVE														
1-CH-MOV-1275A	11448-CBM-088B	2 OF 3	D-7	MO GATE	2	2	B		EV	C	03				
										O	03				
									ST	C	03				
										O	03				
									VP	OC	24				
	"A" CHARGING PUMP MINIMUM RECIRCULATION ISOLATION VALVE														
1-CH-MOV-1275B	11448-CBM-088B	2 OF 3	D-5	MO GATE	2	2	B		EV	C	03				
										O	03				

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
1-CH-MOV-1275B	11448-CBM-088B	2 OF 3	D-5	MO GATE	2	2	B		ST	C	03				
										O	03				
									VP	OC	24				
	"B" CHARGING PUMP MINIMUM RECIRCULATION ISOLATION VALVE														
1-CH-MOV-1275C	11448-CBM-088B	2 OF 3	D-3	MO GATE	2	2	B		EV	C	03				
										O	03				
									ST	C	03				
										O	03				
									VP	OC	24				
	"C" CHARGING PUMP MINIMUM RECIRCULATION ISOLATION VALVE														
1-CH-MOV-1286A	11448-CBM-088B	2 OF 3	E-7	MO GATE	3	2	B		EV	C	03				
										O	03				
									ST	C	03				
										O	03				
									VP	OC	24				
	CHARGING PUMP MAIN DISCHARGE ISOLATION VALVE														
1-CH-MOV-1286B	11448-CBM-088B	2 OF 3	E-6	MO GATE	3	2	B		EV	C	03				
										O	03				
									ST	C	03				
										O	03				
									VP	OC	24				
	CHARGING PUMP MAIN DISCHARGE ISOLATION VALVE														
1-CH-MOV-1286C	11448-CBM-088B	2 OF 3	E-4	MO GATE	3	2	B		EV	C	03				
										O	03				
									ST	C	03				
										O	03				
									VP	OC	24				
	CHARGING PUMP MAIN DISCHARGE ISOLATION VALVE														
1-CH-MOV-1287A	11448-CBM-088B	2 OF 3	D-7	MO GATE	3	2	B		EV	C	03				
										O	03				
									ST	C	03				
										O	03				

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
1-CH-MOV-1287A	11448-CBM-088B	2 OF 3	D-7	MO GATE	3	2	B		VP	OC	24				
	CHARGING PUMP MAIN DISCHARGE ISOLATION VALVE														
1-CH-MOV-1287B	11448-CBM-088B	2 OF 3	D-6	MO GATE	3	2	B		EV	C	03				
										O	03				
									ST	C	03				
										O	03				
									VP	OC	24				
	CHARGING PUMP MAIN DISCHARGE ISOLATION VALVE														
1-CH-MOV-1287C	11448-CBM-088B	2 OF 3	D-4	MO GATE	3	2	B		EV	C	03				
										O	03				
									ST	C	03				
										O	03				
									VP	OC	24				
	CHARGING PUMP MAIN DISCHARGE ISOLATION VALVE														
1-CH-MOV-1289A	11448-CBM-088C	1 OF 2	B-4	MO GATE	3	2	B		EV	C	CS		7		
									ST	C	CS		7		
									VP	OC	24				
	MAIN CHARGING HEADER ISOLATION VALVE														
1-CH-MOV-1289B	11448-CBM-088C	1 OF 2	B-3	MO GATE	3	2	B		EV	C	CS		7		
									ST	C	CS		7		
									VP	OC	24				
	MAIN CHARGING HEADER ISOLATION VALVE, OUTSIDE CONTAINMENT														
1-CH-MOV-1350	11448-CBM-088B	1 OF 3	B-5	MO GATE	2	2	B		EV	O	03		10		
									ST	O	03		10		
									VP	OC	24				
	EMERGENCY BORATION TO CHARGING PUMP SUCTION														
1-CH-MOV-1373	11448-CBM-088B	2 OF 3	E-7	MO GATE	3	2	B		EV	C	RR			4	
									ST	C	RR			4	
									VP	OC	24				
	CHARGING PUMP RECIRCULATION HEADER ISOLATION VALVE														
1-CH-MOV-1381	11448-CBM-088B	1 OF 3	C-8	MO GATE	3	2	A	CIV	EV	C	CS		5		
									LT	C	OPB				

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
1-CH-MOV-1381	11448-CBM-088B	1 OF 3	C-8	MO GATE	3	2	A	CIV	ST	C	CS		5		
									VP	OC	24				
	REACTOR COOLANT PUMP SEAL WATER RETURN, OUTSIDE CONTAINMENT ISOLATION VALVE														
1-CH-RV-1203	11448-CBM-088C	1 OF 2	F-4	RELIEF VALVE	2	2	C		SP	O	120				
	LETDOWN RELIEF VLV DOWNSTREAM OF REGEN HX, RV DISCHARGE TO PRESSURIZER RELIEF TANK														
1-CH-RV-1382A	11448-CBM-088C	2 OF 2	F-5	RELIEF VALVE	2	2	C		SP	O	120				
	REACTOR COOLANT PUMP SEAL WATER RELIEF VALVE, RV DISCHARGE TO PRESSURIZER RELIEF TANK														
1-CH-RV-1382B	11448-CBM-088B	1 OF 3	C-7	RELIEF VALVE	2	2	C		SP	O	120				
	SEAL WATER HEAT EXCHANGER RELIEF VALVE, RV DISCHARGE TO VOLUME CONTROL TANK														
1-CH-TV-1204A	11448-CBM-088C	1 OF 2	D-3	AO GATE	2	2	A	CIV	EV	C	CS		6		
									FS	C	CS		6		
									LT	C	OPB				
									ST	C	CS		6		
									VP	OC	24				
	LETDOWN CONTROL FROM REGEN HX, INSIDE CONTAINMENT ISOLATION VALVE														
1-CH-TV-1204B	11448-CBM-088A	2 OF 2	D-3	AO GATE	2	2	A	CIV	EV	C	CS		6		
									FS	C	CS		6		
									LT	C	OPB				
									ST	C	CS		6		
									VP	OC	24				
	LETDOWN CONTROL FROM REGEN HX, OUTSIDE CONTAINMENT ISOLATION VALVE														

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
1-CS-013	11448-CBM-084A	2 OF 3	F-4	CHECK VALVE	8	2	AC	CIV	CV	C	CM				
										O	CM				
									LT	C	OPB				
	"A" CONT SPRAY PUMP INSIDE CONTAINMENT ISOLATION DISCHARGE CHECK VALVE														
1-CS-024	11448-CBM-084A	2 OF 3	E-4	CHECK VALVE	8	2	AC	CIV	CV	C	CM				
										O	CM				
									LT	C	OPB				
	"B" CONT SPRAY PUMP INSIDE CONTAINMENT ISOLATION DISCHARGE CHECK VALVE														
1-CS-045	11448-CBM-084A	1 OF 3	F-8	CHECK VALVE	2	2	C		CV	C	CM				
										O	CM				
	RWST COOLING SYSTEM RETURN ISOLATION CHECK VALVE														
1-CS-105	11448-CBM-084A	2 OF 3	F-3	CHECK VALVE	8	2	C		CV	C	CM				
										O	CM				
	CONTAINMENT SPRAY PUMP DISCHARGE CHECK VALVE														
1-CS-127	11448-CBM-084A	2 OF 3	E-3	CHECK VALVE	8	2	C		CV	C	CM				
										O	CM				
	CONTAINMENT SPRAY PUMP DISCHARGE CHECK VALVE														
1-CS-147	11448-CBM-084A	2 OF 3	C-4	CHECK VALVE	3	2	AC		CV	C	CM				
										O	CM				
									LT	C	24				
	CONTAINMENT SPRAY BLEED LINE CHECK VALVE														
1-CS-150	11448-CBM-084A	2 OF 3	C-4	CHECK VALVE	3	2	AC		CV	C	CM				
										O	CM				
									LT	C	24				
	CONTAINMENT SPRAY BLEED LINE CHECK VALVE														
1-CS-MOV-100A	11448-CBM-084A	2 OF 3	B-7	MO GATE	12	2	B		EV	O	03				
									ST	O	03				
									VP	OC	24				
	CONTAINMENT SPRAY PUMP SUCTION ISOLATION VALVE														

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
1-CS-MOV-100B	11448-CBM-084A	2 OF 3	A-7	MO GATE	12	2	B		EV	O	03				
									ST	O	03				
									VP	OC	24				
	CONTAINMENT SPRAY PUMP SUCTION ISOLATION VALVE														
1-CS-MOV-101A	11448-CBM-084A	2 OF 3	F-5	MO GATE	8	2	A	CIV	EV	C	03				
										O	03				
									LT	C	OPB				
									ST	C	03				
										O	03				
									VP	OC	24				
	"A" CONT SPRAY PUMP DISCHARGE ISOLATION VALVE, OUTSIDE CONTAINMENT ISOLATION VALVE														
1-CS-MOV-101B	11448-CBM-084A	2 OF 3	F-5	MO GATE	8	2	A	CIV	EV	C	03				
										O	03				
									LT	C	OPB				
									ST	C	03				
										O	03				
									VP	OC	24				
	"A" CONT SPRAY PUMP DISCHARGE ISOLATION VALVE, OUTSIDE CONTAINMENT ISOLATION VALVE														
1-CS-MOV-101C	11448-CBM-084A	2 OF 3	E-5	MO GATE	8	2	A	CIV	EV	C	03				
										O	03				
									LT	C	OPB				
									ST	C	03				
										O	03				
									VP	OC	24				
	"B" CONT SPRAY PUMP DISCHARGE ISOLATION VALVE, OUTSIDE CONTAINMENT ISOLATION VALVE														
1-CS-MOV-101D	11448-CBM-084A	2 OF 3	E-5	MO GATE	8	2	A	CIV	EV	C	03				
										O	03				
									LT	C	OPB				
									ST	C	03				
										O	03				
									VP	OC	24				
	"B" CONT SPRAY PUMP DISCHARGE ISOLATION VALVE, OUTSIDE CONTAINMENT ISOLATION VALVE														

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
1-CS-MOV-102A	11448-CBM-084A	3 OF 3	C-6	MO BFLY	6	2	B		EV	O	03				
									ST	O	03				
									VP	OC	24				
	CHEMICAL ADDITION TANK DISCHARGE TO RWST ISOLATION VALVE														
1-CS-MOV-102B	11448-CBM-084A	3 OF 3	B-6	MO BFLY	6	2	B		EV	O	03				
									ST	O	03				
									VP	OC	24				
	CHEMICAL ADDITION TANK DISCHARGE TO RWST ISOLATION VALVE														

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
1-CV-002	11448-CBM-085A	1 OF 2	D-4	MAN GATE	8	2	AE	CIV	LT	C	OPB				
	CONTAINMENT VACUUM EJECTOR SUPPLY, OUTSIDE CONTAINMENT ISOLATION VALVE														
1-CV-HCV-100	11448-CBM-085A	1 OF 2	D-3	AO GATE	8	2	AE	CIV	LT	C	OPB				
									VP	OC	24				
	CONTAINMENT VACUUM EJECTOR, INSIDE CONTAIN- MENT ISOLATION														
1-CV-TV-150A	11448-CBM-085A	2 OF 2	E-4	AO GATE	2	2	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				
	"A" CONTAINMENT VACUUM PUMP SUCTION ISOLATION VALVE, OUTSIDE CONTAINMENT ISOLATION VALVE														
1-CV-TV-150B	11448-CBM-085A	2 OF 2	E-5	AO GATE	2	2	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				
	"A" CONTAINMENT VACUUM PUMP SUCTION ISOLATION VALVE, OUTSIDE CONTAINMENT ISOLATION VALVE														
1-CV-TV-150C	11448-CBM-085A	2 OF 2	D-4	AO GATE	2	2	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				
	"B" CONTAINMENT VACUUM PUMP SUCTION ISOLATION VALVE, OUTSIDE CONTAINMENT ISOLATION VALVE														
1-CV-TV-150D	11448-CBM-085A	2 OF 2	D-5	AO GATE	2	2	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
	"B" CONTAINMENT VACUUM PUMP SUCTION ISOLATION VALVE, OUTSIDE CONTAINMENT ISOLATION VALVE														

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
1-CW-MOV-100A	11448-CBM-071A	2 OF 4	F-7	MO BFLY	96	NC	B		EV	C	03		19		
									EV	P	03		19		
									ST	C	03		19		
									VP	OC	24				
	CONDENSER DISCHARGE ISOLATION VALVE														
1-CW-MOV-100B	11448-CBM-071A	2 OF 4	F-7	MO BFLY	96	NC	B		EV	C	03		19		
									EV	P	03		19		
									ST	C	03		19		
									VP	OC	24				
	CONDENSER DISCHARGE ISOLATION VALVE														
1-CW-MOV-100C	11448-CBM-071A	2 OF 4	F-6	MO BFLY	96	NC	B		EV	C	03		19		
									EV	P	03		19		
									ST	C	03		19		
									VP	OC	24				
	CONDENSER DISCHARGE ISOLATION VALVE														
1-CW-MOV-100D	11448-CBM-071A	2 OF 4	F-5	MO BFLY	96	NC	B		EV	C	03		19		
									EV	P	03		19		
									ST	C	03		19		
									VP	OC	24				
	CONDENSER DISCHARGE ISOLATION VALVE														
1-CW-MOV-106A	11448-CBM-071A	2 OF 4	D-7	MO BFLY	96	3	B		EV	C	03		19		
									ST	C	03		19		
									VP	OC	24				
	CONDENSER INLET ISOLATION VALVE														
1-CW-MOV-106B	11448-CBM-071A	2 OF 4	D-7	MO BFLY	96	3	B		EV	C	03		19		
									ST	C	03		19		
									VP	OC	24				
	CONDENSER INLET ISOLATION VALVE														
1-CW-MOV-106C	11448-CBM-071A	2 OF 4	D-5	MO BFLY	96	3	B		EV	C	03		19		
									ST	C	03		19		
									VP	OC	24				
	CONDENSER INLET ISOLATION VALVE														
1-CW-MOV-106D	11448-CBM-071A	2 OF 4	D-5	MO BFLY	96	3	B		EV	C	03		19		
									ST	C	03		19		

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
1-CW-MOV-106D	11448-CBM-071A CONDENSER INLET ISOLATION VALVE	2 OF 4	D-5	MO BFLY	96	3	B		VP	OC	24				

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
1-DA-TV-100A	11448-CBM-083B	3 OF 3	B-3	AO GATE	2	2	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				
	REACTOR CONTAINMENT SUMP PUMPS DISCHARGE, INSIDE CONTAINMENT ISOLATION VALVE														
1-DA-TV-100B	11448-CBM-083A	2 OF 3	E-7	AO GATE	2	2	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				
	REACTOR CONTAINMENT SUMP PUMPS DISCHARGE, OUTSIDE CONTAINMENT ISOLATION VALVE														
1-DA-TV-103A	11448-CBM-083A	2 OF 3	E-7	AO GATE	2	2	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				
	POST ACCIDENT SAMPLE SYSTEM RETURN, OUTSIDE CONTAINMENT ISOLATION VALVE														
1-DA-TV-103B	11448-CBM-083A	2 OF 3	E-7	AO GATE	2	2	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				
	POST ACCIDENT SAMPLE SYSTEM RETURN, OUTSIDE CONTAINMENT TRIP VALVE														

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
1-DG-TV-108A	11448-CBM-083B	1 OF 3	B-2	AO GATE	2	2	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				
	PRIMARY DRAIN TRANSFER PUMPS DISCHARGE, INSIDE CONTAINMENT ISOLATION VALVE														
1-DG-TV-108B	11448-CBM-083A	1 OF 3	C-7	AO GATE	2	2	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				
	PRIMARY DRAIN TRANSFER PUMPS DISCHARGE, OUTSIDE CONTAINMENT ISOLATION VALVE														

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
1-EE-015	11448-FB -038A	2 OF 3	B-7	CHECK VALVE	1.5	NC	C		CV	C	CM				
										O	CM				
	DIESEL EMERGENCY GENERATOR FUEL OIL PUMP DISCHARGE CHECK														
1-EE-019	11448-FB -038A	2 OF 3	F-7	CHECK VALVE	1.5	NC	C		CV	C	CM				
										O	CM				
	DIESEL EMERGENCY GENERATOR FUEL OIL PUMP DISCHARGE CHECK														
1-EE-028	11448-FB -038A	2 OF 3	E-6	CHECK VALVE	1.5	NC	C		CV	C	CM				
										O	CM				
	DIESEL EMERGENCY GENERATOR FUEL OIL PUMP DISCHARGE CHECK														
1-EE-035	11448-FB -038A	2 OF 3	B-6	CHECK VALVE	1.5	NC	C		CV	C	CM				
										O	CM				
	DIESEL EMERGENCY GENERATOR FUEL OIL PUMP DISCHARGE CHECK														
1-EE-RV-103	11448-FB -038A	1 OF 3	C-7	RELIEF VALVE	0.5	NC	C		SP	O	120				4
	DIESEL FUEL OIL PUMP DISCHARGE RELIEF VALVE RV DISCHARGE TO PUMP SUCTION														
1-EE-RV-105	11448-FB -038A	1 OF 3	F-7	RELIEF VALVE	0.5	NC	C		SP	O	120				4
	DIESEL FUEL OIL PUMP DISCHARGE RELIEF VALVE RV DISCHARGE TO PUMP SUCTION														
1-EE-RV-106	11448-FB -038A	1 OF 3	C-6	RELIEF VALVE	0.5	NC	C		SP	O	120				4
	DIESEL FUEL OIL PUMP DISCHARGE RELIEF VALVE RV DISCHARGE TO PUMP SUCTION														
1-EE-RV-108	11448-FB -038A	1 OF 3	E-6	RELIEF VALVE	0.5	NC	C		SP	O	120				4
	DIESEL FUEL OIL PUMP DISCHARGE RELIEF VALVE RV DISCHARGE TO PUMP SUCTION														
1-EE-SOV-100	11448-FB -038A	2 OF 3	C-4	SO GATE	1	NC	B		EV	O	03				
									ST	O	NA				2
	DIESEL FUEL OIL PUMP DISCHARGE VALVE														
1-EE-SOV-101	11448-FB -038A	2 OF 3	B-4	SO GATE	1	NC	B		EV	O	03				
									ST	O	NA				2

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
	DIESEL FUEL OIL PUMP DISCHARGE VALVE														
1-EE-SOV-104	11448-FB -038A	2 OF 3	F-4	SO GATE	1	NC	B		EV	O	03				
									ST	O	NA				2
	DIESEL FUEL OIL PUMP DISCHARGE VALVE														
1-EE-SOV-105	11448-FB -038A	2 OF 3	F-4	SO GATE	1	NC	B		EV	O	03				
									ST	O	NA				2
	DIESEL FUEL OIL PUMP DISCHARGE VALVE														

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
1-EG-040	11448-FB -046A	1 OF 3	B-6	CHECK VALVE	0.75	NC	AC		CV	C	CM				
										O	CM				
									LT	C	24				
	DIESEL GENERATOR COMPRESSOR DISCHARGE CHECK VALVE														
1-EG-042	11448-FB -046A	1 OF 3	B-5	CHECK VALVE	0.75	NC	AC		CV	C	CM				
										O	CM				
									LT	C	24				
	DIESEL GENERATOR COMPRESSOR DISCHARGE CHECK VALVE														
1-EG-043	11448-FB -046A	1 OF 3	E-7	AIR PILOT	0	NC	B		EV	O	03				
									ST	O	NA				1
	EMERGENCY DIESEL GENERATOR STARTING AIR/DRIVE AIR CONTROL VALVE														
1-EG-044	11448-FB -046A	1 OF 3	E-3	AIR PILOT	0	NC	B		EV	O	03				
									ST	O	NA				1
	EMERGENCY DIESEL GENERATOR STARTING AIR/DRIVE AIR CONTROL VALVE														
1-EG-045	11448-FB -046A	1 OF 3	E-7	CHECK VALVE	0	NC	C		CV	C	CM				
										O	CM				
	EMERGENCY DIESEL GENERATOR START PRESSURE EQUALIZING CHECK VALVE														
1-EG-046	11448-FB -046A	1 OF 3	E-4	CHECK VALVE	0	NC	C		CV	C	CM				
										O	CM				
	EMERGENCY DIESEL GENERATOR START PRESSURE EQUALIZING CHECK VALVE														
1-EG-SOV-100A	11448-FB -046A	1 OF 3	E-7	SO GATE	1	NC	B		EV	C	03				
										O	03				
									ST	C	NA				1
										O	NA				1
	DIESEL AIR START SYSTEM SOLENOID VALVE														
1-EG-SOV-100B	11448-FB -046A	1 OF 3	E-4	SO GATE	1	NC	B		EV	C	NA				
										O	NA				

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
1-EG-SOV-100B	11448-FB -046A	1 OF 3	E-4	SO GATE	1	NC	B		ST	C	NA				1
										O	NA				1
	DIESEL AIR START SYSTEM SOLENOID VALVE														
3-EG-040	11448-FB -046C	1 OF 3	B-6	CHECK VALVE	0.75	NC	AC		CV	C	CM				
										O	CM				
									LT	C	24				
	DIESEL GENERATOR COMPRESSOR DISCHARGE CHECK VALVE														
3-EG-042	11448-FB -046C	1 OF 3	B-5	CHECK VALVE	0.75	NC	AC		CV	C	CM				
										O	CM				
									LT	C	24				
	DIESEL GENERATOR COMPRESSOR DISCHARGE CHECK VALVE														
3-EG-043	11448-FB -046C	1 OF 3	E-7	AIR PILOT	0	NC	B		EV	O	03				
									ST	O	03				1
	EMERGENCY DIESEL GENERATOR STARTING AIR/DRIVE AIR CONTROL VALVE														
3-EG-044	11448-FB -046C	1 OF 3	E-3	AIR PILOT	0	NC	B		EV	O	03				
									ST	O	03				1
	EMERGENCY DIESEL GENERATOR STARTING AIR/DRIVE AIR CONTROL VALVE														
3-EG-045	11448-FB -046C	1 OF 3	E-7	CHECK VALVE	0	NC	C		CV	C	CM				
										O	CM				
	EMERGENCY DIESEL GENERATOR START PRESSURE EQUALIZING CHECK VALVE														
3-EG-046	11448-FB -046C	1 OF 3	E-4	CHECK VALVE	0	NC	C		CV	C	CM				
										O	CM				
	EMERGENCY DIESEL GENERATOR START PRESSURE EQUALIZING CHECK VALVE														
3-EG-SOV-300A	11448-FB -046C	1 OF 3	E-7	SO GATE	1	NC	B		EV	C	03				
										O	03				
									ST	C	03				1
										O	03				1

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
	DIESEL AIR START SYSTEM SOLENOID VALVE														
3-EG-SOV-300B	11448-FB -046C	1 OF 3	E-4	SO GATE	1	NC	B		EV	C	03				
										O	03				
									ST	C	03				1
										O	03				1
	DIESEL AIR START SYSTEM SOLENOID VALVE														

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
1-FP-151	11448-CBB-047B	1 OF 3	D-5	MAN BALL	4	2	AE	CIV	LT	C	OPB				
	FIRE PROTECTION SUPPLY TO CONTAINMENT, OUTSIDE CONTAINMENT ISOLATION VALVE														
1-FP-152	11448-CBB-047B	1 OF 3	D-5	MAN BALL	4	2	AE	CIV	LT	C	OPB				
	FIRE PROTECTION SUPPLY TO CONTAINMENT, OUTSIDE CONTAINMENT ISOLATION VALVE														

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
1-FW-010	11448-CBM-068A	1 OF 4	E-6	CHECK VALVE	14	2	C		CV	C O	CM CM				
	"A" MAIN FEEDWATER SUPPLY, INSIDE CONTAINMENT PENETRATION CHECK VALVE														
1-FW-012	11448-CBM-068A	1 OF 4	E-5	CHECK VALVE	14	2	C		CV	C O	CM CM				
	"A" MAIN FEEDWATER SUPPLY, OUTSIDE CONTAINMENT PENETRATION CHECK VALVE														
1-FW-027	11448-CBM-068A	1 OF 4	E-6	CHECK VALVE	3	2	C		CV	C O	CM CM				
	"A" AUXILIARY FEEDWATER HEADER CHECK VALVE AT MAIN FEEDWATER HEADER														
1-FW-030	11448-CBM-068A	1 OF 4	B-6	CHECK VALVE	3	2	C		CV	C O	CM CM				
	AUXILIARY FEEDWATER HEADER SUPPLY ISOLATION CHECK VALVE														
1-FW-031	11448-CBM-068A	1 OF 4	B-5	CHECK VALVE	3	2	C		CV	C O	CM CM				
	AUXILIARY FEEDWATER HEADER SUPPLY ISOLATION CHECK VALVE														
1-FW-041	11448-CBM-068A	1 OF 4	B-6	CHECK VALVE	14	2	C		CV	C O	CM CM				
	"B" MAIN FEEDWATER HEADER SUPPLY, INSIDE CONTAINMENT PENETRATION CHECK VALVE														
1-FW-043	11448-CBM-068A	1 OF 4	B-5	CHECK VALVE	14	2	C		CV	C O	CM CM				
	"B" MAIN FEEDWATER SUPPLY, OUTSIDE CONTAINMENT PENETRATION CHECK VALVE														
1-FW-058	11448-CBM-068A	1 OF 4	B-7	CHECK VALVE	3	2	C		CV	C O	CM CM				
	"B" AUXILIARY FEEDWATER HEADER CHECK VALVE AT MAIN FEEDWATER HEADER														

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
1-FW-061	11448-CBM-068A	1 OF 4	B-7	CHECK VALVE	3	2	C		CV	C	CM				
										O	CM				
	AUXILIARY FEEDWATER HEADER SUPPLY ISOLATION CHECK VALVE														
1-FW-062	11448-CBM-068A	1 OF 4	B-6	CHECK VALVE	3	2	C		CV	C	CM				
										O	CM				
	AUXILIARY FEEDWATER HEADER SUPPLY ISOLATION CHECK VALVE														
1-FW-072	11448-CBM-068A	1 OF 4	C-6	CHECK VALVE	14	2	C		CV	C	CM				
										O	CM				
	"C" MAIN FEEDWATER SUPPLY, INSIDE CONTAINMENT PENETRATION CHECK VALVE														
1-FW-074	11448-CBM-068A	1 OF 4	C-5	CHECK VALVE	14	2	C		CV	C	CM				
										O	CM				
	"C" MAIN FEEDWATER SUPPLY, OUTSIDE CONTAINMENT PENETRATION CHECK VALVE														
1-FW-089	11448-CBM-068A	1 OF 4	C-6	CHECK VALVE	3	2	C		CV	C	CM				
										O	CM				
	"C" AUXILIARY FEEDWATER HEADER CHECK VALVE AT MAIN FEEDWATER HEADER														
1-FW-092	11448-CBM-068A	1 OF 4	B-6	CHECK VALVE	3	2	C		CV	C	CM				
										O	CM				
	AUXILIARY FEEDWATER HEADER SUPPLY ISOLATION CHECK VALVE														
1-FW-093	11448-CBM-068A	1 OF 4	B-6	CHECK VALVE	3	2	C		CV	C	CM				
										O	CM				
	AUXILIARY FEEDWATER HEADER SUPPLY ISOLATION CHECK VALVE														
1-FW-131	11448-CBM-068A	1 OF 4	B-4	CHECK VALVE	6	2	C		CV	C	CM				
										O	CM				
	AUXILIARY FEEDWATER HEADER CHECK VALVE AT CONTAINMENT PENETRATION - INSIDE														
1-FW-133	11448-CBM-068A	1 OF 4	B-4	CHECK VALVE	6	2	C		CV	C	CM				
										O	CM				
	AUXILIARY FEEDWATER HEADER CHECK VALVE AT CONTAINMENT PENETRATION - OUTSIDE														

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
1-FW-136	11448-CBM-068A	1 OF 4	A-4	CHECK VALVE	6	2	C		CV	C	CM				
										O	CM				
	AUXILIARY FEEDWATER HEADER CHECK VALVE AT CONTAINMENT PENETRATION - INSIDE														
1-FW-138	11448-CBM-068A	1 OF 4	A-4	CHECK VALVE	6	2	C		CV	C	CM				
										O	CM				
	AUXILIARY FEEDWATER HEADER CHECK VALVE AT CONTAINMENT PENETRATION - OUTSIDE														
1-FW-140	11448-CBM-068A	3 OF 4	E-8	MANUAL GATE	6	3	B		EV	C	24				
	AFW PUMP DISCHARGE HEADER ALIGNMENT/CROSS CONNECT VALVE														
1-FW-141	11448-CBM-068A	3 OF 4	E-7	MANUAL GATE	6	3	B		EV	C	24				
	AFW PUMP DISCHARGE HEADER ALIGNMENT/CROSS CONNECT VALVE														
1-FW-142	11448-CBM-068A	3 OF 4	D-8	CHECK VALVE	6	3	C		CV	C	CM				
										O	CM				
	TURBINE DRIVEN AUXILIARY FEEDWATER PUMP DISCHARGE CHECK														
1-FW-144	11448-CBM-068A	3 OF 4	D-7	CHECK VALVE	1	3	C		CV	C	CM				
										O	CM				
	TURBINE DRIVEN AUXILIARY FEEDWATER PUMP RECIRC LINE CHECK														
1-FW-148	11448-CBM-068A	3 OF 4	E-7	CHECK VALVE	1	3	C		CV	C	CM				
										O	CM				
	AUXILIARY FEEDWATER TO PUMP OIL COOLER CHECK VALVE														
1-FW-155	11448-CBM-068A	3 OF 4	E-6	MANUAL GATE	4	3	B		EV	C	24				
	AFW PUMP DISCHARGE HEADER ALIGNMENT/CROSS CONNECT VALVE														
1-FW-156	11448-CBM-068A	3 OF 4	E-6	MANUAL GATE	4	3	B		EV	C	24				
	AFW PUMP DISCHARGE HEADER ALIGNMENT/CROSS CONNECT VALVE														
1-FW-157	11448-CBM-068A	3 OF 4	D-6	CHECK VALVE	4	3	C		CV	C	CM				
										O	CM				
	"A" MOTOR DRIVEN AUXILIARY FEEDWATER PUMP DISCHARGE CHECK														

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
1-FW-159	11448-CBM-068A	3 OF 4	D-6	CHECK VALVE	1	3	C		CV	C O	CM CM				
	"A" MOTOR DRIVEN AUXILIARY FEEDWATER PUMP RECIRC LINE CHECK VALVE														
1-FW-163	11448-CBM-068A	3 OF 4	E-6	CHECK VALVE	1	3	C		CV	C O	CM CM				
	AUXILIARY FEEDWATER TO PUMP OIL COOLER CHECK VALVE														
1-FW-170	11448-CBM-068A	3 OF 4	E-5	MANUAL GATE	4	3	B		EV	C	24				
	AFW PUMP DISCHARGE HEADER ALIGNMENT/CROSS CONNECT VALVE														
1-FW-171	11448-CBM-068A	3 OF 4	E-5	MANUAL GATE	4	3	B		EV	C	24				
	AFW PUMP DISCHARGE HEADER ALIGNMENT/CROSS CONNECT VALVE														
1-FW-172	11448-CBM-068A	3 OF 4	D-5	CHECK VALVE	4	3	C		CV	C O	CM CM				
	"B" MOTOR DRIVEN AUXILIARY FEEDWATER PUMP DISCHARGE CHECK														
1-FW-174	11448-CBM-068A	3 OF 4	D-5	CHECK VALVE	1	3	C		CV	C O	CM CM				
	"B" MOTOR DRIVEN AUXILIARY FEEDWATER PUMP RECIRC LINE CHECK VALVE														
1-FW-178	11448-CBM-068A	3 OF 4	E-4	CHECK VALVE	1	3	C		CV	C O	CM CM				
	AUXILIARY FEEDWATER TO PUMP OIL COOLER CHECK VALVE														
1-FW-272	11448-CBM-068A	1 OF 4	A-8	CHECK VALVE	6	2	C		CV	C O	CM CM				
	CHECK VALVE AT CONT PENE (CROSS-CONNECT FOR UNIT 1 AUX FEED FROM UNIT 2)														
1-FW-273	11448-CBM-068A	1 OF 4	A-7	CHECK VALVE	6	2	C		CV	C O	CM CM				
	CHECK VALVE AT CONT PENE (CROSS-CONNECT FOR UNIT 1 AUX FEED FROM UNIT 2)														

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
1-FW-309	11448-CBM-068A	1 OF 4	A-5	CHECK VALVE	6	2	C		CV	C	CM				
										O	CM				
	CHECK VALVE AT CONT PENE (CROSS-CONNECT FOR UNIT 1 AUX FEED FROM UNIT 2)														
1-FW-310	11448-CBM-068A	1 OF 4	A-5	CHECK VALVE	6	2	C		CV	C	CM				
										O	CM				
	CHECK VALVE AT CONT PENE (CROSS-CONNECT FOR UNIT 1 AUX FEED FROM UNIT 2)														
1-FW-FCV-1478	11448-CBM-068A	1 OF 4	E-4	AO GATE	14	NC	B		EV	C	CS		14		
									FS	C	CS		14		
									ST	C	NA				3
									VP	OC	24				
	MAIN FEEDWATER REGULATING VALVE														
1-FW-FCV-1488	11448-CBM-068A	1 OF 4	B-4	AO GATE	14	NC	B		EV	C	CS		14		
									FS	C	CS		14		
									ST	C	NA				3
									VP	OC	24				
	MAIN FEEDWATER REGULATING VALVE														
1-FW-FCV-1498	11448-CBM-068A	1 OF 4	D-4	AO GATE	14	NC	B		EV	C	CS		14		
									FS	C	CS		14		
									ST	C	NA				3
									VP	OC	24				
	MAIN FEEDWATER REGULATING VALVE														
1-FW-HCV-155A	11448-CBM-068A	1 OF 4	F-4	AO GATE	4	NC	B		EV	C	CS		14		
									FS	C	CS		14		
									ST	C	NA				3
									VP	OC	24				
	MAIN FEEDWATER REGULATING VALVE BYPASS VALVE														
1-FW-HCV-155B	11448-CBM-068A	1 OF 4	C-4	AO GATE	4	NC	B		EV	C	CS		14		
									FS	C	CS		14		
									ST	C	NA				3
									VP	OC	24				
	MAIN FEEDWATER REGULATING VALVE BYPASS VALVE														

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
1-FW-HCV-155C	11448-CBM-068A	1 OF 4	D-4	AO GATE	4	NC	B		EV	C	CS		14		
									FS	C	CS		14		
									ST	C	NA				3
									VP	OC	24				
	MAIN FEEDWATER REGULATING VALVE BYPASS VALVE														
1-FW-MOV-151A	11448-CBM-068A	1 OF 4	B-6	MO GLOBE	3	2	B		EV	C	03				
										O	03				
									ST	C	03				
										O	03				
									VP	OC	24				
	NORMAL AUXILIARY FEEDWATER SUPPLY TO "C" STEAM GENERATOR														
1-FW-MOV-151B	11448-CBM-068A	1 OF 4	B-6	MO GLOBE	3	2	B		EV	C	03				
										O	03				
									ST	C	03				
										O	03				
									VP	OC	24				
	STANDBY AUXILIARY FEEDWATER SUPPLY TO "C" STEAM GENERATOR														
1-FW-MOV-151C	11448-CBM-068A	1 OF 4	B-7	MO GLOBE	3	2	B		EV	C	03				
										O	03				
									ST	C	03				
										O	03				
									VP	OC	24				
	STANDBY AUXILIARY FEEDWATER SUPPLY TO "B" STEAM GENERATOR														
1-FW-MOV-151D	11448-CBM-068A	1 OF 4	B-7	MO GLOBE	3	2	B		EV	C	03				
										O	03				
									ST	C	03				
										O	03				
									VP	OC	24				
	NORMAL AUXILIARY FEEDWATER SUPPLY TO "B" STEAM GENERATOR														
1-FW-MOV-151E	11448-CBM-068A	1 OF 4	B-6	MO GLOBE	3	2	B		EV	C	03				
										O	03				
									ST	C	03				
										O	03				
									VP	OC	24				
	STANDBY AUXILIARY FEEDWATER SUPPLY TO "A" STEAM GENERATOR														

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
1-FW-MOV-151F	11448-CBM-068A	1 OF 4	B-5	MO GLOBE	3	2	B		EV	C	03				
										O	03				
									ST	C	03				
										O	03				
									VP	OC	24				
	STANDBY AUXILIARY FEEDWATER SUPPLY TO "A" STEAM GENERATOR														
1-FW-MOV-160A	11548-CBM-068A	3 OF 4	F-7	MO GLOBE	6	3	B		EV	O	03				
									ST	O	03				
									VP	OC	24				
	CROSS - CONNECT FOR UNIT 1 AUXILIARY FEEDWATER FROM UNIT 2														
1-FW-MOV-160B	11548-CBM-068A	3 OF 4	F-7	MO GLOBE	6	3	B		EV	O	03				
									ST	O	03				
									VP	OC	24				
	CROSS - CONNECT FOR UNIT 1 AUXILIARY FEEDWATER FROM UNIT 2														

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
1-GW-TV-100	11448-CBM-090C	1 OF 1	C-6	SO GATE	0.375	2	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				
	SUCTION LINE TO HYDROGEN ANALYZER - UNIT 1														
1-GW-TV-101	11448-CBM-090C	1 OF 1	C-6	SO GATE	0.375	2	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				
	SUCTION LINE TO HYDROGEN ANALYZER - UNIT 1														
1-GW-TV-102	11448-CBM-090C	1 OF 1	A-7	SO GATE	0.375	2	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				
	DISCHARGE LINE TO HYDROGEN ANALYZER - UNIT 1														
1-GW-TV-103	11448-CBM-090C	1 OF 1	A-7	SO GATE	0.375	2	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				
	DISCHARGE LINE TO HYDROGEN ANALYZER - UNIT 1														
1-GW-TV-104	11448-CBM-090C	1 OF 1	E-6	SO GATE	0.375	2	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				
	SUPPLY TO UNIT 2 HYDROGEN ANALYZER, OUTSIDE CONTAINMENT ISOLATION VALVE														
1-GW-TV-105	11448-CBM-090C	1 OF 1	E-6	SO GATE	0.375	2	A	CIV	EV	C	03				

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
1-GW-TV-105	11448-CBM-090C	1 OF 1	E-6	SO GATE	0.375	2	A	CIV	FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				
	SUPPLY TO UNIT 2 HYDROGEN ANALYZER, OUTSIDE CONTAINMENT ISOLATION VALVE														
1-GW-TV-106	11448-CBM-090C	1 OF 1	D-7	SO GATE	0.375	2	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				
	RETURN FROM UNIT 2 HYDROGEN ANALYZER, OUTSIDE CONTAINMENT ISOLATION VALVE														
1-GW-TV-107	11448-CBM-090C	1 OF 1	D-7	SO GATE	0.375	2	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				
	RETURN FROM UNIT 2 HYDROGEN ANALYZER, OUTSIDE CONTAINMENT ISOLATION VALVE														
1-GW-TV-111A	11448-CBM-090C	1 OF 1	F-8	SO GATE	0.375	2	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				
	UNIT 1 SAMPLE LINE TO AIR SAMPLE PANEL, INSIDE CONTAINMENT ISOLATION VALVE														
1-GW-TV-111B	11448-CBM-090C	1 OF 1	F-7	SO GATE	0.375	2	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
	UNIT 1 SAMPLE LINE TO AIR SAMPLE PANEL, OUTSIDE CONTAINMENT ISOLATION VALVE														

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
1-IA-446	11448-CBM-075C	1 OF 5	D-8	MAN GATE	2	2	AE	CIV	LT	C	OPB				
	BACKUP INSTRUMENT AIR TO CONTAINMENT														
1-IA-704	11548-CBM-075B	2 OF 2	C-3	MAN GATE	2	2	AE	CIV	LT	C	OPB				
	BACKUP INSTRUMENT AIR TO CONTAINMENT														
1-IA-928	11448-FM -075E	2 OF 2	B-7	CHECK VALVE	0.75	NC	AC		CV	C	CM				
										O	CM				
									LT	C	24				
	BOTTLED AIR SUPPLY TO 1-RC-PCV-1456 ISOLATION CHECK VALVE														
1-IA-938	11448-CBM-075C	1 OF 5	F-7	CHECK VALVE	2	2	AC	CIV	CV	C	CM				
										O	CM				
									LT	C	OPB				
	INSTRUMENT AIR SUPPLY TO CONTAINMENT, INSIDE CONTAINMENT ISOLATION CHECK VALVE														
1-IA-939	11448-CBM-075C	1 OF 5	F-7	CHECK VALVE	2	2	AC	CIV	CV	C	CM				
										O	CM				
									LT	C	OPB				
	INSTRUMENT AIR SUPPLY TO CONTAINMENT, INSIDE CONTAINMENT ISOLATION CHECK VALVE														
1-IA-947	11448-FM -075C	3 OF 5	D-4	CHECK VALVE	0.5	NC	AC		CV	C	CM				
										O	CM				
									LT	C	24				
	BOTTLED AIR SUPPLY TO 1-MS-PCV-102A,B ISOLATION CHECK VALVE														
1-IA-948	11448-FM -075C	3 OF 5	D-4	CHECK VALVE	0.5	NC	C		CV	C	CM				
										O	CM				
	BOTTLED AIR SUPPLY TO 1-MS-PCV-102A,B SUPPLY CHECK VALVE														
1-IA-949	11448-FM -075E	2 OF 2	B-6	CHECK VALVE	0.75	NC	C		CV	C	CM				
										O	CM				
	BOTTLED AIR SUPPLY TO 1-RC-PCV-1456 SUPPLY CHECK VALVE														
1-IA-952	11448-FM -075E	2 OF 2	B-5	CHECK VALVE	0.75	NC	AC		CV	C	CM				

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
1-IA-952	11448-FM -075E	2 OF 2	B-5	CHECK VALVE	0.75	NC	AC		CV	O	CM				
									LT	C	24				
	BOTTLED AIR SUPPLY TO 1-RC-PCV-1455C ISOLATION CHECK VALVE														
1-IA-953	11448-FM -075E	2 OF 2	B-5	CHECK VALVE	0.75	NC	C		CV	C	CM				
										O	CM				
	BOTTLED AIR SUPPLY TO 1-RC-PCV-1455C SUPPLY CHECK VALVE														
1-IA-RV-114	11448-FM -075E	2 OF 2	B-7	RELIEF VALVE	0	NC	C		SP	O	120				
	BOTTLED AIR SUPPLY TO PORV'S RELIEF VALVE														
1-IA-RV-115	11448-FM -075E	2 OF 2	A-5	RELIEF VALVE	0	NC	C		SP	O	120				
	BOTTLED AIR SUPPLY TO PORV'S RELIEF VALVE														
1-IA-RV-126	11448-FM -075E	2 OF 2	B-5	RELIEF VALVE	0.75	NC	C		SP	O	120				
	BOTTLED AIR SUPPLY TO PORV'S RELIEF VALVE														
1-IA-RV-127	11448-FM -075E	2 OF 2	B-6	RELIEF VALVE	0.75	NC	C		SP	O	120				
	BOTTLED AIR SUPPLY TO PORV'S RELIEF VALVE														
1-IA-TV-100	11448-CBM-075C	1 OF 5	E-8	AO GATE	2	2	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				
	INSTRUMENT AIR SUPPLY TO CONTAINMENT, OUTSIDE CONTAINMENT ISOLATION VALVE														
1-IA-TV-101A	11448-CBM-075J	1 OF 1	A-3	AO GATE	3	2	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				
	INSTRUMENT AIR SUCTION FROM CONTAINMENT														
1-IA-TV-101B	11448-CBM-075J	1 OF 1	A-3	AO GATE	3	2	A	CIV	EV	C	03				
									FS	C	03				

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
1-IA-TV-101B	11448-CBM-075J	1 OF 1	A-3	AO GATE	3	2	A	CIV	LT	C	OPB				
									ST	C	03				
									VP	OC	24				
	INSTRUMENT AIR SUCTION FROM CONTAINMENT														

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
1-LM-TV-100A	11448-CBM-085A	1 OF 2	B-6	AO GATE	0.375	2	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				
	CONTAINMENT LEAKAGE MONITORING OPEN SYSTEM SUPPLY, OUTSIDE CONTAINMENT ISOLATION VALVE														
1-LM-TV-100B	11448-CBM-085A	1 OF 2	B-6	AO GATE	0.375	2	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				
	CONTAINMENT LEAKAGE MONITORING OPEN SYSTEM SUPPLY, OUTSIDE CONTAINMENT ISOLATION VALVE														
1-LM-TV-100C	11448-CBM-085A	1 OF 2	B-5	AO GATE	0.375	2	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				
	CONTAINMENT LEAKAGE MONITORING OPEN SYSTEM SUPPLY, OUTSIDE CONTAINMENT ISOLATION VALVE														
1-LM-TV-100D	11448-CBM-085A	1 OF 2	B-5	AO GATE	0.375	2	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				
	CONTAINMENT LEAKAGE MONITORING OPEN SYSTEM SUPPLY, OUTSIDE CONTAINMENT ISOLATION VALVE														
1-LM-TV-100E	11448-CBM-085A	1 OF 2	B-4	AO GATE	0.375	2	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
	CONTAINMENT LEAKAGE MONITORING OPEN SYSTEM SUPPLY, OUTSIDE CONTAINMENT ISOLATION VALVE														
1-LM-TV-100F	11448-CBM-085A	1 OF 2	B-5	AO GATE	0.375	2	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				
	CONTAINMENT LEAKAGE MONITORING OPEN SYSTEM SUPPLY, OUTSIDE CONTAINMENT ISOLATION VALVE														
1-LM-TV-100G	11448-CBM-085A	1 OF 2	B-6	AO GATE	0.375	2	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				
	CONTAINMENT LEAKAGE MONITORING OPEN SYSTEM SUPPLY, OUTSIDE CONTAINMENT ISOLATION VALVE														
1-LM-TV-100H	11448-CBM-085A	1 OF 2	B-7	AO GATE	0.375	2	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				
	CONTAINMENT LEAKAGE MONITORING OPEN SYSTEM SUPPLY, OUTSIDE CONTAINMENT ISOLATION VALVE														

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
1-MS-087	11448-CBM-064A	1 OF 6	C-6	MANUAL GATE	4	2	B		EV	C	24				
	MAIN STEAM LINE TO TURBINE DRIVEN AUXILARY FEEDWATER PUMP ISOLATION VALVE														
1-MS-120	11448-CBM-064A	2 OF 6	C-6	MANUAL GATE	4	2	B		EV	C	24				
	MAIN STEAM LINE TO TURBINE DRIVEN AUXILIARY FEEDWATER PUMP ISOLATION VALVE														
1-MS-158	11448-CBM-064A	3 OF 6	C-6	MANUAL GATE	4	2	B		EV	C	24				
	MAIN STEAM LINE TO TURBINE DRIVEN AUXILIARY FEEDWATER PUMP ISOLATION VALVE														
1-MS-176	11448-CBM-064A	4 OF 6	C-7	CHECK VALVE	3	2	C		CV	C	CM				
										O	CM				
	"A" MAIN STEAM HEADER SUPPLY CHECK VALVE TO TURBINE DRIVEN AUXILIARY FEEDWATER PUMP														
1-MS-178	11448-CBM-064A	4 OF 6	D-7	CHECK VALVE	3	2	C		CV	C	CM				
										O	CM				
	"B" MAIN STEAM HEADER SUPPLY CHECK VALVE TO TURBINE DRIVEN AUXILIARY FEEDWATER PUMP														
1-MS-182	11448-CBM-064A	4 OF 6	D-7	CHECK VALVE	3	2	C		CV	C	CM				
										O	CM				
	"C" MAIN STEAM HEADER SUPPLY CHECK VALVE TO TURBINE DRIVEN AUXILIARY FEEDWATER PUMP														
1-MS-NRV-101A	11448-CBM-064A	1 OF 6	E-4	MO STOP CHECK	30	NC	C		CV	C	CM				
										O	CM				
									VP	OC	24				
	"A" MAIN STEAM HEADER NON-RETURN VALVE														
1-MS-NRV-101B	11448-CBM-064A	2 OF 6	D-3	MO STOP CHECK	30	NC	C		CV	C	CM				
										O	CM				
									VP	OC	24				
	"B" MAIN STEAM HEADER NON-RETURN VALVE														
1-MS-NRV-101C	11448-CBM-064A	3 OF 6	D-3	MO STOP CHECK	30	NC	C		CV	C	CM				

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
1-MS-NRV-101C	11448-CBM-064A	3 OF 6	D-3	MO STOP CHECK	30	NC	C		CV	O	CM				
									VP	OC	24				
	"C" MAIN STEAM HEADER NON-RETURN VALVE														
1-MS-PCV-102A	11448-CBM-064A	4 OF 6	C-4	AO GATE	3	2	B		EV	C	03				
										O	03				
									FS	O	03				
									ST	C	03				
										O	03				
									VP	OC	24				
	MAIN STEAM SUPPLY TRIP VALVE TO TURBINE DRIVEN AUXILIARY FEEDWATER PUMP														
1-MS-PCV-102B	11448-CBM-064A	4 OF 6	D-5	AO GATE	3	2	B		EV	C	03				
										O	03				
									FS	O	03				
									ST	C	03				
										O	03				
									VP	OC	24				
	MAIN STEAM SUPPLY TRIP VALVE TO TURBINE DRIVEN AUXILIARY FEEDWATER PUMP														
1-MS-RV-101A	11448-CBM-064A	1 OF 6	E-5	AO ANGLE	4	2	B		EV	C	RR			3	
									FS	C	RR			3	
									ST	C	NA	NOTE 1			
									VP	OC	24				
	"A" MAIN STEAM HEADER DISCHARGE TO ATMOSPHERE POWER OPERATED RELIEF VALVE														
1-MS-RV-101B	11448-CBM-064A	2 OF 6	E-6	AO ANGLE	4	2	B		EV	C	RR			3	
									FS	C	RR			3	
									ST	C	NA	NOTE 1			
									VP	OC	24				
	"B" MAIN STEAM HEADER DISCHARGE TO ATMOSPHERE POWER OPERATED RELIEF VALVE														
1-MS-RV-101C	11448-CBM-064A	3 OF 6	E-5	AO ANGLE	4	2	B		EV	C	RR			3	
									FS	C	RR			3	

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
1-MS-RV-101C	11448-CBM-064A	3 OF 6	E-5	AO ANGLE	4	2	B		ST VP	C OC	NA 24	NOTE 1			
	"C" MAIN STEAM HEADER DISCHARGE TO ATMOSPHERE POWER OPERATED RELIEF VALVE														
1-MS-SV-101A	11448-CBM-064A	1 OF 6	E-6	SAFETY VALVE	4	2	C		SP	O	60				
	"A" MAIN STEAM HEADER SAFETY VALVE, SV DISCHARGE TO ATMOS														
1-MS-SV-101B	11448-CBM-064A	2 OF 6	D-6	SAFETY VALVE	4	2	C		SP	O	60				
	"B" MAIN STEAM HEADER SAFETY VALVE, SV DISCHARGE TO ATMOS														
1-MS-SV-101C	11448-CBM-064A	3 OF 6	D-6	SAFETY VALVE	4	2	C		SP	O	60				
	"C" MAIN STEAM HEADER SAFETY VALVE, SV DISCHARGE TO ATMOS														
1-MS-SV-102A	11448-CBM-064A	1 OF 6	E-6	SAFETY VALVE	6	2	C		SP	O	60				
	"A" MAIN STEAM HEADER SAFETY VALVE, SV DISCHARGE TO ATMOS														
1-MS-SV-102B	11448-CBM-064A	2 OF 6	D-5	SAFETY VALVE	6	2	C		SP	O	60				
	"B" MAIN STEAM HEADER SAFETY VALVE, SV DISCHARGE TO ATMOS														
1-MS-SV-102C	11448-CBM-064A	3 OF 6	D-6	SAFETY VALVE	6	2	C		SP	O	60				
	"C" MAIN STEAM HEADER SAFETY VALVE, SV DISCHARGE TO ATMOS														
1-MS-SV-103A	11448-CBM-064A	1 OF 6	E-6	SAFETY VALVE	6	2	C		SP	O	60				
	"A" MAIN STEAM HEADER SAFETY VALVE, SV DISCHARGE TO ATMOS														
1-MS-SV-103B	11448-CBM-064A	2 OF 6	D-6	SAFETY VALVE	6	2	C		SP	O	60				
	"B" MAIN STEAM HEADER SAFETY VALVE, SV DISCHARGEE TO ATMOS														
1-MS-SV-103C	11448-CBM-064A	3 OF 6	D-6	SAFETY VALVE	6	2	C		SP	O	60				
	"C" MAIN STEAM HEADER SAFETY VALVE, SV DISCHARGE TO ATMOS														
1-MS-SV-104A	11448-CBM-064A	1 OF 6	E-6	SAFETY VALVE	6	2	C		SP	O	60				
	"A" MAIN STEAM HEADER SAFETY VALVE, SV DISCHARGE TO ATMOS														
1-MS-SV-104B	11448-CBM-064A	2 OF 6	D-6	SAFETY VALVE	6	2	C		SP	O	60				

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
	"B" MAIN STEAM HEADER SAFETY VALVE, SV DISCHARGE TO ATMOS														
1-MS-SV-104C	11448-CBM-064A	3 OF 6	D-6	SAFETY VALVE	6	2	C		SP	O	60				
	"C" MAIN STEAM HEADER SAFETY VALVE, SV DISCHARGE TO ATMOS														
1-MS-SV-105A	11448-CBM-064A	1 OF 6	E-5	SAFETY VALVE	6	2	C		SP	O	60				
	"A" MAIN STEAM HEADER SAFETY VALVE, SV DISCHARGE TO ATMOS														
1-MS-SV-105B	11448-CBM-064A	2 OF 6	D-5	SAFETY VALVE	6	2	C		SP	O	60				
	"B" MAIN STEAM HEADER SAFETY VALVE, SV DISCHARGE TO ATMOS														
1-MS-SV-105C	11448-CBM-064A	3 OF 6	D-5	SAFETY VALVE	6	2	C		SP	O	60				
	"C" MAIN STEAM HEADER SAFETY VALVE, SV DISCHARGE TO ATMOS														
1-MS-TV-101A	11448-CBM-064A	1 OF 6	D-4	AO CHECK VALVE	30	2	B		EV	C	CS		1		
									ST	C	CS		1		
									VP	OC	24				
	"A" MAIN STEAM HEADER TRIP VALVE														
1-MS-TV-101B	11448-CBM-064A	2 OF 6	C-4	AO CHECK VALVE	30	2	B		EV	C	CS		1		
									ST	C	CS		1		
									VP	OC	24				
	"B" MAIN STEAM HEADER TRIP VALVE														
1-MS-TV-101C	11448-CBM-064A	3 OF 6	C-4	AO CHECK VALVE	30	2	B		EV	C	CS		1		
									ST	C	CS		1		
									VP	OC	24				
	"C" MAIN STEAM HEADER TRIP VALVE														

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
1-RC-160	11448-CBM-086B	2 OF 3	D-7	CHECK VALVE	3	2	AC	CIV	CV	C	CM				
										O	CM				
									LT	C	OPB				
	PRIMARY GRADE WATER SUPPLY TO PRESSURIZER RELIEF TANK														
1-RC-HCV-1556A	11448-CBM-086A	1 OF 3	E-8	AO PLUG	2	1	E		VP	OC	24				
	LOOP FILL BOUNDARY VALVE														
1-RC-HCV-1556B	11448-CBM-086A	2 OF 3	D-8	AO PLUG	2	1	E		VP	OC	24				
	LOOP FILL BOUNDARY VALVE														
1-RC-HCV-1556C	11448-CBM-086A	3 OF 3	D-3	AO PLUG	2	1	E		VP	OC	24				
	LOOP FILL BOUNDARY VALVE														
1-RC-MOV-1535	11448-CBM-086B	1 OF 3	E-4	MO GATE	3	1	B		EV	C	03				
										O	03				
									ST	C	03				
										O	03				
									VP	OC	24				
	BLOCK VALVE FOR PRESSURIZER POWER OPERATED RELIEF VALVE														
1-RC-MOV-1536	11448-CBM-086B	1 OF 3	D-4	MO GATE	3	1	B		EV	C	03				
										O	03				
									ST	C	03				
										O	03				
									VP	OC	24				
	BLOCK VALVE FOR PRESSURIZER POWER OPERATED RELIEF VALVE														
1-RC-PCV-1455C	11448-CBM-086B	1 OF 3	D-3	AO PLUG	3	1	BC		EV	C	CS		3		
										O	CS		3		
									FS	C	CS		3		
									ST	C	CS		3		
										O	CS		3		
									VP	OC	24				

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
	PRESSURIZER POWER OPERATED PRESSURE CONTROL VALVE DISCHARGE TO PRESSURIZER RELIEF TANK														
1-RC-PCV-1456	11448-CBM-086B	1 OF 3	E-3	AO PLUG	3	1	BC		EV	C	CS		3		
										O	CS		3		
									FS	C	CS		3		
									ST	C	CS		3		
										O	CS		3		
									VP	OC	24				
	PRESSURIZER POWER OPERATED PRESSURE CONTROL VALVE DISCHARGE TO PRESSURIZER RELIEF TANK														
1-RC-SOV-100A1	11448-CBM-086A	3 OF 3	B-5	SO GATE	1	1	B		EV	C	CS		16		
										O	CS		16		
									FS	C	CS		16		
									ST	C	CS		16		
										O	CS		16		
									VP	OC	24				
	REACTOR VESSEL VENT LINE ISOLATION VALVE TO REFUELING CAVITY														
1-RC-SOV-100A2	11448-CBM-086A	3 OF 3	A-5	SO GATE	1	1	B		EV	C	CS		16		
										O	CS		16		
									FS	C	CS		16		
									ST	C	CS		16		
										O	CS		16		
									VP	OC	24				
	REACTOR VESSEL VENT LINE ISOLATION VALVE TO REFUELING CAVITY														
1-RC-SOV-100B1	11448-CBM-086A	3 OF 3	B-5	SO GATE	1	1	B		EV	C	CS		16		
										O	CS		16		
									FS	C	CS		16		
									ST	C	CS		16		
										O	CS		16		
									VP	OC	24				
	REACTOR VESSEL VENT LINE ISOLATION VALVE TO REFUELING CAVITY														

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
1-RC-SOV-100B2	11448-CBM-086A	3 OF 3	A-5	SO GATE	1	1	B		EV	C	CS		16		
										O	CS		16		
									FS	C	CS		16		
									ST	C	CS		16		
										O	CS		16		
									VP	OC	24				
	REACTOR VESSEL VENT LINE ISOLATION VALVE TO REFUELING CAVITY														
1-RC-SV-1551A	11448-CBM-086B	1 OF 3	E-6	SAFETY VALVE	6	1	C		SP	O	60				
	PRESSURIZER SAFETY VALVE, SV DISCHARGE TO PRESSURIZER RELIEF TANK														
1-RC-SV-1551B	11448-CBM-086B	1 OF 3	E-5	SAFETY VALVE	6	1	C		SP	O	60				
	PRESSURIZER SAFETY VALVE, SV DISCHARGE TO PRESSURIZER RELIEF TANK														
1-RC-SV-1551C	11448-CBM-086B	1 OF 3	E-5	SAFETY VALVE	6	1	C		SP	O	60				
	PRESSURIZER SAFETY VALVE, SV DISCHARGE TO PRESSURIZER RELIEF TANK														
1-RC-TV-1519A	11448-CBM-086B	2 OF 3	D-7	AO GATE	3	2	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				
	PRIMARY GRADE WATER SUPPLY TO PRT-#2 RCP SEAL STANDPIPES & FLUSH CONNECT, OUT CONT ISO VLV														

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
1-RH-005	11448-CBM-087A	1 OF 2	E-5	CHECK VALVE	10	2	C		CV	C	CM				
										O	CM				
	"B" RHR PUMP DISCHARGE CHECK VALVE														
1-RH-011	11448-CBM-087A	1 OF 2	E-7	CHECK VALVE	10	2	C		CV	C	CM				
										O	CM				
	"A" RHR PUMP DISCHARGE CHECK VALVE														
1-RH-047	11448-CBM-087A	2 OF 2	D-4	MANUAL GATE	6	2	AE	CIV	LT	C	OPB				
	RHR SUPPLY TO REFUEL WATER STORAGE TANK, INSIDE CONTAINMENT ISOLATION VALVE														
1-RH-100	11448-CBM-087A	2 OF 2	E-3	MANUAL GATE	6	2	AE	CIV	LT	C	OPB				
	RHR SUPPLY ISOLATION TO REFUEL WATER STORAGE TANK, OUTSIDE CONTAINMENT ISOLATION VALVE														
1-RH-MOV-1700	11448-CBM-087A	1 OF 2	A-5	MO GATE	14	1	B		EV	O	RR			1	
									ST	O	RR			1	
									VP	OC	24				
	RHR PUMP SUPPLY ISOLATION FROM RC LOOP 1 HOT LEG														
1-RH-MOV-1701	11448-CBM-087A	1 OF 2	A-4	MO GATE	14	1	B		EV	O	RR			1	
									ST	O	RR			1	
									VP	OC	24				
	RHR PUMP SUPPLY ISOLATION FROM RC LOOP 1 HOT LEG														
1-RH-MOV-1720A	11448-CBM-087A	2 OF 2	C-3	MO GATE	10	1	B		EV	O	RR			1	
									ST	O	RR			1	
									VP	OC	24				
	RHR RETURN ISOLATION TO "B" ACCUMULATOR DISCHARGE LINE														
1-RH-MOV-1720B	11448-CBM-087A	2 OF 2	B-3	MO GATE	10	1	B		EV	O	RR			1	
									ST	O	RR			1	
									VP	OC	24				
	RHR RETURN ISOLATION TO "C" ACCUMULATOR DISCHARGE LINE														
1-RH-RV-1721	11448-CBM-087A	2 OF 2	D-4	RELIEF VALVE	3	2	C		SP	O	120				

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
	RHR SYSTEM RELIEF VALVE														

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
1-RL-003	11448-CBM-118A	2 OF 3	D-3	MAN DIAPHRAGM	3	2	AE	CIV	LT	C	OPB				
	REFUELING PURIFICATION FROM RP PUMPS TO REACTOR CAVITY, OUTSIDE CONT ISOLATION VALVE														
1-RL-005	11448-CBM-118A	2 OF 3	D-5	MAN DIAPHRAGM	3	2	AE	CIV	LT	C	OPB				
	REFUELING PURIFICATION FROM RP PUMPS TO REACTOR CAVITY, INSIDE CONT ISOLATION VALVE														
1-RL-013	11448-CBM-118A	2 OF 3	B-4	MAN DIAPHRAGM	3	2	AE	CIV	LT	C	OPB				
	REFUELING PURIFICATION FROM REACTOR CAVITY TO RP PUMPS, INSIDE CONT ISOLATION VALVE														
1-RL-015	11448-CBM-118A	2 OF 3	B-3	MAN DIAPHRAGM	3	2	AE	CIV	LT	C	OPB				
	REFUELING PURIFICATION FROM REACTOR CAVITY TO RP PUMPS, OUTSIDE CONT ISOLATION VALVE														

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
1-RM-003	11448-CBM-130B	1 OF 1	B-5	CHECK VALVE	0.75	2	AC	CIV	CV	C	CM				
										O	CM				
									LT	C	OPB				
	RETURN TO CONTAINMENT FROM RADIATION MONITORING CABINET, INSIDE CONT ISOL CHECK VALVE														
1-RM-TV-100A	11448-CBM-130B	1 OF 1	B-4	AO GATE	0.75	2	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				
	RETURN ISOLATION FROM AIR RADIATION MONITOR TO CONTAINMENT, OUTSIDE CONT ISOLATION VALVE														
1-RM-TV-100B	11448-CBM-130B	1 OF 1	F-8	AO GATE	0.75	2	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				
	SUPPLY ISOL TO AIR RAD MONITOR FROM CONTAINMENT VENT DUCT, OUTSIDE CONT ISOLATION VALVE														
1-RM-TV-100C	11448-CBM-130B	1 OF 1	E-8	AO GATE	0.75	2	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				
	SUPPLY ISOL TO AIR RAD MONITOR FROM CONTAINMENT VENT DUCT, INSIDE CONT ISOLATION VALVE														

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
1-RS-011	11448-CBM-084B	2 OF 2	E-4	CHECK VALVE	10	2	AC	CIV	CV	C	CM				
										O	CM				
									LT	C	OPB				
	"B" OUTSIDE RECIRC SPRAY PUMP INSIDE CONTAINMENT ISOLATION CHECK VALVE														
1-RS-017	11448-CBM-084B	2 OF 2	D-5	CHECK VALVE	10	2	AC	CIV	CV	C	CM				
										O	CM				
									LT	C	OPB				
	"A" OUTSIDE RECIRC SPRAY PUMP INSIDE CONTAINMENT ISOLATION CHECK VALVE														
1-RS-132	11448-CBM-084B	1 OF 2	C-4	CHECK VALVE	3	2	AC		CV	C	CM				
										O	CM				
									LT	C	24				
	RECIRCULATION SPRAY BLEED LINE CHECK VALVE														
1-RS-135	11448-CBM-084B	1 OF 2	C-6	CHECK VALVE	3	2	AC		CV	C	CM				
										O	CM				
									LT	C	24				
	RECIRCULATION SPRAY BLEED LINE CHECK VALVE														
1-RS-MOV-155A	11448-CBM-084B	2 OF 2	B-6	MO PLUG	12	2	B		EV	C	03				
										O	03				
									ST	C	03				
										O	03				
									VP	OC	24				
	"A" OUTSIDE RECIRC SPRAY PUMP SUCTION ISOLATION VALVE FROM CONTAINMENT SUMP														
1-RS-MOV-155B	11448-CBM-084B	2 OF 2	B-6	MO PLUG	12	2	B		EV	C	03				
										O	03				
									ST	C	03				
										O	03				
									VP	OC	24				
	"B" OUTSIDE RECIRC SPRAY PUMP SUCTION ISOLATION VALVE FROM CONTAINMENT SUMP														

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
1-RS-MOV-156A	11448-CBM-084B	2 OF 2	D-6	MO BFLY	10	2	A	CIV	EV	C	03				
										O	03				
									LT	C	OPB				
									ST	C	03				
										O	03				
									VP	OC	24				
	"A" OUTSIDE RECIRC SPRAY PUMP DISCHARGE ISOLATION, OUTSIDE CONTAINMENT ISOLATION VALVE														
1-RS-MOV-156B	11448-CBM-084B	2 OF 2	E-6	MO BFLY	10	2	A	CIV	EV	C	03				
										O	03				
									LT	C	OPB				
									ST	C	03				
										O	03				
									VP	OC	24				
	"A" OUTSIDE RECIRC SPRAY PUMP DISCHARGE ISOLATION, OUTSIDE CONTAINMENT ISOLATION VALVE														

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
1-RT-02	11448-CBM-124A	1 OF 4	E-7	MANUAL GLOBE	3	2	AE	CIV	LT	C	OPB				
	STEAM GENERATOR RECIRCULATION INSIDE CONTAINMENT ISOLATION VALVE														
1-RT-06	11448-CBM-124A	1 OF 4	E-6	MANUAL BALL	3	2	AE	CIV	LT	C	OPB				
	STEAM GENERATOR RECIRCULATION OUTSIDE CONTAINMENT ISOLATION VALVE														
1-RT-21	11448-CBM-124A	2 OF 4	E-7	MANUAL GLOBE	3	2	AE	CIV	LT	C	OPB				
	STEAM GENERATOR RECIRCULATION INSIDE CONTAINMENT ISOLATION VALVE														
1-RT-25	11448-CBM-124A	2 OF 4	E-6	MANUAL BALL	3	2	AE	CIV	LT	C	OPB				
	STEAM GENERATOR RECIRCULATION OUTSIDE CONTAINMENT ISOLATION VALVE														
1-RT-40	11448-CBM-124A	3 OF 4	E-7	MANUAL GLOBE	3	2	AE	CIV	LT	C	OPB				
	STEAM GENERATOR RECIRCULATION INSIDE CONTAINMENT ISOLATION VALVE														
1-RT-44	11448-CBM-124A	3 OF 4	E-6	MANUAL BALL	3	2	AE	CIV	LT	C	OPB				
	STEAM GENERATOR RECIRCULATION OUTSIDE CONTAINMENT ISOLATION VALVE														

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
1-SA-060	11448-CBM-075G	1 OF 1	C-7	MAN GATE	2	2	AE	CIV	LT	C	OPB				
	SERVICE AIR SUPPLY TO UNIT 1 CONTAINMENT, INSIDE CONTAINMENT ISOLATION VALVE														
1-SA-062	11448-CBM-075G	1 OF 1	C-7	MAN GATE	2	2	AE	CIV	LT	C	OPB				
	SERVICE AIR SUPPLY TO UNIT 1 CONTAINMENT, OUTSIDE CONTAINMENT ISOLATION VALVE														

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
1-SI-025	11448-CBM-089A	1 OF 3	F-5	CHECK VALVE	8	2	AC		CV	C	CM				
										O	CM				
									LT	C	24	1			
	RWST SUPPLY CHECK VALVE TO CHARGING PUMP SUCTION HEADER														
1-SI-032	11448-CBM-089A	1 OF 3	E-7	MAN GLOBE	1	2	AE	CIV	LT	C	OPB				
	ACCUMULATOR MAKEUP LINE, OUTSIDE CONTAINMENT ISOLATION VALVE														
1-SI-046A	11448-CBM-089A	1 OF 3	A-3	CHECK VALVE	12	2	C		CV	C	CM				
										O	CM				
	RWST SUPPLY CHECK VALVE TO "A" LOW HEAD SI PUMP SUCTION														
1-SI-046B	11448-CBM-089A	1 OF 3	B-3	CHECK VALVE	12	2	C		CV	C	CM				
										O	CM				
	RWST SUPPLY CHECK VALVE TO "B" LOW HEAD SI PUMP SUCTION														
1-SI-047	11448-CBM-089A	1 OF 3	B-5	CHECK VALVE	12	2	C		CV	C	CM				
										O	CM				
	"B" LOW HEAD SI PUMP SUCTION CHECK VALVE FROM CONTAINMENT														
1-SI-050	11448-CBM-089A	1 OF 3	C-4	CHECK VALVE	10	2	C		CV	C	CM				
										O	CM				
	"B" LOW HEAD SI PUMP DISCHARGE CHECK VALVE														
1-SI-053	11448-CBM-089A	2 OF 3	C-4	CHECK VALVE	2	2	C		CV	C	CM				
										O	CM				
	"B" LOW HEAD SI PUMP MINIMUM FLOW/TEST LINE DISCHARGE CHECK														
1-SI-056	11448-CBM-089A	1 OF 3	B-7	CHECK VALVE	12	2	C		CV	C	CM				
										O	CM				
	"A" LOW HEAD SI PUMP SUCTION CHECK VALVE FROM CONTAINMENT														
1-SI-058	11448-CBM-089A	1 OF 3	C-6	CHECK VALVE	10	2	C		CV	C	CM				
										O	CM				
	"A" LOW HEAD SI PUMP DISCHARGE CHECK VALVE														
1-SI-061	11448-CBM-089A	2 OF 3	B-7	CHECK VALVE	2	2	C		CV	C	CM				

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
1-SI-061	11448-CBM-089A	2 OF 3	B-7	CHECK VALVE	2	2	C		CV	O	CM				
	"A" LOW HEAD SI PUMP MINIMUM FLOW/TEST LINE DISCHARGE CHECK														
1-SI-073	11448-CBM-089A	2 OF 3	F-7	MAN GLOBE	0.75	2	AE	CIV	LT	C	OPB				
	ACCUMULATOR TEST LINE, OUTSIDE CONTAINMENT ISOLATION VALVE														
1-SI-079	11448-CBM-089B	4 OF 4	F-7	CHECK VALVE	6	1	AC	PIV	CV	C	CM				
										O	CM				
									LT	C	24				
	RCS COLD LEG SI ADMISSION CHECK VALVE														
1-SI-082	11448-CBM-089B	4 OF 4	E-7	CHECK VALVE	6	1	AC	PIV	CV	C	CM				
										O	CM				
									LT	C	24				
	RCS COLD LEG SI ADMISSION CHECK VALVE														
1-SI-085	11448-CBM-089B	4 OF 4	D-7	CHECK VALVE	6	1	AC	PIV	CV	C	CM				
										O	CM				
									LT	C	24				
	RCS COLD LEG SI ADMISSION CHECK VALVE														
1-SI-088	11448-CBM-089B	4 OF 4	D-7	CHECK VALVE	6	1	C		CV	C	CM				
										O	CM				
	RCS HOT LEG SI ADMISSION CHECK VALVE														
1-SI-091	11448-CBM-089B	4 OF 4	C-7	CHECK VALVE	6	1	C		CV	C	CM				
										O	CM				
	RCS HOT LEG SI ADMISSION CHECK VALVE														
1-SI-094	11448-CBM-089B	4 OF 4	B-7	CHECK VALVE	6	1	C		CV	C	CM				
										O	CM				
	RCS HOT LEG SI ADMISSION CHECK VALVE														
1-SI-107	11448-CBM-089B	1 OF 4	B-7	CHECK VALVE	12	1	C		CV	C	CM				
										O	CM				
	"A" ACCUMULATOR DISCHARGE CHECK VALVE														

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
1-SI-109	11448-CBM-089B	1 OF 4	B-8	CHECK VALVE	12	1	C		CV	C	CM				
										O	CM				
	"A" ACCUMULATOR COLD LEG ADMISSION CHECK VALVE														
1-SI-128	11448-CBM-089B	2 OF 4	B-6	CHECK VALVE	12	1	C		CV	C	CM				
										O	CM				
	"B" ACCUMULATOR DISCHARGE CHECK VALVE														
1-SI-130	11448-CBM-089B	2 OF 4	B-7	CHECK VALVE	12	1	C		CV	C	CM				
										O	CM				
	"B" ACCUMULATOR COLD LEG ADMISSION CHECK VALVE														
1-SI-145	11448-CBM-089B	3 OF 4	B-5	CHECK VALVE	12	1	C		CV	C	CM				
										O	CM				
	"C" ACCUMULATOR DISCHARGE CHECK VALVE														
1-SI-147	11448-CBM-089B	3 OF 4	B-7	CHECK VALVE	12	1	C		CV	C	CM				
										O	CM				
	"C" ACCUMULATOR COLD LEG ADMISSION CHECK VALVE														
1-SI-224	11448-CBM-089B	4 OF 4	F-3	CHECK VALVE	3	2	C		CV	C	CM				
										O	CM				
	HIGH HEAD SI FROM CHARGING PUMPS TO RCS COLD LEGS, INSIDE CONT CHECK VALVE														
1-SI-225	11448-CBM-089B	4 OF 4	E-3	CHECK VALVE	3	2	C		CV	C	CM				
										O	CM				
	HIGH HEAD SI FROM CHARGING PUMPS TO RCS COLD LEGS, INSIDE CONT CHECK VALVE														
1-SI-226	11448-CBM-089B	4 OF 4	C-3	CHECK VALVE	3	2	C		CV	C	CM				
										O	CM				
	HIGH HEAD SI FROM CHARGING PUMPS TO RCS HOT LEGS, INSIDE CONT CHECK VALVE														
1-SI-227	11448-CBM-089B	4 OF 4	C-3	CHECK VALVE	3	2	C		CV	C	CM				
										O	CM				

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
	HIGH HEAD SI FROM CHARGING PUMPS TO RCS HOT LEGS, INSIDE CONT CHECK VALVE														
1-SI-228	11448-CBM-089B	4 OF 4	B-3	CHECK VALVE	6	2	C		CV	C	CM				
										O	CM				
	LOW HEAD SI FROM LHSI PUMP TO RCS HOT LEGS, INSIDE CONT CHECK VALVE														
1-SI-229	11448-CBM-089B	4 OF 4	B-3	CHECK VALVE	6	2	C		CV	C	CM				
										O	CM				
	LOW HEAD SI FROM LHSI PUMP TO RCS HOT LEGS, INSIDE CONT CHECK VALVE														
1-SI-234	11448-CBM-089B	1 OF 4	F-3	CHECK VALVE	1	2	AC	CIV	CV	C	CM				
										O	CM				
									LT	C	OPB				
	NITROGEN SUPPLY TO ACCUMULATORS, INSIDE CONTAINMENT ISOLATION CHECK VALVE														
1-SI-235	11448-CBM-089B	4 OF 4	F-7	CHECK VALVE	2	1	C		CV	C	CM				
										O	CM				
	HIGH HEAD SI TO RCS COLD LEG, INSIDE MISSILE BARRIER CHECK VALVE														
1-SI-236	11448-CBM-089B	4 OF 4	E-7	CHECK VALVE	2	1	C		CV	C	CM				
										O	CM				
	HIGH HEAD SI TO RCS COLD LEG, INSIDE MISSILE BARRIER CHECK VALVE														
1-SI-237	11448-CBM-089B	4 OF 4	D-7	CHECK VALVE	2	1	C		CV	C	CM				
										O	CM				
	HIGH HEAD SI TO RCS COLD LEG, INSIDE MISSILE BARRIER CHECK VALVE														
1-SI-238	11448-CBM-089B	4 OF 4	D-7	CHECK VALVE	6	1	C		CV	C	CM				
										O	CM				
	SAFETY INJECTION SUPPLY CHECK VALVE TO RCS HOT LEG														
1-SI-239	11448-CBM-089B	4 OF 4	C-7	CHECK VALVE	6	1	C		CV	C	CM				
										O	CM				

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
	SAFETY INJECTION SUPPLY CHECK VALVE TO RCS HOT LEG														
1-SI-240	11448-CBM-089B	4 OF 4	B-7	CHECK VALVE	6	1	C		CV	C	CM				
										O	CM				
	SAFETY INJECTION SUPPLY CHECK VALVE TO RCS HOT LEG														
1-SI-241	11448-CBM-089B	4 OF 4	F-7	CHECK VALVE	6	1	AC	PIV	CV	C	CM				
										O	CM				
									LT	C	24				
	LOW HEAD SI TO RCS COLD LEG ISOLATION CHECK VALVE														
1-SI-242	11448-CBM-089B	4 OF 4	E-7	CHECK VALVE	6	1	AC	PIV	CV	C	CM				
										O	CM				
									LT	C	24				
	LOW HEAD SI TO RCS COLD LEG ISOLATION CHECK VALVE														
1-SI-243	11448-CBM-089B	4 OF 4	D-7	CHECK VALVE	6	1	AC	PIV	CV	C	CM				
										O	CM				
									LT	C	24				
	LOW HEAD SI TO RCS COLD LEG ISOLATION CHECK VALVE														
1-SI-410	11448-CBM-089A	1 OF 3	F-4	CHECK VALVE	10	2	C		CV	C	CM				
										O	CM				
	RWST SUPPLY CHECK VALVE TO CHARGING PUMP SUCTION HEADER														
1-SI-MOV-1842	11448-CBM-089A	3 OF 3	D-7	MO GATE	3	2	B		EV	C	CS		12		
										O	CS		12		
									ST	C	CS		12		
										O	CS		12		
									VP	OC	24				
	HIGH HEAD SI FROM CHARGING HEADER TO RCS COLD LEGS ISOLATION VALVE														
1-SI-MOV-1860A	11448-CBM-089A	1 OF 3	B-7	MO GATE	12	2	B		EV	O	03				
									ST	O	03				
									VP	OC	24				

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
	"A" LOW HEAD SI PUMP SUCTION ISOLATION FROM CONTAINMENT SUMP														
1-SI-MOV-1860B	11448-CBM-089A	1 OF 3	B-5	MO GATE	12	2	B		EV	O	03				
									ST	O	03				
									VP	OC	24				
	"B" LOW HEAD SI PUMP SUCTION ISOLATION FROM CONTAINMENT SUMP														
1-SI-MOV-1862A	11448-CBM-089A	1 OF 3	A-3	MO GATE	12	2	B		EV	C	03				
									ST	C	03				
									VP	OC	24				
	"A" LOW HEAD SI PUMP SUCTION FROM RWST														
1-SI-MOV-1862B	11448-CBM-089A	1 OF 3	B-3	MO GATE	12	2	B		EV	C	03				
									ST	C	03				
									VP	OC	24				
	"B" LOW HEAD SI PUMP SUCTION FROM RWST														
1-SI-MOV-1863A	11448-CBM-089A	2 OF 3	C-5	MO GATE	8	2	B		EV	C	03				
										O	03				
									ST	C	03				
										O	03				
									VP	OC	24				
	"A" LOW HEAD SAFETY INJECTION PUMP SUPPLY ISOLATION TO CHARGING PUMPS														
1-SI-MOV-1863B	11448-CBM-089A	2 OF 3	D-3	MO GATE	8	2	B		EV	C	03				
										O	03				
									ST	C	03				
										O	03				
									VP	OC	24				
	"B" LOW HEAD SAFETY INJECTION PUMP SUPPLY ISOLATION TO CHARGING PUMPS														
1-SI-MOV-1864A	11448-CBM-089A	2 OF 3	D-6	MO GATE	10	2	B		EV	C	03				
										O	03				
									ST	C	03				
										O	03				

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
1-SI-MOV-1864A	11448-CBM-089A	2 OF 3	D-6	MO GATE	10	2	B		VP	OC	24				
	"A" LOW HEAD SI PUMP COLD LEG DISCHARGE STOP VALVE														
1-SI-MOV-1864B	11448-CBM-089A	2 OF 3	D-4	MO GATE	10	2	B		EV	C	03				
										O	03				
									ST	C	03				
										O	03				
									VP	OC	24				
	"B" LOW HEAD SI PUMP COLD LEG DISCHARGE STOP VALVE														
1-SI-MOV-1865A	11448-CBM-089B	1 OF 4	C-7	MO GATE	12	2	B		EV	C	CS		17		
										O	CS		17		
									ST	C	CS		17		
										O	CS		17		
									VP	OC	24				
	"A" ACCUMULATOR DISCHARGE ISOLATION VALVE TO RCS COLD LEG														
1-SI-MOV-1865B	11448-CBM-089B	2 OF 4	C-6	MO GATE	12	2	B		EV	C	CS		17		
										O	CS		17		
									ST	C	CS		17		
										O	CS		17		
									VP	OC	24				
	"B" ACCUMULATOR DISCHARGE ISOLATION VALVE TO RCS COLD LEG														
1-SI-MOV-1865C	11448-CBM-089B	3 OF 4	C-5	MO GATE	12	2	B		EV	C	CS		17		
										O	CS		17		
									ST	C	CS		17		
										O	CS		17		
									VP	OC	24				
	"C" ACCUMULATOR DISCHARGE ISOLATION VALVE TO RCS COLD LEG														
1-SI-MOV-1867C	11448-CBM-089A	3 OF 3	E-6	MO GATE	3	2	B		EV	C	CS		9		
										O	CS		9		
									ST	C	CS		9		
										O	CS		9		
									VP	OC	24				

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
	HIGH HEAD SAFETY INJECTION TO RCS COLD LEG ISOLATION VALVE														
1-SI-MOV-1867D	11448-CBM-089A	3 OF 3	F-6	MO GATE	3	2	B		EV	C	CS		9		
										O	CS		9		
									ST	C	CS		9		
										O	CS		9		
									VP	OC	24				
	HIGH HEAD SAFETY INJECTION TO RCS COLD LEG ISOLATION VALVE														
1-SI-MOV-1869A	11448-CBM-089A	3 OF 3	D-7	MO GATE	3	2	B		EV	C	CS		12		
										O	CS		12		
									ST	C	CS		12		
										O	CS		12		
									VP	OC	24				
	HIGH HEAD SI FROM CHARGING HEADER TO RCS HOT LEGS ISOLATION VALVE														
1-SI-MOV-1869B	11448-CBM-089A	3 OF 3	E-4	MO GATE	3	2	B		EV	C	CS		12		
										O	CS		12		
									ST	C	CS		12		
										O	CS		12		
									VP	OC	24				
	HIGH HEAD SI FROM CHARGING HEADER TO RCS HOT LEGS ISOLATION VALVE														
1-SI-MOV-1885A	11448-CBM-089A	2 OF 3	B-6	MO GATE	2	2	A		EV	C	03				
									LT	C	24	1			
									ST	C	03				
									VP	OC	24				
	"A" LOW HEAD SI PUMP MINIMUM FLOW/TEST LINE ISOLATION														
1-SI-MOV-1885B	11448-CBM-089A	2 OF 3	B-4	MO GATE	2	2	A		EV	C	03				
									LT	C	24	1			
									ST	C	03				
									VP	OC	24				
	"B" LOW HEAD SI PUMP MINIMUM FLOW/TEST LINE ISOLATION														

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
1-SI-MOV-1885C	11448-CBM-089A	2 OF 3	B-4	MO GATE	2	2	A		EV	C	03				
									LT	C	24	1			
									ST	C	03				
									VP	OC	24				
	"B" LOW HEAD SI PUMP MINIMUM FLOW/TEST LINE ISOLATION														
1-SI-MOV-1885D	11448-CBM-089A	2 OF 3	B-6	MO GATE	2	2	A		EV	C	03				
									LT	C	24	1			
									ST	C	03				
									VP	OC	24				
	"A" LOW HEAD SI PUMP MINIMUM FLOW/TEST LINE ISOLATION														
1-SI-MOV-1890A	11448-CBM-089A	2 OF 3	C-7	MO GATE	10	2	B		EV	C	CS		18		
										O	CS		18		
									ST	C	CS		18		
										O	CS		18		
									VP	OC	24				
	"A" LOW HEAD SI PUMP HOT LEG DISCHARGE STOP ISOLATION VALVE														
1-SI-MOV-1890B	11448-CBM-089A	2 OF 3	E-7	MO GATE	10	2	B		EV	C	CS		18		
										O	CS		18		
									ST	C	CS		18		
										O	CS		18		
									VP	OC	24				
	"B" LOW HEAD SI PUMP HOT LEG DISCHARGE STOP ISOLATION VALVE														
1-SI-MOV-1890C	11448-CBM-089A	2 OF 3	D-7	MO GATE	10	2	B		EV	C	CS		8		
										O	CS		8		
									ST	C	CS		8		
										O	CS		8		
									VP	OC	24				
	LOW HEAD SI PUMPS COLD LEG DISCHARGE STOP ISOLATION VALVE														
1-SI-RV-1845A	11448-CBM-089A	2 OF 3	E-6	RELIEF VALVE	1	2	C		SP	O	120				
	"A" LOW HEAD SI PUMP DISCHARGE RELIEF VALVE, RV DISCHARGE TO SAFEGUARDS AREA SUMP														

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
1-SI-RV-1845B	11448-CBM-089A	2 OF 3	E-5	RELIEF VALVE	1	2	C		SP	O	120				
	LOW HEAD SI HEADER TO COLD LEG RELIEF VALVE, RV DISCHARGE TO SAFEGUARDS AREA SUMP														
1-SI-RV-1845C	11448-CBM-089A	2 OF 3	E-4	RELIEF VALVE	1	2	C		SP	O	120				
	"B" LOW HEAD SI PUMP DISCHARGE RELIEF VALVE, RV DISCHARGE TO SAFEGUARDS AREA SUMP														
1-SI-RV-1858A	11448-CBM-089B	1 OF 4	E-7	RELIEF VALVE	1	2	C		SP	O	120				
	SI ACCUMULATOR RELIEF VALVE														
1-SI-RV-1858B	11448-CBM-089B	2 OF 4	E-6	RELIEF VALVE	1	2	C		SP	O	120				
	SI ACCUMULATOR RELIEF VALVE														
1-SI-RV-1858C	11448-CBM-089B	3 OF 4	F-5	RELIEF VALVE	1	2	C		SP	O	120				
	SI ACCUMULATOR RELIEF VALVE														
1-SI-RV-1859	11448-CBM-089B	1 OF 4	D-3	RELIEF VALVE	0.75	2	C		SP	O	120	NOTE 2			
	SI ACCUMULATOR TEST LINE RELIEF VALVE														
1-SI-TV-100	11448-CBM-089A	3 OF 3	B-7	AO GATE	1	2	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				
	NITROGEN SUPPLY TO ACCUMULATORS, OUTSIDE CONTAINMENT ISOLATION VALVE														
1-SI-TV-101A	11448-CBM-089B	1 OF 4	C-3	AO GATE	1	2	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				
	ACCUMULATORS TO WASTE GAS CHARCOAL FILTERS, INSIDE CONTAINMENT ISOLATION VALVE														
1-SI-TV-101B	11448-CBM-089B	1 OF 4	B-2	AO GATE	1	2	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
	ACCUMULATORS TO WASTE GAS CHARCOAL FILTERS, OUTSIDE CONTAINMENT ISOLATION VALVE														
1-SI-TV-102A	11448-CBM-089A	1 OF 3	F-7	AO GATE	8	2	B		EV	O	03				
									FS	O	03				
									ST	O	03				
									VP	OC	24				
	UNIT 1 RWST TO UNIT 2 RWST CROSS TIE														
1-SI-TV-102B	11448-CBM-089A	1 OF 3	E-7	AO GATE	8	2	B		EV	O	03				
									FS	O	03				
									ST	O	03				
									VP	OC	24				
	UNIT 1 RWST TO UNIT 2 RWST CROSS TIE														

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
1-SS-TV-100A	11448-CBM-082B	2 OF 2	F-7	SO GATE	0.375	1	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				
	PRESSURIZER LIQUID SPACE SAMPLE LINE, INSIDE CONTAINMENT ISOLATION VALVE														
1-SS-TV-100B	11448-CBM-082B	2 OF 2	F-6	AO GATE	0.375	1	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				
	PRESSURIZER LIQUID SPACE SAMPLE LINE, OUTSIDE CONTAINMENT ISOLATION VALVE														
1-SS-TV-101A	11448-CBM-082B	2 OF 2	E-7	SO GATE	0.375	1	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				
	PRESSURIZER VAPOR SPACE SAMPLE LINE, INSIDE CONTAINMENT ISOLATION VALVE														
1-SS-TV-101B	11448-CBM-082B	2 OF 2	E-6	AO GATE	0.375	1	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				
	PRESSURIZER VAPOR SPACE SAMPLE LINE, OUTSIDE CONTAINMENT ISOLATION VALVE														
1-SS-TV-102A	11448-CBM-082B	2 OF 2	D-7	SO GATE	0.375	1	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
	REACTOR COOLANT COLD LEGS SAMPLE HEADER, INSIDE CONTAINMENT ISOLATION VALVE														
1-SS-TV-102B	11448-CBM-082B	2 OF 2	D-6	SO GATE	0.375	1	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				
	REACTOR COOLANT COLD LEGS SAMPLE HEADER, OUTSIDE CONTAINMENT ISOLATION VALVE														
1-SS-TV-103A	11448-CBM-082B	2 OF 2	F-7	SO GATE	0.375	2	AE	CIV	LT	C	OPB				
									VP	OC	24				
	RHR SAMPLE HEADER, INSIDE CONTAINMENT ISOLATION VALVE														
1-SS-TV-103B	11448-CBM-082B	2 OF 2	F-6	SO GATE	0.375	2	AE	CIV	LT	C	OPB				
									VP	OC	24				
	RHR SAMPLE HEADER, OUTSIDE CONTAINMENT ISOLATION VALVE														
1-SS-TV-104A	11448-CBM-082B	2 OF 2	D-7	SO GATE	0.375	2	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				
	PRESSURIZER RELIEF TANK GAS SPACE SAMPLE LINE, INSIDE CONTAINMENT ISOLATION VALVE														
1-SS-TV-104B	11448-CBM-082B	2 OF 2	C-6	AO GATE	0.375	2	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				
	PRESSURIZER RELIEF TANK GAS SPACE SAMPLE LINE, OUTSIDE CONTAINMENT ISOLATION VALVE														
1-SS-TV-106A	11448-CBM-082B	2 OF 2	E-7	SO GATE	0.375	1	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
1-SS-TV-106A	11448-CBM-082B	2 OF 2	E-7	SO GATE	0.375	1	A	CIV	ST	C	03				
									VP	OC	24				
	REACTOR COOLANT HOT LEGS SAMPLE HEADER, INSIDE CONTAINMENT ISOLATION VALVE														
1-SS-TV-106B	11448-CBM-082B	2 OF 2	E-6	SO GATE	0.375	1	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				
	REACTOR COOLANT HOT LEGS SAMPLE HEADER, OUTSIDE CONTAINMENT ISOLATION VALVE														

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
1-SV-TV-102A	11448-CBM-066A	2 OF 3	E-4	AO GATE	6	2	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				
	CONDENSER AIR REMOVAL DISCHARGE TO CONTAINMENT, OUTSIDE CONTAINMENT ISOLATION VALVE														

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
1-SW-012	11448-CBM-071A	2 OF 4	C-4	BUTTERFLY	10	3	B		EV	C	24				
	SERVICE WATER SUPLY HEADER TO CHILLED WATER SYSTEM MANUAL ISOLATION VALVE														
1-SW-027	11448-CBM-071A	4 OF 4	B-4	BUTTERFLY	30	3	B		EV	C	24				
	SERVICE WATER OUTLET LINE FROM CC WATER HX MANUAL ISOLATION VALVE														
1-SW-031	11448-CBM-071A	4 OF 4	B-7	BUTTERFLY	30	3	B		EV	C	24				
	SERVICE WATER OUTLET LINE FROM CC WATER HX MANUAL ISOLATION VALVE														
1-SW-035	11448-CBM-071A	4 OF 4	E-4	BUTTERFLY	30	3	B		EV	C	24				
	SERVICE WATER OUTLET LINE FROM CC WATER HX MANUAL ISOLATION VALVE														
1-SW-039	11448-CBM-071A	4 OF 4	D-7	BUTTERFLY	30	3	B		EV	C	24				
	SERVICE WATER OUTLET LINE FROM CC WATER HX MANUAL ISOLATION VALVE														
1-SW-043	11448-CBM-071A	3 OF 4	C-3	BUTTERFLY	30	NC	B		EV	C	24				
	SERVICE WATER OUTLET LINE FROM BC WATER HX MANUAL ISOLATION VALVE														
1-SW-048	11448-CBM-071A	3 OF 4	D-3	BUTTERFLY	30	NC	B		EV	C	24				
	SERVICE WATER OUTLET LINE FROM BC WATER HX MANUAL ISOLATION VALVE														
1-SW-052	11448-CBM-071A	3 OF 4	E-3	BUTTERFLY	30	NC	B		EV	C	24				
	SERVICE WATER OUTLET LINE FROM BC WATER HX MANUAL ISOLATION VALVE														
1-SW-108	11448-CBM-071B	1 OF 2	B-4	CHECK VALVE	2	3	C		CV	C O	CM CM				
	CHARGING PUMP SERVICE WATER PUMP CHECK VALVE														
1-SW-113	11448-CBM-071B	1 OF 2	B-7	CHECK VALVE	2	3	C		CV	C O	CM CM				
	CHARGING PUMP SERVICE WATER PUMP CHECK VALVE														

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
1-SW-206	11448-CBM-071A	3 OF 4	E-8	MAN GATE	2	2	AE	CIV	LT	C	OPB				
	CONTAINMENT ISOLATION VALVE FOR SERVICE WATER DRAINS TO HEAT EXCHANGER														
1-SW-208	11448-CBM-071A	3 OF 4	E-8	MAN GATE	2	2	AE	CIV	LT	C	OPB				
	CONTAINMENT ISOLATION VALVE FOR SERVICE WATER DRAINS TO HEAT EXCHANGER														
1-SW-246	11448-CBM-071A	3 OF 4	C-8	CHECK VALVE	3	3	C		CV	C	CM				
										O	CM				
	RECIRCULATION SPRAY HEAT EXCHANGER SERVICE WATER RETURN VENT VALVE														
1-SW-247	11448-CBM-071A	3 OF 4	D-7	CHECK VALVE	3	3	C		CV	C	CM				
										O	CM				
	RECIRCULATION SPRAY HEAT EXCHANGER SERVICE WATER SUPPLY VENT VALVE														
1-SW-248	11448-CBM-071A	3 OF 4	C-7	CHECK VALVE	3	3	C		CV	C	CM				
										O	CM				
	RECIRCULATION SPRAY HEAT EXCHANGER SERVICE WATER RETURN VENT VALVE														
1-SW-249	11448-CBM-071A	3 OF 4	D-6	CHECK VALVE	3	3	C		CV	C	CM				
										O	CM				
	RECIRCULATION SPRAY HEAT EXCHANGER SERVICE WATER SUPPLY VENT VALVE														
1-SW-250	11448-CBM-071A	3 OF 4	C-6	CHECK VALVE	3	3	C		CV	C	CM				
										O	CM				
	RECIRCULATION SPRAY HEAT EXCHANGER SERVICE WATER RETURN VENT VALVE														
1-SW-251	11448-CBM-071A	3 OF 4	D-5	CHECK VALVE	3	3	C		CV	C	CM				
										O	CM				
	RECIRCULATION SPRAY HEAT EXCHANGER SERVICE WATER SUPPLY VENT VALVE														

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
1-SW-252	11448-CBM-071A	3 OF 4	C-5	CHECK VALVE	3	3	C		CV	C O	CM CM				
	RECIRCULATION SPRAY HEAT EXCHANGER SERVICE WATER RETURN VENT VALVE														
1-SW-253	11448-CBM-071A	3 OF 4	D-4	CHECK VALVE	3	3	C		CV	C O	CM CM				
	RECIRCULATION SPRAY HEAT EXCHANGER SERVICE WATER SUPPLY VENT VALVE														
1-SW-262	11448-CBM-071B	1 OF 2	B-4	CHECK VALVE	2	3	C		CV	C O	CM CM				
	CHARGING PUMP SERVICE WATER PUMP DISCHARGE CHECK VALVE														
1-SW-264	11448-CBM-071D	1 OF 2	C-5	MANUAL BFLY	6	3	B		EV	O	24				
	CONTROL ROOM CONDENSER WATER TO BACKUP STRAINER BYPASS LINE ISOLATION VALVE														
1-SW-265	11448-CBM-071D	1 OF 2	C-7	MANUAL BFLY	6	3	B		EV	O	24				
	CONTROL ROOM CONDENSER WATER TO BACKUP STRAINER BYPASS LINE ISOLATION VALVE														
1-SW-268	11448-CBM-071B	1 OF 2	B-6	CHECK VALVE	2	3	C		CV	C O	CM CM				
	CHARGING PUMP SERVICE WATER PUMP DISCHARGE CHECK VALVE														
1-SW-313	11448-CBM-071D	1 OF 2	F-7	CHECK VALVE	3	3	C		CV	C O	CM CM				
	CONTROL ROOM CONDENSER WATER SYSTEM PUMP DISCHARGE CHECK VALVE														
1-SW-323	11448-CBM-071D	1 OF 2	F-5	CHECK VALVE	3	3	C		CV	C O	CM CM				
	CONTROL ROOM CONDENSER WATER SYSTEM PUMP DISCHARGE CHECK VALVE														
1-SW-773	11448-CBM-071D	2 OF 2	C-5	CHECK VALVE	4	3	C		CV	C O	CM CM				
	CONTROL ROOM CONDENSER WATER SYSTEM PUMP DISCHARGE CHECK VALVE														

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
1-SW-778	11448-CBM-071D	2 OF 2	C-4	CHECK VALVE	4	3	C		CV	C	CM				
										O	CM				
	CONTROL ROOM CONDENSER WATER SYSTEM PUMP DISCHARGE VALVE														
1-SW-839	11448-CBM-071D	2 OF 2	F-5	CHECK VALVE	3	3	C		CV	C	CM				
										O	CM				
	CONTROL ROOM CONDENSER WATER SYSTEM DISCHARGE CHECK VALVE														
1-SW-840	11448-CBM-071D	2 OF 2	F-4	CHECK VALVE	3	3	C		CV	C	CM				
										O	CM				
	CONTROL ROOM CONDENSER WATER SYSTEM DISCHARE CHECK VALVE														
1-SW-MOV-101A	11448-CBM-071A	3 OF 4	B-4	MO BFLY	36	3	B		EV	C	03				
									ST	C	03				
									VP	OC	24				
	BEARING COOLING WATER HEAT EXCHANGER ISOLATION VALVE														
1-SW-MOV-101B	11448-CBM-071A	3 OF 4	B-4	MO BFLY	36	3	B		EV	C	03				
									ST	C	03				
									VP	OC	24				
	BEARING COOLING WATER HEAT EXCHANGER ISOLATION VALVE														
1-SW-MOV-102A	11448-CBM-071A	2 OF 4	D-6	MO BFLY	42	3	B		EV	C	03				
										O	03				
									ST	C	03				
										O	03				
									VP	OC	24				
	SERVICE WATER HEADER SUPPLY ISOLATION TO COMPONENT COOLING HEAT EXCHANGERS														
1-SW-MOV-102B	11448-CBM-071A	2 OF 4	D-5	MO BFLY	42	3	B		EV	C	03				
										O	03				
									ST	C	03				
										O	03				
									VP	OC	24				
	SERVICE WATER HEADER SUPPLY ISOLATION TO COMPONENT COOLING HEAT EXCHANGERS														

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
1-SW-MOV-103A	11448-CBM-071A	3 OF 4	B-8	MO BFLY	30	3	B		EV	O	RR			2	
									ST	O	RR			2	
									VP	OC	24				
	SERVICE WATER HEADER SUPPLY ISOLATION TO RECIRC SPRAY HEAT EXCHANGERS														
1-SW-MOV-103B	11448-CBM-071A	3 OF 4	B-8	MO BFLY	30	3	B		EV	O	RR			2	
									ST	O	RR			2	
									VP	OC	24				
	SERVICE WATER HEADER SUPPLY ISOLATION TO RECIRC SPRAY HEAT EXCHANGERS														
1-SW-MOV-103C	11448-CBM-071A	3 OF 4	B-3	MO BFLY	30	3	B		EV	O	RR			2	
									ST	O	RR			2	
									VP	OC	24				
	SERVICE WATER HEADER SUPPLY ISOLATION TO RECIRC SPRAY HEAT EXCHANGERS														
1-SW-MOV-103D	11448-CBM-071A	3 OF 4	B-2	MO BFLY	30	3	B		EV	O	RR			2	
									ST	O	RR			2	
									VP	OC	24				
	SERVICE WATER HEADER SUPPLY ISOLATION TO RECIRC SPRAY HEAT EXCHANGERS														
1-SW-MOV-104A	11448-CBM-071A	3 OF 4	D-7	MO BFLY	24	3	B		EV	C	RR			2	
										O	RR			2	
									ST	C	RR			2	
										O	RR			2	
									VP	OC	24				
	SERVICE WATER SUPPLY TO "A" RECIRC SPRAY HEAT EXCHANGER, OUTSIDE CONT ISOLATION VALVE														
1-SW-MOV-104B	11448-CBM-071A	3 OF 4	D-6	MO BFLY	24	3	B		EV	C	RR			2	
										O	RR			2	
									ST	C	RR			2	
										O	RR			2	
									VP	OC	24				
	SERVICE WATER SUPPLY TO "B" RECIRC SPRAY HEAT EXCHANGER, OUTSIDE CONT ISOLATION VALVE														

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
1-SW-MOV-104C	11448-CBM-071A	3 OF 4	D-5	MO BFLY	24	3	B		EV	C	RR			2	
										O	RR			2	
									ST	C	RR			2	
										O	RR			2	
									VP	OC	24				
	SERVICE WATER SUPPLY TO "C" RECIRC SPRAY HEAT EXCHANGER, OUTSIDE CONT ISOLATION VALVE														
1-SW-MOV-104D	11448-CBM-071A	3 OF 4	D-4	MO BFLY	24	3	B		EV	C	RR			2	
										O	RR			2	
									ST	C	RR			2	
										O	RR			2	
									VP	OC	24				
	SERVICE WATER SUPPLY TO "D" RECIRC SPRAY HEAT EXCHANGER, OUTSIDE CONT ISOLATION VALVE														
1-SW-MOV-105A	11448-CBM-071A	3 OF 4	D-8	MO BFLY	24	3	B		EV	C	RR			2	
										O	RR			2	
									ST	C	RR			2	
									ST	O	RR			2	
									VP	OC	24				
	SERVICE WATER RETURN FROM "A" RECIRC SPRAY HEAT EXCHANGER, OUTSIDE CONT ISOLATION VALVE														
1-SW-MOV-105B	11448-CBM-071A	3 OF 4	D-7	MO BFLY	24	3	B		EV	C	RR			2	
										O	RR			2	
									ST	C	RR			2	
										O	RR			2	
									VP	OC	24				
	SERVICE WATER RETURN FROM "B" RECIRC SPRAY HEAT EXCHANGER, OUTSIDE CONT ISOLATION VALVE														
1-SW-MOV-105C	11448-CBM-071A	3 OF 4	D-6	MO BFLY	24	3	B		EV	C	RR			2	
										O	RR			2	
									ST	C	RR			2	
										O	RR			2	
									VP	OC	24				
	SERVICE WATER RETURN FROM "C" RECIRC SPRAY HEAT EXCHANGER, OUTSIDE CONT ISOLATION VALVE														

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
1-SW-MOV-105D	11448-CBM-071A	3 OF 4	D-5	MO BFLY	24	3	B		EV	C	RR			2	
										O	RR			2	
									ST	C	RR			2	
										O	RR			2	
									VP	OC	24				
	SERVICE WATER RETURN FROM "D" RECIRC SPRAY HEAT EXCHANGER, OUTSIDE CONT ISOLATION VALVE														
1-SW-PCV-100A	11448-CBM-071D	1 OF 2	F-7	AO GATE	3	3	B		EV	O	03				
									FS	O	03				
									ST	O	NA	NOTE 1			
	CONTROL ROOM CONDENSER WATER SYSTEM PRESSURE CONTROL														
1-SW-PCV-100B	11448-CBM-071D	1 OF 2	F-5	AO GATE	3	3	B		EV	O	03				
									FS	O	03				
									ST	O	NA	NOTE 1			
	CONTROL ROOM CONDENSER WATER SYSTEM PRESSURE CONTROL														
1-SW-PCV-100C	11448-CBM-071D	1 OF 2	F-3	AO GATE	3	3	B		EV	O	03				
									FS	O	03				
									ST	O	NA	NOTE 1			
	CONTROL ROOM CONDENSER WATER SYSTEM PRESSURE CONTROL														
1-SW-PCV-100D	11448-CBM-071D	2 OF 2	F-5	AO GATE	3	3	B		EV	O	03				
									FS	O	03				
									ST	O	NA	NOTE 1			
	CONTROL ROOM CONDENSER WATER SYSTEM PRESSURE CONTROL														
1-SW-PCV-100E	11448-CBM-071D	2 OF 2	F-4	AO GATE	3	3	B		EV	O	03				
									FS	O	03				
									ST	O	NA	NOTE 1			
	CONTROL ROOM CONDENSER WATER SYSTEM PRESSURE CONTROL														
1-SW-PCV-101A	11448-CBM-071D	1 OF 2	E-8	AO GATE	3	3	B		EV	C	03				
									FS	C	03				
									ST	C	NA	NOTE 1			
	CONTROL ROOM CONDENSER WATER SYSTEM PRESSURE CONTROL														
1-SW-PCV-101B	11448-CBM-071D	1 OF 2	E-6	AO GATE	3	3	B		EV	C	03				
									FS	C	03				
									ST	C	NA	NOTE 1			
	CONTROL ROOM CONDENSER WATER SYSTEM PRESSURE CONTROL														

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
1-SW-PCV-101C	11448-CBM-071D	1 OF 2	E-4	AO GATE	3	3	B		EV	C	03				
									FS	C	03				
									ST	C	NA	NOTE 1			
	CONTROL ROOM CONDENSER WATER SYSTEM PRESSURE CONTROL														
1-SW-PCV-101D	11448-CBM-071D	2 OF 2	D-5	AO GATE	3	3	B		EV	C	03				
									FS	C	03				
									ST	C	NA	NOTE 1			
	CONTROL ROOM CONDENSER WATER SYSTEM PRESSURE CONTROL														
1-SW-PCV-101E	11448-CBM-071D	2 OF 2	D-3	AO GATE	3	3	B		EV	C	03				
									FS	C	03				
									ST	C	NA	NOTE 1			
	CONTROL ROOM CONDENSER WATER SYSTEM PRESSURE CONROL														
1-SW-RV-124D	11448-CBM-071D	2 OF 2	D-5	RELIEF VALVE	0.75	3	C		SP	O	120	NOTE 2			
	CONTROL ROOM CONDENSER RELIEF VALVE														
1-SW-RV-124E	11448-CBM-071D	2 OF 2	D-4	RELIEF VALVE	0.75	3	C		SP	O	120	NOTE 2			
	CONTROL ROOM CONDENSER RELIEF VALVE														
1-SW-TCV-108A	11448-CBM-071B	1 OF 2	E-7	AO GATE	1.5	3	B		EV	O	03				
									FS	O	03				
									ST	O	NA	NOTE 1			
	SERVICE WATER TO CHARGING PUMP LUBE OIL COOLER TEMPERATURE CONTROL VALVE														
1-SW-TCV-108B	11448-CBM-071B	1 OF 2	E-5	AO GATE	1.5	3	B		EV	O	03				
									FS	O	03				
									ST	O	NA	NOTE 1			
	SERVICE WATER TO CHARGING PUMP LUBE OIL COOLER TEMPERATURE CONTROL VALVE														
1-SW-TCV-108C	11448-CBM-071B	1 OF 2	E-4	AO GATE	1.5	3	B		EV	O	03				
									FS	O	03				
									ST	O	NA	NOTE 1			
	SERVICE WATER TO CHARGING PUMP LUBE OIL COOLER TEMPERATURE CONTROL VALVE														

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
2-SW-333	11448-CBM-071D	1 OF 2	F-3	CHECK VALVE	3	3	C		CV	C	CM				
										O	CM				
	CONTROL ROOM CONDENSER WATER SYSTEM PUMP DISCHARGE CHECK VALVE														

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
1-VA-001	11448-CBM-083A	1 OF 3	B-7	MAN GATE	2	2	AE	CIV	LT	C	OPB				
	VENT LINE FROM PRIMARY VENT POT, OUTSIDE CONTAINMENT ISOLATION VALVE														
1-VA-006	11448-CBM-083B	3 OF 3	F-2	MAN GATE	2	2	AE	CIV	LT	C	OPB				
	VENT LINE FROM PRIMARY VENT POT, INSIDE CONTAINMENT ISOLATION VALVE														

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
1-VG-TV-109A	11448-CBM-083B	1 OF 3	E-3	AO GATE	2	2	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				
	VENT LINE ISOL FROM PRIMARY DRAINS TRANSFER TANK TO GAS STRIPPERS, INSIDE CONT ISOL VLV														
1-VG-TV-109B	11448-CBM-083A	1 OF 3	F-7	AO GATE	2	2	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				
	VENT LINE ISOL FROM PRIMARY DRAINS TRANSFER TANK TO GAS STRIPPERS, OUTSIDE CONT ISOL VLV														

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
1-VP-012	11448-CBM-066A	2 OF 3	F-4	CHECK VALVE	6	2	AC	CIV	CV	C	CM				
										O	CM				
									LT	C	OPB				
	CONDENSER AIR REMOVAL DISCHARG TO CONTAINMENT INSIDE CONTAIN ISOLATION CHECK VALVE														

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
1-VS-285	11448-CBB-041A	2 OF 4	C-6	MANUAL GATE	3	3	B		EV	C O	24 24				
	CONTROL ROOM CHILLED WATER CROSS TIE ISOLATION VALVE														
1-VS-288	11448-CBB-041A	2 OF 4	B-7	CHECK VALVE	2	3	C		CV	C O	CM CM				
	CONTROL ROOM CHILLED WATER PUMP DISCHARGE CHECK VALVE														
1-VS-292	11448-CBB-041A	2 OF 4	B-5	CHECK VALVE	2	3	C		CV	C O	CM CM				
	CONTROL ROOM CHILLED WATER PUMP DISCHARGE CHECK VALVE														
1-VS-296	11448-CBB-041A	2 OF 4	B-4	CHECK VALVE	2	3	C		CV	C O	CM CM				
	CONTROL ROOM CHILLED WATER PUMP DISCHARGE CHECK VALVE														
1-VS-571	11448-CBB-041A	2 OF 4	C-7	MAN GATE	3	3	B		EV	C O	24 24				
	CONTROL ROOM CHILLED WATER SYSTEM HEADER CROSS CONNECT ISOLATION VALVE														
1-VS-641	11448-CBB-041A	3 OF 4	D-6	CHECK VALVE	4	3	C		CV	C O	CM CM				
	CONTROL ROOM CHILLED WATER SYSTEM PUMP DISCHARGE CHECK														
1-VS-645	11448-CBB-041A	3 OF 4	D-5	CHECK VALVE	4	3	C		CV	C O	CM CM				
	CONTROL ROOM CHILLED WATER SYSTEM PUMP DISCHARGE CHECK														
1-VS-672	11448-CBB-041A	3 OF 4	F-6	CHECK VALVE	4	3	C		CV	C O	CM CM				
	CONTROL ROOM CHILLED WATER SYSTEM DISCHARGE HEADER CHECK VALVE														
1-VS-975	11448-CBB-041A	2 OF 4	C-3	CHECK VALVE	1	3	C		CV	C O	CM CM				
	CONTROL ROOM CHILLED WATER SYSTEM ISOLATION VALVE														
1-VS-MOV-100A	11448-CBB-006A	1 OF 2	C-4	MO BFLY	36	2	AE	CIV	LT VP	C OC	OPB 24				

SURRY UNIT 1
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
	CONTAINMENT PURGE SUPPLY, INSIDE CONTAINMENT ISOLATION VALVE														
1-VS-MOV-100B	11448-CBB-006A	1 OF 2	C-3	MO BFLY	36	2	AE	CIV	LT VP	C OC	OPB 24				
	CONTAINMENT PURGE SUPPLY, OUTSIDE CONTAINMENT ISOLATION														
1-VS-MOV-100C	11448-CBB-006A	1 OF 2	D-4	MO BFLY	36	2	AE	CIV	LT VP	C OC	OPB 24				
	CONTAINMENT PURGE EXHAUST, INSIDE CONTAINMENT ISOLATION VALVE														
1-VS-MOV-100D	11448-CBB-006A	1 OF 2	D-3	MO BFLY	36	2	AE	CIV	LT VP	C OC	OPB 24				
	CONTAINMENT PURGE EXHAUST, OUTSIDE CONTAIN- MENT ISOLATION VALVE														
1-VS-MOV-101	11448-CBB-006A	1 OF 2	D-3	MO BFLY	8	2	AE	CIV	LT VP	C OC	OPB 24				
	CONTAINMENT PURGE BYPASS, OUTSIDE CONTAINMENT ISOLATION														
1-VS-MOV-102	11448-CBB-006A	1 OF 2	C-3	MO BFLY	18	2	AE	CIV	LT VP	C OC	OPB 24				
	CONTAINMENT VACUUM BREAKER														

VALVE INSERVICE TEST TABLE NOTES

NOTE 1

The ASME OM Code, ISTC 5100, describes the exemption of stroke-time testing for power operated control valves whose only safety function is to fail in the safety direction. ISTC 5100 states:

> "All valves shall be tested in accordance with the applicable requirements of ISTC-3000, and as identified below, except for power-operated control valves that only have a fail-safe safety function.
>
> For power-operated control valves that only have a fail-safe safety function, the requirements for valve stroke-time measurement testing, the associated stroke-time test acceptance criteria, and any corrective actions that would result from stroke-time testing need not be met. For these valves, all other applicable requirements of ISTC-3000, and as identified below, shall be met."

The power-operated control valves listed in Table 1 have only a failsafe function. The ASME OM Code as described in ISTC 5100 will be applied to the control valves listed in Table 1. ISTC 5100 has replaced Code Case OMN-8 in the 2004 Edition, 2006 Addenda.

NOTE 1 (Cont.)

Table 1

Valve Number	System	OM Category	ASME Class	Function
1-CC-LCV-101	Component Cooling	B	3	Charging Pump Seal Cooling Surge Tank Level Control Valve
1-CH-FCV-1113A	Chemical and Volume Control	B	2	Alternate Emergency Boration Line Flow Control Valve
1-CH-FCV-1114A	Chemical and Volume Control	B	2	Primary Grade Water Flow Control Valve
1-MS-RV-101A 1-MS-RV-101B 1-MS-RV-101C	Main Steam	B	2	Main Steam Header Discharge to Atmosphere Pressure Control Valves

Valve Number	System	OM Category	ASME Class	Function
1-SW-PCV-100A	Service Water	B	3	Control Room Condenser Water System Pressure Control Valves
1-SW-PCV-100B				
1-SW-PCV-100C				
1-SW-PCV-100D				
1-SW-PCV-100E				
1-SW-PCV-101A				
1-SW-PCV-101B				
1-SW-PCV-101C				
1-SW-PCV-101D				
1-SW-PCV-101E				

NOTE 1 (Cont.)

Table 1

Valve Number	System	OM Category	ASME Class	Function
1-SW-TCV-108A 1-SW-TCV-108B 1-SW-TCV-108C	Service Water	B	3	Service Water to Charging Pump Lube Oil Cooler Temperature Control Valves

NOTE 2

The ASME OM Code, Appendix I, I-1200, Definitions, defines a thermal relief application as:

> "a relief device whose only overpressure protection function is to protect isolated components, systems, or portions of systems from fluid expansion caused by changes in fluid temperature."

According to Appendix I, I-1390, Test Frequency, Classes 2 and 3 Pressure Relief Devices That Are Used for Thermal Relief Application:

> "Tests shall be performed on all Class 2 and 3 relief devices used in thermal relief application every 10 years, unless performance data indicate more frequent testing is necessary. In lieu of tests the Owner may replace the relief devices at a frequency of every 10 years, unless performance data indicate more frequent replacements are necessary."

The valves listed in Table 2 serve a thermal relief application and will be tested in accordance with I-1390.

NOTE 2 (Cont.)

Table 2

Thermal Relief Valve Number	ASME Code Class	Function
1-CC-RV-112A 1-CC-RV-112B 1-CC-RV-112C	3	These relief valves protect the CC piping and components related to the recirculation air cooler from over-pressure in the event of an accident requiring isolation of this line (non-safety function). They also protect the piping associated with containment penetrations 9 through 14.
1-CC-RV-116A 1-CC-RV-116B 1-CC-RV-116C	3	These relief valves protect the CC piping that supplies cooling water to the RCP thermal barrier heat exchangers from over-pressure in the event of an inadvertent actuation of the downstream trip valve. Thermal loads could cause the pressure in the isolated CC piping to increase past the design limit of the pressure boundary.
1-CC-RV-119A 1-CC-RV-119B	3	These relief valves open to protect the RHR heat exchangers from over-pressurization while the heat exchangers are isolated within the containment structure. During an accident, the temperature increase in containment could cause the water in the heat exchanger to expand resulting in a significant increase in pressure with the potential for damage.
1-CC-RV-124	3	The primary function of this relief valve is to protect the piping and cooling coils related to cooling of the pedestals and primary shield from over-pressure in the event they are isolated and subjected to thermal expansion. During a LOCA this section of CC piping is isolated and will be subjected to heating. If such an event should occur, the piping associated with penetrations Nos. 1 & 5 could be subjected to an overpressure condition thus jeopardizing containment integrity.
1-CC-RV-138A 1-CC-RV-138B 1-CC-RV-138C	3	These relief valves open to protect the CC piping and shroud cooling coils from over-pressure in the event of thermal heating when the CC lines are isolated (TV-105 (205) closed).

NOTE 2 (Cont.)

Table 2

Thermal Relief Valve Number	ASME Code Class	Function
1-SI-RV-1859	2	This relief valve is on the SI accumulator test line and protects penetration 106.
1-SW-RV-124D 1-SW-RV-124E	3	During maintenance periods when it may be required to isolate the condensers for 1-VS-E-4D,E, these valves protect the chiller condensers from over pressurization in event the isolated condensers are subjected to heating.

4.5 VALVE TEST PROGRAM RELIEF REQUESTS

Relief Requests identify code requirements that are impractical for Surry Unit 1 and provide justification for the requested exception. Where appropriate, alternate testing to be performed in lieu of code requirements is proposed.

RELIEF REQUEST V-1

Proposed alternative in accordance with 10CFR50.55a(a)(3)(i)
Alternative provides acceptable level of quality and safety.

1.0 ASME Code Components Affected

Valve(s): 1-CH-MOV-1115B 1-SI-MOV-1885A
1-CH-MOV-1115D 1-SI-MOV-1885B
1-SI-25 1-SI-MOV-1885C
1-SI-MOV-1885D

System: Chemical and Volume Control and Safety Injection

Category: A for 1-CH-MOV-1115B and D, and 1-SI-MOV-1885A-D
AC for 1-SI-25

Class: 2

Function: RWST Isolation Valves

2.0 Applicable Code Edition and Addenda

ASME OM Code, 2004 Edition, 2005 and 2006 Addenda

3.0 Applicable Code Requirements

ISTC-3630(f) - Valves or valve combinations with leakage rates exceeding the values specified by the Owner in ISTC-3630(e) above shall be declared inoperable and be either repaired or replaced.

4.0 Reason for Request

Valves 1-CH-MOV-1115B and D, and 1-SI-25 are in the supply line to the charging pumps from the RWST. Valves 1-SI-MOV-1885A, B, C and D are on test lines that run from the discharge of the low head SI pumps to the RWST. During recirculation mode transfer, the RWST is isolated and the low head SI pumps recirculate highly contaminated water from the containment sump to the reactor vessel.

RELIEF REQUEST V-1 (Cont.)

The RWST isolation valves work as a system of valves to protect the RWST from the contaminated sump water. Permissible valve leakage rates are based on each valve's possible contribution to the total allowable leakage rate to the RWST. When the leakages from each valve have been measured and summed, an individual valve's permissible leakage rate may have been exceeded but the overall allowable leakage to the RWST may not have been exceeded. In these cases, a repair or replacement may not be necessary because the system of isolation valves has been verified to be performing adequately.

In addition to repair or replacement as corrective actions, an evaluation can be performed which demonstrates that even if a valve has exceeded its permissible leakage rate, the overall leakage rate to the RWST will be maintained below the overall allowable RWST leakage rate and hence the system function is satisfied. This evaluation should provide a high level of assurance that delaying the repair or replacement will not result in exceeding the overall limit before the next leak rate test. The evaluation should include a determination of the cause for the individual valve leakage. The evaluation should also address the effect of the degradation mechanism for the valve on the ability of the valve group to maintain overall leakage to the RWST below the overall allowable leakage rate during the subsequent 24 month interval. Evaluations will be documented and retained in plant records, and are available for subsequent review. This alternative to the requirements ISTC-3630(f) provides an acceptable level of quality and safety.

5.0 <u>Proposed Alternatives and Bases for Use</u>

In addition to repair or replacement as corrective actions, an evaluation can be performed which demonstrates that even if a valve has exceeded its permissible leakage rate, the overall leakage rate to the RWST will be maintained below the overall allowable RWST leakage rate. No repair or replacement is necessary if the evaluation is performed and system leakage is projected to be maintained below the overall permissible leakage rate throughout the subsequent 24 month interval.

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

RELIEF REQUEST V-1 (Cont.)

6.0 Duration of the Proposed Alternative

The proposed alternatives described in Relief Request V-1 will be used for the Surry Power Station Unit 1 Fifth Ten Year Inservice Testing Interval.

7.0 Precedents

A similar relief request for the Surry Unit 1 Fourth Ten Year Inservice Testing Interval was approved by the NRC in their safety evaluation entitled "Surry Power Station, Units 1 and 2 – American Society of Mechanical Engineers Inservice Testing Program (TAC NOS. MC0120 through MC0146)" dated July 2, 2004.

The following relief request for another plant that is similar to V-1 was approved by the NRC.

Pump Relief Request V-1 for North Anna 1 was approved by the NRC by letter dated 9/30/2010 (TAC NOS. ME2748, ME2749, ME2753 to ME2760, ME2763 to ME2772, ME2778 to ME2789).

8.0 References

1. ASME OM Code, 2004 Edition, 2005 and 2006 Addenda

4.6 VALVE TEST PROGRAM COLD SHUTDOWN JUSTIFICATIONS

ISTC-3521 and ISTC-3522 allow for the full stroke exercising of valves during Cold Shutdown (but not more frequently than every three months) if it is impractical to exercise the valves during normal operation. Therefore, no request for relief from testing every three months is necessary.

ISTC-9200 does require that these valves be specifically identified by the owner. The cold shutdown justifications identify and provide the technical basis for valves exercised during cold shutdown but not during normal operation.

COLD SHUTDOWN JUSTIFICATION CSV-1

System: Main Steam

Valve(s): 1-MS-TV-101A
1-MS-TV-101B
1-MS-TV-101C

Category: B

Class: 2

Function: Main Steam Line Trip Valves

Cold Shutdown Justification

Full stroke or part stroke exercising of these valves during power operation could result in a turbine and reactor trip.

Testing Frequency

These valves will be full stroke exercised every cold shutdown but not more frequently than once every three months.

> Note: The technical specification acceptance criteria are more limiting than the standard Code test criteria because the technical specification requires the measurement of elapsed time from the manual initiation of steam line isolation to initiation of main trip valve motion (must be less than or equal to 4.0 seconds) and the measurement of elapsed time from full open to full close (must be less than or equal to 5.0 seconds). If either of the limiting times is exceeded, the valve fails the test.
>
> The Code requires the measurement of elapsed time from initiation of steam line isolation to full valve closure, which is a less conservative test.

COLD SHUTDOWN JUSTIFICATION CSV-2

System: Component Cooling

Valve(s): 1-CC-TV-105A
1-CC-TV-105B
1-CC-TV-105C

Category: B

Class: 3

Function: Component Cooling Water Return from Reactor Coolant Pump Isolation Valves

Cold Shutdown Justification

Exercising valves 1-CC-TV-105A, B and C during normal operation would isolate the reactor coolant pump (RCP) component cooling water return headers. These headers collect cooling water from the RCP upper and lower bearing lube oil coolers, the shroud cooling coils and the stator coolers. Loss of cooling water to these pumps can be damaging, even for short periods of time. Therefore, the corresponding RCP must be secured before the header isolation trip valve is exercised. The valve controllers do not allow for a part-stroke exercise test.

Testing Frequency

These valves will be full-stroke exercised to the close position every cold shutdown when the corresponding RCP is secured but not more frequently than once every three months.

COLD SHUTDOWN JUSTIFICATION CSV-3

System: Reactor Coolant

Valve(s): 1-RC-PCV-1455C
1-RC-PCV-1456

Category: BC

Class: 1

Function: Pressurizer Power Operated Relief Valves

Cold Shutdown Justification

These pressurizer power operated relief valves have shown a high probability of sticking open while being exercised during power operation. Also, these valves are not required for overpressure protection unless the primary system temperature is less than or equal to 350 °F per Technical Specification Paragraph 3.1.G.1.c(4).

Testing Frequency

These valves will be tested on approach to Cold Shutdown.

COLD SHUTDOWN JUSTIFICATION CSV-4

System: Chemical and Volume Control

Valve(s): 1-CH-MOV-1115C
1-CH-MOV-1115E

Category: B

Class: 2

Function: Charging Pump Suction from Volume Control Tanks

Cold Shutdown Justification

Partial or full stroke exercising these valves during power operation would require the charging pump suctions to be aligned with the refueling water storage tank. This would cause a sudden increase in Reactor Coolant System boron inventory, which would cause a plant transient.

Testing Frequency

These valves will be tested to the close position every cold shutdown but not more frequently than once every three months.

COLD SHUTDOWN JUSTIFICATION CSV-5

System: Chemical and Volume Control

Valve(s): 1-CH-MOV-1381

Category: A

Class: 2

Function: Reactor Coolant Pump Seal Water Return

Cold Shutdown Justification:

Closure of this valve with Reactor Coolant Pumps in operation will cause a loss of seal flow resulting in possible pump seal damage.

Testing Frequency

This valve will be tested to the close position every cold shutdown when the reactor coolant pumps are secured but not more frequently than once every three months.

COLD SHUTDOWN JUSTIFICATION CSV-6

System: Chemical and Volume Control

Valve(s): 1-CH-TV-1204A 1-CH-LCV-1460A
1-CH-TV-1204B 1-CH-LCV-1460B

Category: A (1-CH-TV-1204A, B) and B (1-CH-LCV-1460A, B)

Class: 1 (1-CH-LCV-1460A, B) and 2 (1-CH-TV-1204A, B)

Function: Reactor Coolant System Letdown Isolation Trip and Level Control Valves

Cold Shutdown Justification

Exercising these valves during power operation interrupts letdown flow from the reactor coolant system (RCS) to the volume control tank. If the valves should fail closed, reactor coolant inventory control would be lost.

The pressurizer level control program controls reactor coolant inventory by regulating the operation of the charging flow control valve so that the charging input flow to the RCS and reactor coolant pump seal injection flow into the RCS matches letdown flow.

Also, exercising these valves during normal operation will interrupt letdown flow through the regenerative heat exchanger. This flow interruption would allow a slug of relatively cool charging water to thermal shock the nozzle connecting the 3" charging line to the 27" loop 2 cold leg injection line.

The valve controllers do not allow for a part stroke exercise test.

Testing Frequency

These valves will be tested to the close position every cold shutdown but not more frequently than once every three months.

COLD SHUTDOWN JUSTIFICATION CSV-7

System: Chemical and Volume Control

Valve(s): 1-CH-MOV-1289A
1-CH-MOV-1289B

Category: B

Class: 2

Function: Normal Charging Header Isolation

Cold Shutdown Justification

Failure of these valves in the close position during exercising would cause a loss of charging flow and could result in an inability to maintain reactor coolant inventory.

Testing Frequency

These valves will be tested to the close position every cold shutdown but not more frequently than once every three months.

COLD SHUTDOWN JUSTIFICATION CSV-8

System: Safety Injection

Valve(s): 1-SI-MOV-1890C

Category: B

Class: 2

Function: Low Head Safety Injection to Reactor Coolant System Cold Legs

Cold Shutdown Justification

In accordance with Technical Specification 3.3.A.3, two safety injection subsystems, which include one operable low head safety injection pump, must be operable when the reactor is critical. If this valve was stroked during power operation and failed in the close position, the Low Head Safety Injection System would be rendered inoperable.

Testing Frequency

This valve will be tested to the full open and close positions every cold shutdown but not more frequently than once every three months.

COLD SHUTDOWN JUSTIFICATION CSV-9

System: Safety Injection

Valve(s): 1-SI-MOV-1867C
1-SI-MOV-1867D

Category: B

Class: 2

Function: High Head Safety Injection Isolation

Cold Shutdown Justification

These valves cannot be partial or full stroke exercised during power operation. Opening these valves would allow excess charging flow into the Reactor Coolant System causing a reactivity transient.

Testing Frequency

These valves will be tested to the full open and close positions every cold shutdown but not more frequently than once every three months.

COLD SHUTDOWN JUSTIFICATION CSV-10

System: Chemical and Volume Control

Valve(s): 1-CH-MOV-1350

Category: B

Class: 2

Function: Emergency and Manual Emergency Boration Line Isolation Valve

Cold Shutdown Justification

Valve 1-CH-MOV-1350 can be full stroke exercised during normal operation when the boric acid concentration in the reactor coolant system is above 100 ppm. During power operation when the concentration of boric acid is low, the addition of boric acid will produce an undesirable transient in reactor power. Low concentrations of boric acid occur near the end of the fuel cycle. The valve controller does not allow for part stroke exercising.

Testing Frequency

Valve 1-CH-MOV-1350 will be full stroke exercised during normal operation when the reactor coolant boric acid concentration is above 100 ppm.

COLD SHUTDOWN JUSTIFICATION CSV-11

System: Steam Generator Blowdown

Valve(s):	1-BD-TV-100A	1-BD-TV-100D
	1-BD-TV-100B	1-BD-TV-100E
	1-BD-TV-100C	1-BD-TV-100F

Category: B

Class: 2

Function: Steam Generator Blowdown Isolation

Cold Shutdown Justification

Closing these valves during power operation causes the downstream piping to become empty due to drainage and water flashing to steam. When the valves reopen, a flow surge could occur which automatically isolates the inner valves due to high flow. Then a containment entry is necessary to reset these valves and upon reopening the process may occur again.

Testing Frequency

These valves will be tested to the close position every cold shutdown but not more frequently than once every three months.

COLD SHUTDOWN JUSTIFICATION CSV-12

System: Safety Injection

Valve(s): 1-SI-MOV-1842
1-SI-MOV-1869A
1-SI-MOV-1869B

Category: B

Class: 2

Function: High Head Safety Injection to reactor Coolant System

Cold Shutdown Justification

These valves cannot be partial or full stroke exercised during power operation. Opening these valves would allow excess charging flow into the Reactor Coolant System causing a reactivity transient and possible thermal shock to the High Head Safety Injection System.

Testing Frequency

These valves will be tested to the full open and close positions every cold shutdown but not more frequently than once every three months.

COLD SHUTDOWN JUSTIFICATION CSV-13

System: Component Cooling

Valve(s): 1-CC-TV-120A 1-CC-TV-140A
1-CC-TV-120B 1-CC-TV-140B
1-CC-TV-120C

Category: B

Class: 3

Function: Component Cooling Return from Reactor Coolant Pump Thermal Barrier Isolation Valves

Cold Shutdown Justification

Exercising these valves during normal operation would isolate component cooling water to the reactor coolant pump thermal barriers. Cooling water must be available to the reactor coolant pump thermal barriers when the reactor coolant system temperature is above 200°F. Cold shutdown is entered when the reactor coolant system temperature drops below 200°F. The valve controllers do not allow for a part stroke exercise test.

Testing Frequency

These valves will be tested to the close position every cold shutdown but not more frequently than once every three months.

COLD SHUTDOWN JUSTIFICATION CSV-14

System: Feedwater

Valve(s):	1-FW-FCV-1478	1-FW-HCV-155A
	1-FW-FCV-1488	1-FW-HCV-155B
	1-FW-FCV-1498	1-FW-HCV-155C

Category: B

Class: NC

Function: Main Feedwater Regulating and Regulating Bypass Isolation Valves

Cold Shutdown Justification

These valves are in positions required to sustain power operation. Full stroke exercising the valves would result in a reactor trip. The main feedwater regulating valves 1-FW-FCV-1478, 1488 and 1498 move during normal operation as they perform their regulating function. In order to perform a partial stroke test during normal operation, the plant would have to reduce power to cause the valve disks to move. Reducing power for the purpose of performing an exercise test is considered impractical according to the NRC response to Comment 2.4.5-1 in NUREG-1482, Revision 0, Appendix G. Appendix G was omitted from NUREG-1482, Revision 1, along with Comment 2.4.5-1. However, IST Engineering still considers reducing power for the purpose of performing an exercise test as being impractical.

The bypass valves 1-FW-HCV-155A, B and C are used only during plant startup. During this startup period, their safety function is to close. During normal operation, these valves remain closed and are passive in the close position. Therefore, the bypass valves do not need to be partial stroke tested every three months.

Testing Frequency

These valves will be full stroke exercised every cold shutdown but not more frequently than once every three months.

COLD SHUTDOWN JUSTIFICATION CSV-15

System: Component Cooling

Valve(s): 1-CC-LCV-101

Category: B

Class: 3

Function: Charging Pump Seal Cooling Surge Tank Level Control Valve

Cold Shutdown Justification

This valve must open to maintain the level in the charging pump seal water surge tank and must close to prevent overflowing the surge tank and potentially draining the surge tank through the over flow line. The valve fails close on lose of operating air.

Valve position is determined solely from tank level. In order to manipulate the valve for testing, the surge tank must be isolated. However, the surge tank provides the NPSH for the charging pump cooling water pumps and it should not be isolated from the system during normal operation when component cooling water for the charging pumps is required.

Testing Frequency

This valve will be exercised to the open and close positions every cold shutdown but not more frequently than once every three months.

COLD SHUTDOWN JUSTIFICATION CSV-16

System: Reactor Coolant

Valve(s): 1-RC-SOV-100A-1
1-RC-SOV-100A-2
1-RC-SOV-100B-1
1-RC-SOV-100B-2

Category: B

Class: 1

Function: Head Vent for Reactor Vessel

Cold Shutdown Justification

These valves isolate the reactor vessel from containment atmosphere. Partial or full stroke exercising the valves during normal operation or during cold shutdowns where the reactor coolant system is pressurized could result in the release of uncontrolled contamination to containment.

Testing Frequency

These valves will be exercise to the open and close positions during cold shutdowns when the reactor coolant system is not pressurized but not more frequently than once every three months.

COLD SHUTDOWN JUSTIFICATION CSV-17

System: Safety Injection

Valve(s): 1-SI-MOV-1865A
1-SI-MOV-1865B
1-SI-MOV-1865C

Category: B

Class: 2

Function: Accumulator Discharge Isolation Valves to RCS Cold Leg

Cold Shutdown Justification

In accordance with Technical Specification 3.3.A.2.d, the accumulator discharge isolation valves 1-SI-MOV-1865A, B and C shall be blocked open by de-energizing the valve motor operators when the reactor coolant system pressure is greater than 1000 psig. These valves could be called upon to close when the reactor coolant system pressure is less than 1000 psig. If these valves were stroked during power operation and failed in the close position, the corresponding accumulator would be rendered inoperable and thus decrease plant safety. Also, the valve controllers do not allow for a part-stroke exercise test.

Testing Frequency

These valves will be full stroke exercised to the open and close positions every cold shutdown but not more frequently than once every three months.

COLD SHUTDOWN JUSTIFICATION CSV-18

System: Safety Injection

Valve(s): 1-SI-MOV-1890A
1-SI-MOV-1890B

Category: B

Class: 2

Function: Low Head Safety Injection Pump to Hot Leg Discharge Stop Valves

Cold Shutdown Justification

These stop valves have a double disk design and are closed during normal plant operation. They can be opened during the recirculation mode following an accident to periodically align the low head safety injection pump discharge with the reactor coolant system (RCS) hot legs. Therefore, they are called upon to open after the RCS is depressurized. During normal operation, downstream check valves in series separate the stop valves from the normal RCS pressure of 2235 psig.

According to AEOD Report T95-02, "Potential Damage to Low-Pressure Injection Valves During Surveillance Testing," valves with the same operating conditions, system configuration and disk design as the stop valves may be subject to loads that exceed the maximum design load of the valve if the valve is exercised at normal power. The maximum design load for the stop valves was determined for a depressurized RCS. However, if there is any leakage past the check valves during normal operation, the stop valves will experience the RCS pressure of 2235 psig on the downstream disk.

Full or partial-stroke exercising the stop valves at power and with RCS leakage to the downstream disk will produce a load that greatly exceeds the design load. Degradation from repeated surveillance testing could result in a situation where the valve may operate during testing, but could fail on a subsequent demand during an accident. To eliminate the concern of overloading the stop valves during surveillance testing, AEOD Report T95-02 recommends testing these valves "during refueling outages or other outages when the RCS pressure is low."

COLD SHUTDOWN JUSTIFICATION CSV-18 (Cont.)

Testing Frequency

Because these stop valves fit the profile of valves subject to degradation as described above and in AEOD Report T95-02, the valves will be full stroke exercised to the open and close positions every cold shutdown but not more frequently than once every three months.

COLD SHUTDOWN JUSTIFICATION CSV-19

System : Circulating Water

Valve(s):		
	1-CW-MOV-100A	1-CW-MOV-106A
	1-CW-MOV-100B	1-CW-MOV-106B
	1-CW-MOV-100C	1-CW-MOV-106C
	1-CW-MOV-100D	1-CW-MOV-106D

Category: B

Class: 3 (1-CW-MOV-106A to 106D) and NC (1-CW-MOV-100A to 100D)

Function: Main condenser outlet/inlet isolation valves

Cold Shutdown Justification

During plant operation these valves are open to provide for the circulation of cooling water (river water) through the main condenser. These valves can be full stroke exercised during normal operation. However, when the circulating water is above 80 F, exercising the valves to the closed position will result in a reduction of condenser vacuum and loss of MWe, and may cause the operators to ramp the unit down during the test.

Due to the recent turbine upgrade, there is reduced margin with condenser vacuum. Therefore, there is a possibility that the unit must ramp down to test these valves when the circulating water temperature is above 80 F. Prior to the turbine upgrade, the unit lost about 10 MWe when testing these valves at elevated circulating water temperatures during the summer time. With the turbine upgrade, the unit will lose greater than 20 MWe. Additionally, the loss of vacuum may cause the operators to ramp the unit down during the test.

The valve controllers on the inlet isolation valves (1-CW-MOV-106A, B, C and D) do not allow for part-stroke exercising. The outlet isolation valves (1-CW-MOV-100A, B, C and D) can be throttled and will be part-stroke exercised every quarter as required by ISTC-3521(b).

Testing Frequency

These valves will be full stroke exercised every quarter except when the circulating water temperature is greater than 80 °F. In this case, the valves will be full stroke exercised every cold shutdown but not more frequently than once every three months. The outlet isolation valves (1-CW-MOV-100A, B, C and D) will be part-stroke exercised every quarter.

4.7 VALVE TEST PROGRAM REACTOR REFUELING JUSTIFICATIONS

ISTC-3521 and ISTC-3522 allow for the full stroke exercising of valves during reactor refueling (but not more frequently than every three months) if it is impractical to exercise the valves during normal operation or cold shutdown. Therefore, no request for relief from testing every three months is necessary.

However, ISTC-9200 does require that these valves be specifically identified by the owner. The reactor refueling justifications identify and provide the technical basis for valves exercised during reactor refueling outages.

REACTOR REFUELING JUSTIFICATION RRV-1

System: Residual Heat Removal

Valve(s): 1-RH-MOV-1700
1-RH-MOV-1701
1-RH-MOV-1720A
1-RH-MOV-1720B

Category: B

Class: 1

Function: RHR Supply and Return Isolation Valves

Reactor Refueling Justification

These valves are interlocked with Reactor Coolant System pressure such that the valves cannot be opened at elevated reactor coolant system pressure. Overpressurization of the suction line may cause a LOCA. The interlocks cannot be bypassed with normal control circuits. Therefore, the valves cannot be full or part-stroke exercised during power operation. Also, the valve controllers do not allow for a part-stroke exercise test.

The RHR suction valves 1-RH-MOV-1700 and 1701 are located in series. To cycle these valves for testing, the RHR pumps must be secured. The RHR system is required to be operable during cold shutdown and reactor refueling while fuel is in the reactor vessel. Also, failure of the valves to stroke open during testing will cause a loss of RHR system function. According to NUREG-1482, Revision 1, Section 3.1.1(1), loss of system function if a valve fails in a non-conservative position during cycling is adequate justification to defer testing. Therefore, these valves should only be cycled when the reactor vessel is defueled.

The RHR return isolation valves 1-RH-MOV-1720A and B are arranged in parallel. Therefore, the failure of one valve to cycle properly will not disable RHR. However, the discharge valves will be tested at the same interval as the suction valves because the small increase in safety gained by testing them during cold shutdown does not justify the burden of testing and tracking the RHR isolation valves on different test intervals.

Testing Frequency

These valves will be full stroke exercised every reactor refueling.

REACTOR REFUELING JUSTIFICATION RRV-2

System: Service Water

Valve(s):		
	1-SW-MOV-103A	1-SW-MOV-104C
	1-SW-MOV-103B	1-SW-MOV-104D
	1-SW-MOV-103C	1-SW-MOV-105A
	1-SW-MOV-103D	1-SW-MOV-105B
	1-SW-MOV-104A	1-SW-MOV-105C
	1-SW-MOV-104B	1-SW-MOV-105D

Category: B

Class: 3

Function: Recirculation Spray Heat Exchanger Isolation Valves

Reactor Refueling Justification

The recirculation spray heat exchangers are designed to transfer heat from the containment recirculation spray system to the service water system. Four heat exchangers (1-RS-E-1A, B, C and D) are installed in the Unit 1 containment. Each heat exchanger has a service water supply line with a 24" motor operated isolation valve (1-SW-MOV-104A, B, C and D), and a service water return line with a 24" motor operated isolation valve (1-SW-MOV-105A, B, C and D). The supply lines are fed by two service water headers, each having two 30" motor operated isolation valves in parallel (1-SW-MOV-103A and B, and 1-SW-MOV-103C and D). One header feeds heat exchangers 1-RS-E-1A and 1D, and the other header feeds heat exchangers 1-RS-E-1B and 1C. All of the isolation valves are butterfly valves and are normally closed with the heat exchangers maintained in a dry (drained) condition. Upon initiation of containment recirculation spray, these valves automatically open.

The service water supply and return line isolation valves provide the second containment isolation boundary for the recirculation spray heat exchangers. Each heat exchanger loop is considered a closed system within the containment. Therefore, although the isolation valves are designated as containment isolation valves in UFSAR Table 5.2-1, they are not subject to Appendix J leak testing. However, each heat exchanger train is subject to leak testing whenever the system membrane is breached, which normally occurs during maintenance on the system during refueling outages.

REACTOR REFUELING JUSTIFICATION RRV-2 (Cont.)

These large butterfly valves have rubber seats to ensure a leak tight seating surface. An investigation of valve leakage events related to this type of valve revealed that a leakage cause was degraded seats. Foreign material was found in the seats that could cause cutting of the soft seat surface when the valves are exercised. This foreign material is transported to the valve by the normal operation of the circulating water system and the service water system. Frequent exercising of the valves presents more opportunities for this type of seat damage to occur. To reduce damage to the valve seats, the exercise test will be deferred from every three months to every reactor refueling.

The 30" header isolation butterfly valves also have a boundary leakage function. The source of service water for Surry Power Station is the James River. The water in the James River is brackish, and is rich in sediments and marine organisms. This raw water must not leak by the header and supply line isolation valves because the sediment and marine growth would foul the heat exchangers. The 30" header isolation butterfly valves prevent the river water from filling the service water header and supply lines up to valves 1-SW-MOV-104A, B, C and D. The service water headers up to the 24" supply line branches are filled with chemically treated water and maintained in a wet layup condition during normal operation to reduce biological fouling, to reduce the initial flow through the heat exchangers and thus reduce the amount of marine growth torn off the pipe walls, and to reduce air entrapment in the heat exchangers.

There have been times when the 30" valves have leaked to the point that the headers had to be drained to prevent service water from reaching the 104 valves. The 30" valves have rubber seats to ensure a leak tight seating surface. As with the 24" butterfly valves, exercising the 30" valves presents more opportunities for seat damage to occur. To reduce damage to the valve seats, the exercise test will be deferred from every three months to every reactor refueling.

A review of stroke time data collected over a10 year period revealed that there were no stroke time test failures for any of the twelve valves. Therefore, these valves have proven to be highly reliable, and based on good performance the test interval of every reactor refueling will be adequate to maintain this reliability.

<u>Testing Frequency</u>

These valves will be exercised every reactor refueling.

REACTOR REFUELING JUSTIFICATION RRV-3

System: Main Steam System

Valve(s): 1-MS-RV-101A
1-MS-RV-101B
1-MS-RV-101C

Category: B

Class: 2

Function: Main Steam Header Discharge to Atmosphere Pressure Control Valves

Reactor Refueling Justification

These valves are located above the main steam lines on the top floor of the main steam valve house. The top floor of the main steam valve house is exposed to heat loads from the main steam lines and is a high temperature environment, particularly in the summer time.

If the plant is at power, upstream isolation valves must be closed manually. Then the pressure control valves must be stroked and observed locally when performing the fail-safe test. Given that test personnel must stand near the high temperature main steam lines and valves when manipulating the upstream manual isolation valves, and the high temperatures in the main steam valve house, this test presents a hazardous situation for the test personnel when performed under high temperature conditions. To ensure the safety of test personnel, this test should be performed during reactor refueling outages when the main steam lines and the main steam valve house are cooler.

Testing Frequency

These valves will be exercised closed every reactor refueling.

REACTOR REFUELING JUSTIFICATION RRV-4

System: Chemical and Volume Control

Valve(s): 1-CH-MOV-1373

Category: B

Class: 2

Function: Charging Pump Common Recirculation Header Isolation Valve

Reactor Refueling Justification

This normally open motor operated valve is located on the common recirculation header downstream from the charging pumps. During a small break LOCA event, isolation of the recirculation line is required when the RCS pressure drops below 1000 psig. In this event, valve 1-CH-MOV-1373 would have to close if charging pump 1-CH-P-1B is the running pump and the "H" emergency bus were to fail. Pump 1-CH-P-1B is powered by the "J" emergency bus and the downstream dedicated recirculation line isolation valve 1-CH-MOV-1275B is powered by the "H" bus. With the "H" bus failed, emergency procedure 1-E-1 calls for 1-CH-MOV-1373 to be closed if a response is not obtained when closing 1-CH-MOV-1275B.

This valve should not be stroke time tested to the closed position during normal power operation because failure of the valve in the partially closed or full closed position during testing when the plant is at power would challenge the operability of all three charging (high head safety injection) pumps.

Also, the charging pumps must provide RCP seal injection while the plant is at cold shutdown and the RCS is pressurized. Failure of the valve in the partially closed or full closed position during testing when the plant is at cold shutdown would challenge the operability of all three charging pumps. Therefore, this valve should not be partially stroked or full stroked during power operation or during cold shutdown. Deferring stroke time testing for this valve to each reactor refueling shutdown is consistent with the guidance given in NUREG-1482, Revision 1, Section 3.1.1(1).

Testing Frequency

This valve will be full stroke exercised to the closed position every reactor refueling.

4.8 ALTERNATIVE TESTING FOR NON-CODE VALVES

According to the minutes of public meeting on Generic Letter 89-04, "Paragraph (g) of 10CFR 50.55a requires the use of Section XI of the ASME Code for inservice testing of components covered by the Code. For other components important to safety, the licensee also has the burden of demonstrating their continued operability." The minutes go on to state that, "The Code-required IST program is a reasonable vehicle to provide a periodic demonstration of the operability of pumps and valves not covered by the Code. If non-Code components are included in the ASME Code IST program (or some other licensee-developed inservice testing program) and certain Code provisions cannot be met, the Commission regulations (10 CFR 50.55a) do not require a 'request for relief' to be submitted to the staff. Nevertheless, documentation that provides assurance of the continued operability of the non-Code components through the performed tests should be available at the plant site." Non-Code components are components that are important to safety but are not in systems or portions of systems that are classified ASME Class 1, 2 or 3.

Surry Power Station has elected to include certain non-Code components in the ASME IST program. Where the Code provisions are not met for non-Code components, alternative testing is performed that is adequate to ensure continued operability. The alternate testing is described in this section. There may be other deviations from Code provisions that are not described in this section. For these cases, documentation is available at the plant site.

As indicated in the minutes of public meeting on Generic Letter 89-04, a 'request for relief' need not be submitted for non-Code components. Therefore, the alternative tests described in this section are not 'requests for relief' but are provided for information.

NON-CODE ALTERNATIVE TESTING VNC-1

System: Emergency Generator

Valve(s): 1-EG-43	3-EG-43
1-EG-44	3-EG-44
1-EG-SOV-100A	3-EG-SOV-300A
1-EG-SOV-100B	3-EG-SOV-300B

Category: B

Class: NC

Function: 1/3-EG-43,44 EDG Starting Air/Drive Air Control Valves
1/3-EG-SOV-1/300A and B Air Start System Solenoid Valves

ISTC Code Requirements
Which Will Not Be Met

For valves 1/3-EG-43,44, and 1/3-EG-SOV-1/300A, B, measure stroke time.

Basis for Alternate Testing

Valves 1/3-EG-43 and 44 are air pilot valves that open to supply drive air to the EDG air starting motors. These valves along with the air start solenoid valves 1/3-EG-SOV-1/300A and B have actuation times considerably under a second and there is no visual reference on the valve to observe the stroke; therefore, the stroke time cannot be measured.

Alternate Testing

These valves will be stroke tested quarterly by observing that the valves perform their intended function, which is to start the diesel engines. Adequate performance of the valves will be verified by recording the time it takes for the diesel engines to reach a predetermined RPM and comparing the time to an acceptance criterion.

Also, the failure of these valves to perform will promptly give a diesel engine trouble alarm. Further investigation would identify problems with the operability of these valves.

NON-CODE ALTERNATIVE TESTING VNC-2

System: EE

Valve(s): 1-EE-SOV-100 1-EE-SOV-104
1-EE-SOV-101 1-EE-SOV-105

Category: B

Class: NC

Function: Diesel Fuel Oil Pump Discharge Valves

ISTC Code Requirements
Which Will Not Be Met

Measure stroke time.

Basis for Alternate Testing

These valves are small (1"), fast acting solenoid operated gate valves with no position indication lights and no local visual means of determining stroke time. Valve operability can only be indirectly observed by verifying system operability.

Also, these valves are interlocked with the pumps to open and close upon pump startup and shutdown.

Alternate Testing

These solenoid valves will be stroke tested quarterly by observing that the solenoid valves perform their intended function (fuel oil is flowing to the day tank after the solenoid valve has been opened).

NON-CODE ALTERNATIVE TESTING VNC-3

System: Refer to Table VNC-3

Valve(s): Refer to Table VNC-3

Category: Refer to Table VNC-3

Class: Refer to Table VNC-3

Function: Refer to Table VNC-3

ISTC Code Requirements
Which Will Not Be Met

Measure stroke time

Basis for Alternate Testing

The ASME OM Code, ISTC-5100, describes the exemption of stroke-time testing for power operated control valves whose only safety function is to fail in the safety direction. ISTC-5100 states:

> "All valves shall be tested in accordance with the applicable requirements of ISTC-3000, and as identified below, except for power-operated control valves that only have a fail-safe safety function.
> For power-operated control valves that only have a fail-safe safety function, the requirements for valve stroke-time measurement testing, the associated stroke-time test acceptance criteria, and any corrective actions that would result from stroke-time testing need not be met. For these valves, all other applicable requirements of ISTC-3000, and as identified below, shall be met"

The power-operated control valves listed in Table VNC-3 have only a failsafe function. We will be applying ISTC-5100 to the testing of the control valves listed in Table VNC-3.

Alternate Testing

The control valves listed in Table VNC-3 will be tested to the requirements of ISTC-5100.

NON-CODE ALTERNATIVE TESTING VNC-3 (Cont.)

Table VNC-3

Valve Number	System	OM Category	ASME Class	Function
1-FW-FCV-1478 1-FW-FCV-1488 1-FW-FCV-1498	Feedwater	B	NC	Main Feedwater Regulating Valves
1-FW-HCV-155A 1-FW-HCV-155B 1-FW-HCV-155C	Feedwater	B	NC	Main Feedwater Regulating Bypass Valves

NON-CODE ALTERNATIVE TESTING VNC-4

System: EE

Valve(s): 1-EE-RV-103
1-EE-RV-105
1-EE-RV-106
1-EE-RV-108

Category: C

Class: NC

Function: Diesel Fuel Oil Pump Discharge Relief Valves

ISTC, Appendix I Code Requirements
Which Will Not Be Met

According to ASME OM Appendix I, I-8130(a), "Test Media. Valves shall be tested with the normal system operating fluid and temperature for which they are designed. Alternative liquids and different temperatures may be used, provided the requirements of I-8300 are met." The normal system operating fluid for the diesel fuel oil pump discharge relief valves is diesel fuel oil. The valves are tested with water.

Basis for Alternate Testing

Safety and relief valves used in liquid service are certified by the manufacturers with water in accordance with the requirements of the National Board Inspection Code. This certification process applies to valves used in diesel fuel oil service. Also, there is no correlation from water to diesel fuel oil provided by the manufacturer.

To test the relief valves with diesel fuel oil would require a separate set of test equipment. The current test equipment would be contaminated if fuel oil was used and would not be suitable for use with relief valves that are used in water service.

Testing the set point pressure of the diesel fuel oil pump discharge relief valves with water instead of diesel fuel oil is an industry accepted practice and provides adequate assurance that the relief valves will function properly and protect the diesel fuel oil pump discharge piping.

Alternate Testing

The set pressure test for the diesel fuel oil pump discharge relief valves will be performed with water instead of diesel fuel oil.

5.0 REPORTING OF INSERVICE TEST RESULTS

5.1 PUMP INSERVICE TESTING PROGRAM

A record of each pump will be maintained in accordance with ISTB-9100 that includes the following:

1) the manufacturer and the manufacturer's model and serial or other identification number,

2) a copy or summary of the manufacturer's acceptance test report if available,

3) a copy of the pump manufacturer's operating limits.

A record of inservice test plans will be maintained in accordance with ISTB-9200 that includes the following:

1) category of each pump,

2) the hydraulic circuit to be used,

3) the location and type of measurement for the required test parameters and

4) the method of determining reference values which are not directly measured by instrumentation.

A record of test results will be maintained in accordance with ISTA-9230 that includes the following:

1) equipment identification,

2) date of test or examination,

3) reason for test or examination (e.g., post maintenance, routine inservice test or examination, establishing reference values, etc.),

4) test or examination procedure used;

5) identification of test equipment used;

6) calibration records;

7) values of measured parameters;

8) comparison with allowable ranges of test and examination values, and analysis of deviations;

9) requirement for corrective action; and

10) printed (or typed) name and signature of the person(s) responsible for conducting and analyzing the test and examination.

In accordance with ISTA-9240, the Owner shall maintain records of corrective action that shall include a summary of the corrective actions made, the subsequent inservice test or examination, confirmation of operational adequacy, and the printed (or typed) name and signature of the person(s) responsible for the corrective action and verification of results.

The Pump Inservice Test Program, associated surveillance test procedures and results will be kept at Surry Power Station. They will be available for audit by the NRC.

5.2 VALVE INSERVICE TESTING PROGRAM

A record of each valve will be maintained in accordance with ISTC-9110 that includes the following:

1) the manufacturer and the manufacturer's model and serial or other unique identification number,

2) a copy or summary of the manufacturer' acceptance test report if available,

3) preservice test results and

4) limiting value of full stroke time.

This IST Program Plan meets the requirements of ISTC-9200, Test Plans. A record of test results will be maintained in accordance with ISTA-9230. A record of corrective action will be maintained in accordance with ISTA-9240. The Valve Inservice Test Program, associated surveillance test procedures and results will be kept at Surry Power Station. They will be available for audit by the NRC.

6.0 QUALITY ASSURANCE PROGRAM

The Pump and Valve Inservice Test Program activities will be conducted in accordance with the Technical Specifications for Surry Power Station.

ENCLOSURE 2

SURRY POWER STATION UNIT 2
FIFTH INTERVAL INSERVICE TESTING PROGRAM

Attachment 1	Summary of Proposed Relief Requests
Attachment 2	Proposed Relief Requests
Attachment 3	Inservice Testing Program Fifth Testing Interval Update Summary
Attachment 4	Inservice Testing Program Plan for Pumps and Valves, Fifth Testing Interval

VIRGINIA ELECTRIC AND POWER COMPANY
(DOMINION)

ATTACHMENT 1

SURRY POWER STATION UNIT 2
INSERVICE TESTING PROGRAM

SUMMARY OF PROPOSED RELIEF REQUESTS
FOR THE
FIFTH 10 YEAR TESTING INTERVAL

VIRGINIA ELECTRIC AND POWER COMPANY
(DOMINION)

SURRY POWER STATION UNIT 2 INSERVICE TESTING PROGRAM SUMMARY OF PROPOSED RELIEF REQUESTS FOR THE UPCOMING 10 YEAR TESTING INTERVAL (INTERVAL 5)			
Interval 5 Relief Request	Relief Request Description	Interval 4 Relief request	Comments
G-1	General program relief to use OMN-20, which allows for the application of a 25% grace period when scheduling tests.	None	Other plants have submitted similar relief requests and at least one plant (Quad Cities) has received NRC approval. This issue was discussed during the last ASME OM Code/IST Owners Group meetings held in December 2012. The NRC representative discussed Code Case OMN-20, which allows for a 25% grace period when performing IST tests. Having this Code case will solve the issue with TS 3.0.2 and TS 4.0.2, which allow a 25% grace for TS SRs, but not for IST tests that do not have an associated SR. NRC stated that several utilities have already requested relief to implement the draft Code Case. A relief request will be submitted using OMN-20 for the SPS Interval 5 update.
P-1	Allows for a base reference value of 0.05 ips for smooth running pumps.	P-1	North Anna received NRC approval for a similar relief request. Several plants have received NRC approval for similar relief requests within the last 3 years.
P-2	Relief from testing the RHR pumps every quarter.	P-2	North Anna received NRC approval for a similar relief request. There was a provision in the Surry Interval 4 Relief Request P-2 that stated, "These pumps will be tested every cold shutdown outage and reactor refueling outage at the first practical opportunity after containment sub-atmospheric pressure is relieved, unless the pump has been tested within the previous three months." The provision "at the first practical opportunity after containment sub-atmospheric pressure is relieved" was removed for the Interval 5 relief request for the following reasons. 1) Performing the pump test during plant cool down interrupts the cool down process and distracts the Operators from their primary task of safely bringing the plant to a cold shutdown condition. 2) The RCS water temperature is near 200^{0}F when performing the pump test at the "first practical opportunity" which is much higher than when performing the pump test following maintenance with the water temperature near 80^{0}F. The 100^{0}F difference in water temperature affects the comparison of differential pressure values measured at hot conditions to reference values measured at cold conditions. This temperature difference must be accounted for in the test

SURRY POWER STATION UNIT 2 INSERVICE TESTING PROGRAM SUMMARY OF PROPOSED RELIEF REQUESTS FOR THE UPCOMING 10 YEAR TESTING INTERVAL (INTERVAL 5)			
Interval 5 Relief Request	Relief Request Description	Interval 4 Relief request	Comments
			procedure. 3) Performing the pump test "at the first practical opportunity" provides no benefits in terms of testing at the "as found condition" because the pump has already been operating for about 6 to 10 hours before the test can be performed. 4) The pumps will be operating at cold conditions for a large majority of the time the pumps are needed.
P-3	Relief from the Code required 2% accuracy for the boric acid transfer pump suction pressure instruments (current accuracy is 3%).	P-4	Two other plants received NRC approval for similar relief requests.
P-4	Relief from the Code required analog pressure indicator full scale being less than or equal to 3 times the reference value for the charging pump cooling water pumps.	P-5	One other plant received NRC approval for a similar relief request.
P-5	Relief from having to use the 1.03% upper action limit for the comprehensive tests. The upper required action limit is increased to 1.06% per Code Case OMN-19. Applies to all ASME Classed pumps except the CS pumps. The design basis accident flow rate cannot be achieved for the CS pumps with the current test loop configuration.	None	There are no submitted or approved relief requests for other plants that are similar to P-5. For pumps that have a specific design basis accident flow rate in the credited safety analysis (e.g., technical specifications, technical requirements program, or updated safety analysis) the NRC expects that the Owner also perform a pump periodic verification (PPV) test. A PPV test is a test that verifies a pump can meet the required (differential or discharge) pressure as applicable, at its highest design basis accident flow rate.
P-6	Allows for the use of a pump curve for testing the main component cooling CC pumps per ASME OM Code Case OMN-16.	P-3	North Anna received NRC approval for a similar relief request. The Interval 4 relief request used Code Case OMN-9, Use of a Pump Curve for Testing for the emergency CC pumps. OMN-9 is being replaced by OMN-16 of the same title for plants subject to latter editions of the Code. Code Case OMN-16 is being included in Revision 1 to RG 1.192, which is the RG used by the NRC to approve code cases for use without a relief request. Revision 1 is expected to be approved for use by the NRC in the second quarter 2014. The decision was made to go

SURRY POWER STATION UNIT 2
INSERVICE TESTING PROGRAM
SUMMARY OF PROPOSED RELIEF REQUESTS FOR THE
UPCOMING 10 YEAR TESTING INTERVAL (INTERVAL 5)

Interval 5 Relief Request	Relief Request Description	Interval 4 Relief request	Comments
			forward with a relief requests using Code Case OMN-16 in case the RG is not approved by 5/10/2014.
P-7	Allows for the use of a pump curve for the quarterly testing the charging pumps per ASME OM Code Case OMN-16.	None	North Anna received NRC approval for a relief request to use OMN-9. P-7 will be added for the quarterly test for the charging pumps. The basis for the relief is as follows. Plant conditions may not be the same as when the reference values were established. In the Chemical and Volume Control System, charging system flow must be balanced with seal injection, letdown and seal return flows to maintain a constant pressurizer level and pressure. Adjusting the charging flow rate to a specific reference test flow rate and then returning the charging system to the original flow rate places an unnecessary transient on the charging system and causes undesirable perturbations within the Reactor Coolant System.
V-1	Allows a RWST isolation valve to exceed its leak limit if overall leakage to the RWST is within the overall limit.	V-2	North Anna received NRC approval for a similar relief request.

ATTACHMENT 2

SURRY POWER STATION UNIT 1
INSERVICE TESTING PROGRAM

PROPOSED RELIEF REQUESTS
FOR THE
FIFTH 10 YEAR TESTING INTERVAL

VIRGINIA ELECTRIC AND POWER COMPANY
(DOMINION)

RELIEF REQUEST G-1

Proposed alternative in accordance with 10CFR50.55a(a)(3)(ii), Hardship or Unusual Difficulty Without Compensating Increase in Level of Quality or Safety.
Alternative provides acceptable level of quality and safety.

1.0 ASME Code Components Affected

All Pumps and Valves contained within the Inservice Testing Program scope

2.0 Applicable Code Edition and Addenda

ASME OM Code, 2004 Edition, 2005 and 2006 Addenda

3.0 Applicable Code Requirements

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

Code Paragraph	Description
ISTA-3120(a)	"The frequency for the inservice testing shall be in accordance with the requirements of Section 1ST."
ISTB-3400	Frequency of Inservice Tests
ISTC-3510	Exercising Test Frequency
ISTC-3540	Manual Valves
ISTC-3630(a)	Frequency
ISTC-3700	Position Verification Testing
ISTC-5221 (c)(3)	"At least one valve from each group shall be disassembled and examined at each refueling outage; all valves in a group shall be disassembled and examined at least once every 8 years."
Appendix I, I-1320	Test Frequencies, Class 1 Pressure Relief Valves
Appendix I, I-1330	Test Frequencies, Class 1 Nonreclosing Pressure Relief Devices
Appendix I, I-1340	Test Frequencies - Class 1 Pressure Relief Valves that are used for Thermal Relief Application
Appendix I, I-1350	Test Frequencies - Class 2 and 3 Pressure Relief Valves
Appendix I, I-1360	Test Frequencies - Class 2 and 3 Nonreclosing Pressure Relief Devices
Appendix 1, I-1370	Test Frequencies - Class 2 and 3 Primary Containment Vacuum Relief Valves

RELIEF REQUEST G-1 (Cont.)

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

4.0 Reason for Request

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

ASME OM Code Section 1ST establishes the inservice test frequency for all components within the scope of the Code. The frequencies (e.g., quarterly) have always been interpreted as "nominal" frequencies (generally as defined in the Table 3.2 of NUREG 1482, Revision 1) and Owners routinely applied the surveillance extension time period (i.e., grace period) contained in the plant Technical Specifications (TS) Surveillance Requirements (SRs). The TS typically allow for a less than or equal to 25% extension of the surveillance test interval to accommodate plant conditions that may not be suitable for conducting the surveillance (TS 4.0.2). However, regulatory issues have been raised concerning the applicability of the TS "Grace Period" to ASME OM Code required inservice test frequencies irrespective of allowances provided under TS Administrative Controls (i.e., TS 6.4.I, "Inservice Testing Program," invokes TS 4.0.2 for various OM Code frequencies).

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

RELIEF REQUEST G-1 (Cont.)

The NRC recognized this potential issue in the TS by allowing a frequency tolerance as described in TS 4.0.2. The lack of a similar tolerance applied to OM Code testing places an unusual hardship on the plant to adequately schedule work tasks without operational flexibility.

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

5.0 Proposed Alternative and Bases for Use

Code Case OMN-20 is included in the ASME OM Code, 2009 Edition and will be used as the alternative to the frequencies of the ASME OM Code.

The requirements of Code Case OMN-20 are described below.

ASME OM Division: 1 Section IST and earlier editions and addenda of ASME OM Code specify component test frequencies based either on elapsed time periods (e.g., quarterly, 2 years, etc.) or based on the occurrence of plant conditions or events (e.g., cold shutdown, refueling outage, upon detection of a sample failure, following maintenance, etc.).

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

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

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

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

RELIEF REQUEST G-1 (Cont.)

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

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

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

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

b. Components whose test frequencies are based on the occurrence of plant conditions or events may not have their period between tests extended except as allowed by ASME OM Division: 1 Section IST 2009 Edition through OMa-2011 Addenda and earlier editions and addenda of ASME OM Code.

6.0 Duration of the Proposed Alternative

The proposed alternative described in Relief Request G-1 will be used for the Surry Power Station Unit 2 Fifth Ten Year Inservice Testing Interval.

7.0 Precedents

The following relief request for another plant that is similar to Relief Request G-1 was approved by the NRC.

RELIEF REQUEST G-1 (Cont.)

Request Number RV-01 for Quad Cities Units 1 and 2 was approved by the NRC by letter dated 2/14/2013 (TAC Nos. ME7981 through ME7988, ME7990 through ME7995.)

8.0 References

1. ASME OM Code, 2004 Edition, 2005 and 2006 Addenda
2. Surry TS Paragraph 4.0.2
3. Surry TS 6.4.I, Inservice Testing Program

RELIEF REQUEST P-1

Proposed alternative in accordance with 10CFR50.55a(a)(3)(i)
Alternative provides acceptable level of quality and safety.

1.0 ASME Code Components Affected

Refer to Table P-1.1

6.0 Applicable Code Edition and Addenda

ASME OM Code, 2004 Edition, 2005 and 2006 Addenda

7.0 Applicable Code Requirements

ISTB-3300, "Reference Values"

ISTB-3300(a) requires that initial reference values shall be determined from the results of testing meeting the requirements of ISTB-3100, "Preservice Testing," or from the results of the first inservice test.

ISTB-3300(d) requires that reference values shall be established at a point(s) of operation (reference point) readily duplicated during subsequent tests.

ISTB-3300(f) requires that all subsequent test results shall be compared to these initial reference values or to new reference values established in accordance with ISTB-3310, ISTB-3320, or ISTB-6200(c).

ISTB-5120, "Inservice Testing" (Centrifugal Pumps, Except Vertical Line Shaft Centrifugal Pumps)

ISTB-5121(e) and ISTB-5123(e), "Group A Test Procedure and Comprehensive Test Procedure", require that all deviations from the reference values shall be compared with the ranges of Table ISTB-5121-1 and corrective action taken as specified in ISTB-6200. Vibration measurements shall be compared to both the relative and absolute criteria shown in the alert and required action ranges of Table ISTB-5121-1. For example, if vibration exceeds either 6Vr, or 0.7 in/sec, the pump is in the required action range.

RELIEF REQUEST P-1 (Cont.)

ISTB-5220, "Inservice Testing" (Vertical Line Shaft Centrifugal Pumps)

ISTB-5221(e) and ISTB-5223(e), "Group A Test Procedure and Comprehensive Test Procedure", require that all deviations from the reference values shall be compared with the ranges of Table ISTB-5221-1 and corrective action taken as specified in ISTB-6200. Vibration measurements shall be compared to both the relative and absolute criteria shown in the alert and required action ranges of Table ISTB-5221-1.

Note: There are no ASME Code Classed positive displacement pumps in the Surry IST Program.

4.0 Reason for Request

The pumps listed in Table P-1.1 tend to be smooth running pumps. Each pump listed in Table P-1.1 has at least one vibration reference value (Vr) that is currently less than 0.05 inches per second (ips). Small values for Vr produce small acceptable ranges for pump operation. The acceptable ranges are defined in Tables ISTB-5121-1 and ISTB-5221-1 as less than or equal to 2.5Vr. Based on a small acceptable range, a smooth running pump could be subject to unnecessary corrective action if the measured vibration parameter exceeds this acceptable range.

For very small reference values, hydraulic noise and instrument error can be a significant portion of the reading and affect the repeatability of subsequent measurements. Also, experience gathered from the North Anna preventive maintenance program has shown that changes in vibration levels in the range of 0.05 ips do not normally indicate significant degradation in pump performance.

To avoid unnecessary corrective action, a minimum value for Vr of 0.05 ips has been established for velocity measurements. This minimum value will be applied to individual vibration locations for the pumps listed in Table P-1.1 where the measured reference value is less than 0.05 ips.

When new reference values are established per ISTB-3310, ISTB-3320 or ISTB-6200(c), the measured parameters will be evaluated for each location to determine if the provisions of this relief request still apply.

In addition to the requirements of ISTB, the pumps in the ASME Inservice Testing Program are included in the Surry Predictive Maintenance Program. The

RELIEF REQUEST P-1 (Cont.)

Surry Predictive Maintenance Program currently employs predictive monitoring techniques such as:

- vibration monitoring and analysis beyond that required by ISTB, and
- oil sampling and analysis where applicable (e.g., for pumps with sufficiently large oil reservoirs).

If the measured parameters are outside the normal operating range or are determined by analysis to be trending toward an unacceptable degraded state, appropriate actions are taken that may include:

- increased monitoring to establish rate of change,
- review of component specific information to identify cause, and
- removal of the pump from service to perform maintenance.

It should be noted that all of the pumps in the IST Program will remain in the Predictive Maintenance Program even if certain pumps have very low vibration readings and are considered to be smooth running pumps. This alternative to the requirements of ISTB-3300, ISTB-5120 and ISTB-5220, and Table ISTB-5121-1 and Table ISTB-5221-1 provides an acceptable level of quality and safety.

5.0 Proposed Alternative and Basis for Use

For the pumps listed in Table P-1.1, if a measured reference value is below 0.05 ips for a particular vibration measurement location, then subsequent test results for that location may be compared to an acceptable range based on 0.05 ips. In addition to the Code requirements, all pumps in the IST Program are included in and will remain in the Surry Predictive Maintenance Program regardless of their smooth running status.

Using the provisions of this relief request as an alternative to the specific requirements of ISTB-3300, ISTB-5120 and ISTB-5220, and Table ISTB-5121-1 and Table ISTB-5221-1 will provide adequate indication of pump performance and continue to provide an acceptable level of quality and safety. Therefore, pursuant to 10CFR50.55a(a)(3)(i), Relief Request P-1 requests relief from the specific ISTB requirements identified in this request.

6.0 Duration of the Proposed Alternative

The proposed alternative described in Relief Request P-1 will be used for the Surry Power Station Unit 2 Fifth Ten Year Inservice Testing Interval.

RELIEF REQUEST P-1 (Cont.)

7.0 Precedents

A similar relief request for the Surry Unit 2 Fourth Ten Year Inservice Testing Interval was approved by the NRC in their safety evaluation entitled "Surry Power Station, Units 1 and 2 – American Society of Mechanical Engineers Inservice Testing Program (TAC NOS. MC0120 through MC0146)" dated July 2, 2004.

The following relief requests for other plants that are similar to Relief Request P-1 were approved by the NRC.

Pump Relief Request P-1 for North Anna 1 was approved by the NRC by letter dated 11/15/2010 (TAC NOS. ME2776 and ME2777).

Pump Relief Request PRR8 for Beaver Valley 1 was approved by the NRC by letter dated 9/27/2007 (TAC NOS. MD5118 – MD5131).

Pump Relief Request PRR8 for Beaver Valley 2 was approved by the NRC by letter dated 2/14/2008 (TAC NOS. MD5595 – MD5604).

8.0 References

1. ASME OM Code, 2004 Edition, 2005 and 2006 Addenda

RELIEF REQUEST P-1 (Cont.)

Table P-1.1

Pump Groups	System	Code Class	OM Group	Description	Pump Type	Pump Speed (rpm)
1-CC-P-1C 1-CC-P-1D	Component Cooling	3	A	Component Cooling Water Pumps	Centrifugal	1185
1-CH-P-2C 1-CH-P-2D	Chemical and Volume Control	2	A	Boric Acid Transfer Pumps	Centrifugal	3500
2-CC-P-2A 2-CC-P-2B	Component Cooling	3	A	Component Cooling Water Pump to Charging Pump	Centrifugal	3500
2-CH-P-1A 2-CH-P-1B 2-CH-P-1C	Chemical and Volume Control/Safety Injection	2	A	High Head Safety Injection/Charging Pump	Centrifugal	6018
2-FW-P-3A	Auxiliary Feedwater	3	B	Auxiliary Feedwater Motor Driven Pump	Centrifugal	3560
2-RH-P-1A 2-RH-P-1B	Residual Heat Removal	2	A	Residual Heat Removal Pump	Centrifugal	1780
2-SW-P-10A 2-SW-P-10B	Service Water	3	A	Service Water Pump to Charging Pump	Centrifugal	3500

RELIEF REQUEST P-2

Proposed alternative in accordance with 50.55a(f)(6)(i) and 10CFR50.55a(a)(3)(i).
Code requirement is impractical.
Alternative provides acceptable level of quality and safety.

1.0 ASME Code Components Affected

Pump(s): 2-RH-P-1A
2-RH-P-1B

System: Residual Heat Removal

Group: A

Class: 2

Function: The residual heat removal pumps remove decay heat from the reactor core and the reactor coolant system during plant cool down.

2.0 Applicable Code Edition and Addenda

ASME OM Code, 2004 Edition, 2005 and 2006 Addenda

3.0 Applicable Code Requirements

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

Table ISTB-3400-1, "Inservice Test Frequency," requires an inservice test be run on each Group A pump nominally every 3 months.

4.0 Reason for Request

ISTB-3400 and Table ISTB-3400-1

The residual heat removal (RHR) pumps are located inside containment. The pumps are low pressure (600 psig design pressure) pumps that take suction from and discharge to the reactor coolant system (RCS). The RCS is maintained at 2235 psig and the containment atmosphere is maintained at sub-atmospheric pressure during normal operation. The RHR motor operated suction and discharge isolation valves are interlocked with an output signal from RCS pressure transmitters which prevent the valves from being opened when the RCS pressure exceeds 460 psig. Therefore, testing the RHR pumps during normal operation is not possible.

RELIEF REQUEST P-2

5.0 Proposed Alternative and Bases for Use

ISTB-3400 and Table ISTB-3400-1

These pumps will be tested every cold shutdown outage and reactor refueling outage, unless the pump has been tested within the previous three months. (During back-to-back cold shutdown or refueling outages, the test period remains valid for three months following each test, and no additional periodic testing needs to be performed within this three month test period.) For a cold shutdown or reactor refueling that extends longer than three months, the pumps will be tested every three months in accordance with ISTB 3400-1.

Using the provisions of this relief request as an alternative to the specific requirements of Table ISTB-3400-1 identified above, which have been identified to be impractical, will provide adequate indication of pump performance. Therefore, pursuant to 10 CFR 50.55a(f)(6)(i) we request relief from the specific ISTB Code requirements identified in this relief request.

6.0 Duration of the Proposed Alternative

The proposed alternative described in Relief Request P-2 will be used for the Surry Power Station Unit 2 Fifth Ten Year Inservice Testing Interval.

7.0 Precedents

A similar relief request for the Surry Unit 2 Fourth Ten Year Inservice Testing Interval was approved by the NRC in their safety evaluation entitled "Surry Power Station, Units 1 and 2 – American Society of Mechanical Engineers Inservice Testing Program (TAC NOS. MC4251 and MC4252)" dated September 28, 2004.

The following relief requests for other plants that are similar to Relief Request P-2 were approved by the NRC.

Pump Relief Request P-2 for North Anna 1 was approved by the NRC by letter dated 9/30/2010 (TAC NOS. ME2748, ME2749, ME2753 to ME2760, ME2763 to ME2772, ME2778 to ME2789).

Pump Relief Request PRR7 for Beaver Valley 1 was approved by the NRC by letter dated 9/27/2007 (TAC NOS. MD5118 – MD5131) and applies to ISTB-3400 and Table ISTB-3400-1.

RELIEF REQUEST P-2 (Cont.)

8.0 References

1. ASME OM Code, 2004 Edition, 2005 and 2006 Addenda

RELIEF REQUEST P-3

Proposed alternative in accordance with 50.55a(f)(6)(i) and 10CFR50.55a(a)(3)(i).
Code requirement is impractical.
Alternative provides acceptable level of quality and safety.

1.0 ASME Code Components Affected

Pump(s): 1-CH-P-2C
1-CH-P-2D

System: Chemical and Volume Control

Group: A

Class: 2

Function: The boric acid transfer pumps supply boric acid to the suction of the charging pumps for emergency boration.

2.0 Applicable Code Edition and Addenda

ASME OM Code, 2004 Edition, 2005 and 2006 Addenda

3.0 Applicable Code Requirements

Table ISTB-3500-1 requires that Group A test pressure instrument accuracy shall be within ± 2%.

ISTB-3510(b)(1) requires that the full-scale range of each analog instrument shall be not greater than three times the reference value.

4.0 Reason for Request

Table ISTB-3500-1

Calibrating the inlet pressure instruments for the boric acid transfer pumps to an accuracy within ± 2% has proven difficult and may be impractical in the future with the current instruments. Calibrating the inlet pressure instruments to an accuracy within ± 3% would be practical.

RELIEF REQUEST P-3 (Cont.)

ISTB-3510(b)(1)

The inlet pressure gauges have a full scale range of 0 to 15 psig. These instruments were sized by evaluating the static pressures present at the suction side of the pumps and applying the three times rule of ISTB-3510(b)(1). The static pressures range from 6 to 7 psig.

When the pumps are started, the pressure at the suction side of the pumps drops to approximately 2 psig; therefore, the inlet pressure gauges do not meet the three times rule for dynamic inlet pressure.

Using a lower range pressure gauge (i.e. 0 to 5 psig) would meet the three times rule for dynamic inlet pressure; however, the lower range gauge would be repeatedly exposed to an over range condition (static pressures in excess of 5 psig) which would damage the instruments.

Using a lower range temporary gauge on a quarterly basis presents a hardship because the process fluid contains boric acid and is contaminated. If contaminated, the temporary instruments would probably become waste material. However, with the current 0 to 15 psig inlet pressure gauges calibrated to ± 3%, a differential pressure can be determined that exceeds the accuracy requirements for differential pressure.

Each boric acid transfer pump discharge pressure gauge (0 to 150 psig range) has an instrument loop accuracy of 1.59%. Computing the maximum error for differential pressure using the current instrument configuration and an inlet pressure gauge accuracy of ± 3%, yields an error of 2.85 psid.

Computing the Code allowed error for differential pressure for an inlet pressure gauge with 2% accuracy and a 0 to 5 psig range and a discharge pressure instrument with 2% accuracy and a 0 to 150 psig range yields an error of 3.1 psid. With the current instrument configuration, the loop accuracy of each discharge pressure instrument could be as high as 1.75%, which equates to a 3.075 psid error, and still be within the Code allowed error of 3.1 psid for differential pressure. Therefore, for purposes of trending pump degradation using differential pressure and flow, the current instrument is adequate as long as the discharge pressure instrument loop accuracies remain at or below 1.75%.

RELIEF REQUEST P-3 (Cont.)

5.0 Proposed Alternative and Bases for Use

The inlet pressure gauges with a full scale range of 0 to 15 psig and calibrated to an accuracy within ± 3%, will be used to measure dynamic inlet pressures. Also, the loop accuracies for the discharge pressure gauges will be maintained at or below an accuracy of 1.75% to ensure that the differential pressure error is below the differential pressure error allowed by the Code.

Using the provisions of this relief request as an alternative to the specific requirements of Table ISTB-3500-1 and ISTB-3510(b)(1) identified above, which have been identified to be impractical, will provide adequate indication of pump performance. Therefore, pursuant to 10 CFR 50.55a(f)(6)(i) we request relief from the specific ISTB Code requirements identified in this relief request.

6.0 Duration of the Proposed Alternative

The proposed alternative described in Relief Request P-3 will be used for the Surry Power Station Unit 2 Fifth Ten Year Inservice Testing Interval.

7.0 Precedents

A similar relief request was approved by the NRC in their safety evaluation entitled "Surry Power Station, Units 1 and 2 – American Society of Mechanical Engineers Inservice Testing Program (TAC NOS. MC0120 through MC0146)" dated July 2, 2004.

The following relief requests for other plants that are similar to portions of P-3 were approved by the NRC.

Pump Relief Request PRR-03 for Brunswick Steam Electric Plant, Unit 1 and 2 was approved by the NRC by letter dated May 8, 2008 (TAC NOS. MD7425 through MD7438, and MD 7440 and MD7441). Note that Relief Request PRR-03 only applies to the full scale range requirements in ISTB-3510(b)(1), and not to the instrument accuracy requirements in Table ISTB-3500-1.

Pump Relief Request PRR006 for Fermi 2 was approved by the NRC by letter dated 76/2010 (TAC NOS. ME2548, ME2549, ME2551) and applies to Table ISTB-3510-1.

8.0 References

1. ASME OM Code, 2004 Edition, 2005 and 2006 Addenda

RELIEF REQUEST P-4

Proposed alternative in accordance with 10CFR50.55a(a)(3)(i).
Alternative provides acceptable level of quality and safety.

1.0 ASME Code Components Affected

Pump(s): 2-CC-P-2A
2-CC-P-2B

System: Component Cooling Water

Group: A

Class: 3

Function: The charging pump cooling water pumps supply cooling water to transfer heat from the charging pump mechanical seals coolers.

2.0 Applicable Code Edition and Addenda

ASME OM Code, 2004 Edition, 2005 and 2006 Addenda

3.0 Applicable Code Requirements

ISTB-3510(b)(1) requires that the full-scale range of each analog instrument shall be not greater than three times the reference value.

4.0 Reason for Request

Installed inlet pressure gauges used for the Group A tests have a full scale range of 0 to 3.5 psig. Readings from these inlet pressure gauges over the past year indicate that the dynamic pressures fall within the bottom third of full scale. However, the difference in the error between the 0 to 3.5 psig gauges and gauges that would meet the three times full-scale rule are so small that the 0 to 3.5 psig gauges can be considered to be equivalent in terms of accuracy for determining differential pressure.

RELIEF REQUEST P-4 (Cont.)

For example, inlet pressures as low as 0.8 psig have been recorded for pump 1-CC-P-2B. A gauge that meets the three times full-scale rule would have a full scale of 2.4 psig or less. A 2% accuracy for the 2.4 psig gauge translates to an error of 0.05 psig. A 2% accuracy for the 3.5 psig gauge translates to an error of 0.07 psig. The difference in error of 0.02 psig is insignificant when determining the differential pressures for these pumps which range between 50 and 60 psig. Therefore, the two gauges can be considered to be equivalent in terms of accuracy for determining differential pressure.

5.0 Proposed Alternative and Bases for Use

Inlet pressure for the Group A tests will be measured with gauges that have a full-scale of 0 to 3.5 psig.

Using the provisions of this relief request as an alternative to the specific requirements of ISTB-3510(b)(1) identified above will provide adequate indication of pump performance and continue to provide an acceptable level of quality and safety. Therefore, pursuant to 10 CFR 50.55a(a)(3)(i) we request relief from the specific ISTB Code requirements identified in this relief request.

6.0 Duration of the Proposed Alternative

The proposed alternative described in Relief Request P-4 will be used for the Surry Power Station Unit 2 Fifth Ten Year Inservice Testing Interval.

7.0 Precedents

A similar relief request was approved by the NRC in their safety evaluation entitled "Surry Power Station, Units 1 and 2 – American Society of Mechanical Engineers Inservice Testing Program (TAC NOS. MC0120 through MC0146)" dated July 2, 2004.

The following relief request for another plant that is similar to portions of P-4 was approved by the NRC.

Pump Relief Request PRR-03 for Brunswick Steam Electric Plant, Unit 1 and 2 was approved by the NRC by letter dated May 8, 2008 (TAC NOS. MD7425 through MD7438, and MD 7440 and MD7441).

8.0 References

1. ASME OM Code, 2004 Edition, 2005 and 2006 Addenda

RELIEF REQUEST P-5

Proposed alternative in accordance with 10CFR50.55a(a)(3)(i).
Alternative provides acceptable level of quality and safety.

1.0 ASME Code Components Affected

Refer to Table P-5.1

2.0 Applicable Code Edition and Addenda

ASME OM Code, 2004 Edition, 2005 and 2006 Addenda

3.0 Applicable Code Requirements

ISTB-5123, "Comprehensive Test Procedure" refers to Table ISTB-5121-1, "Centrifugal Pump Test Acceptance Criteria" that requires an upper required action limit of $1.03Q_r$ and $1.03DP_r$ where Q_r is the reference flow rate and DP_r is the reference differential pressure.

ISTB-5223, "Comprehensive Test Procedure" refers to Table ISTB-5221-1, "Vertical Line Shaft Centrifugal Pump Test Acceptance Criteria" that requires an upper required action limit of $1.03Q_r$ and $1.03DP_r$ where Q_r is the reference flow rate and DP_r is the reference differential pressure.

Note: There are no ASME Code Classed positive displacement pumps in the Surry IST Program.

4.0 Reason for Request

For some pump tests, Surry Power Station has had difficulty implementing the upper required action range limit of 1.03% above the established hydraulic parameter reference value for the comprehensive pump test. The difficulty arises when normal data scatter yields (1) a low measured reference value, and (2) high measured values for subsequent inservice tests. In these cases, some of the test data trend high near the upper required action range limit and may exceed the upper limit on occasion. The problem can be more severe for pumps with low differential pressures (50 psid or less) due to the smaller acceptable range.

RELIEF REQUEST P-5 (Cont.)

5.0 Proposed Alternative and Basis for Use

For the pumps listed in Table P-5.1, an upper required action limit of 1.06% times the reference value will be applied to the comprehensive pump test in accordance with ASME OM Code Case OMN-19, Alternative Upper Limit for the Comprehensive Pump Test. Also, for pumps that have a design basis accident flow rate, a pump periodic verification (PPV) test will be performed. Table P-5.1 identifies the pumps that have a design basis accident flow rate and indicates that a pump periodic verification test will be performed for these pumps.

Table P-5.1 includes all of the ASME Code Class pumps in the Surry IST program except for the containment spray (CS) pumps. The design basis accident flow rate cannot be achieved for the CS pumps with the existing test loop configuration. Therefore, the upper limit of 1.03% times the reference value will still be applied to the comprehensive pump test for the CS pumps. The reason the remaining pumps are included in the relief request is that data scatter can affect future tests for any of these pumps.

The following requirements shall be applied to the PPV test.

1) Apply the PPV test to pumps with a design basis accident flow rate as identified in Table P-5.1.
2) Performed the PPV test at least once every 2 years.
3) Determine if a PPV test is required before declaring a pump operable following replacement, repair, or maintenance on the pump.
4) Declared the pump inoperable if the PPV test flow rate and associated differential pressure cannot be achieved.
5) Maintain the necessary records for PPV test, including the applicable test parameters (e.g., flow rate and the associated differential pressure and speed for variable speed pumps) and their basis.
6) Account for the PPV test instrument accuracies in the test acceptance criteria.

Using the provisions of this relief request as an alternative to the specific requirements of ISTB-5123 and ISTB-5223, and Table ISTB-5121-1 and Table ISTB-5221-1 as described above will provide adequate indication of pump performance and continue to provide an acceptable level of quality and safety. Therefore, pursuant to 10CFR50.55a(a)(3)(i), Relief Request P-5 requests relief from the specific ISTB requirements identified in this request.

RELIEF REQUEST P-5 (Cont.)

6.0 Duration of the Proposed Alternative

The proposed alternative described in Relief Request P-5 will be used for the Surry Power Station Unit 2 Fifth Ten Year Inservice Testing Interval.

7.0 Precedents

None

8.0 References

1. ASME OM Code, 2004 Edition, 2005 and 2006 Addenda

RELIEF REQUEST P-5 (Cont.)

Table P-5.1

Pump Groups	System	Code Class	Description	Pump Type	Design Basis Accident Flow Rate (gpm)	Pump Periodic Verification Test Required
1-CC-P-1C 1-CC-P-1D	Component Cooling	3	Component Cooling Water Pumps	Centrifugal	None	No
1-CH-P-2C 1-CH-P-2D	Chemical and Volume Control	2	Boric Acid Transfer Pumps	Centrifugal	None	No
2-CC-P-2A 2-CC-P-2B	Component Cooling	3	Component Cooling Water Pump to Charging Pump	Centrifugal	30	Yes
2-CH-P-1A 2-CH-P-1B 2-CH-P-1C	Chemical and Volume Control/Safety Injection	2	High Head Safety Injection/Charging Pump	Centrifugal	436	Yes
2-FW-P-2	Auxiliary Feedwater	3	Auxiliary Feedwater Turbine Driven Pump	Centrifugal	400	Yes
2-FW-P-3A 2-FW-P-3B	Auxiliary Feedwater	3	Auxiliary Feedwater Motor Driven Pump	Centrifugal	300	Yes
2-RH-P-1A 2-RH-P-1B	Residual Heat Removal	2	Residual Heat Removal Pump	Centrifugal	None	No
2-RS-P-1A 2-RS-P-1B	Recirculation Spray	3	Inside Containment Recirculation Spray Pump	Vertical Line Shaft Centrifugal	3100	Yes
2-RS-P-2A 2-RS-P-2B	Recirculation Spray	3	Outside Containment Recirculation Spray Pump	Vertical Line Shaft Centrifugal	2900	Yes
2-SI-P-1A 2-SI-P-1B	Safety Injection	3	Low Head Safety Injection Pump	Vertical Line Shaft Centrifugal	2901	Yes

RELIEF REQUEST P-5 (Cont.)

Table P-5.1 (Cont.)

Pump Groups	System	Code Class	Description	Pump Type	Design Basis Accident Flow Rate (gpm)	Pump Periodic Verification Test Required
2-SW-P-10A 2-SW-P-10B	Service Water	3	Service Water Pump to Charging Pump	Centrifugal	42	Yes

RELIEF REQUEST P-6

Proposed alternative in accordance with 10CFR50.55a(a)(3)(i).
Alternative provides acceptable level of quality and safety.

1.0 ASME Code Components Affected

Pump(s): 1-CC-P-1C
1-CC-P-1D

System: Component Cooling

Group: A

Class: 3

Function: The component cooling water pumps supply cooling water to transfer heat from heat exchangers containing reactor coolant or other radioactive fluids.

2.0 Applicable Code Edition and Addenda

ASME OM Code, 2004 Edition, 2005 and 2006 Addenda

3.0 Applicable Code Requirements

ISTB-5121 requires that "Group A tests shall be conducted with the pump operating at a specified reference point."

ISTB-5123 requires that "Comprehensive tests shall be conducted with the pump operating at a specified reference point."

4.0 Reason for Request

During testing of the component cooling water pumps, flow is adjusted to the reference flow rate using an 18 inch butterfly valve. The butterfly valve is a crude throttling device and does not provide the fine tuning that is required to duplicate the reference flow rate from test to test. Consequently, throttling to the same reference flow rate during each test is not practical.

RELIEF REQUEST P-6 (Cont.)

5.0 Proposed Alternative and Bases for Use

The component cooling water pumps will be tested in a range of flows, and the results will be compared to acceptance criteria based on a portion of the pump curve and the hydraulic acceptance criteria given in ISTB. The guidelines set forth in Code Case OMN-16, "Use of a Pump Curve for Testing" will be followed.

Using the provisions of this relief request as an alternative to the specific requirements of ISTB-5121 and ISTB-5123 identified above will provide adequate indication of pump performance and continue to provide an acceptable level of quality and safety. Therefore, pursuant to 10 CFR 50.55a(a)(3)(i) we request relief from the specific ISTB Code requirements identified in this relief request.

6.0 Duration of the Proposed Alternative

The proposed alternative described in Relief Request P-6 will be used for the Surry Power Station Unit 2 Fifth Ten Year Inservice Testing Interval until Code Case OMN-16 is approved for use by the NRC in Regulatory Guide 1.192, Operation and Maintenance Code Case Acceptability. When OMN-16 is approved by the NRC, OMN-16 can be used without a relief request and Relief Request P-6 will no longer be necessary.

7.0 Precedents

A similar relief request was approved by the NRC in their safety evaluation entitled "Surry Power Station, Units 1 and 2 – American Society of Mechanical Engineers Inservice Testing Program (TAC NOS. MC0120 through MC0146)" dated July 2, 2004.

Pump Relief Request P-4 for North Anna 1 was approved by the NRC by letter dated 9/30/2010 (TAC NOS. ME2748, ME2749, ME2753 to ME2760, ME2763 to ME2772, ME2778 to ME2789).

Pump Relief Request PRR3 for Beaver Valley 1 was approved by the NRC by letter dated 9/27/2007 (TAC NOS. MD5118 – MD5131). PRR3 references NUREG-1482, Section 5.2.2, "Reference Curves.," which gives guidance based on OMN-9 and the conditions in Regulatory Guide 1.192. OMN-16 incorporates the conditions identified in Regulatory Guide 1.192.

RELIEF REQUEST P-6 (Cont.)

These relief requests are similar to P-6 in that they use a portion of the pump curve instead of a reference point. However, the plant systems and conditions for not using a reference point differ.

8.0 References

1. ASME OM Code, 2004 Edition, 2005 and 2006 Addenda

RELIEF REQUEST P-7

Proposed alternative in accordance with 10CFR50.55a(a)(3)(i).
Alternative provides acceptable level of quality and safety.

1.0 ASME Code Components Affected

Pump(s): 2-CH-P-1A
2-CH-P-1B
2-CH-P-1C

System: Chemical and Volume Control

Group: A

Class: 2

Function: These centrifugal pumps supply high pressure borated water to the reactor coolant system following a safety injection signal, and to provide normal charging to the reactor coolant system.

2.0 Applicable Code Edition and Addenda

ASME OM Code, 2004 Edition, 2005 and 2006 Addenda

3.0 Applicable Code Requirements

ISTB-5121 requires that "Group A tests shall be conducted with the pump operating at a specified reference point."

4.0 Reason for Request

Plant conditions may not be the same as when the reference values were established when performing the quarterly Group A tests. In the Chemical and Volume Control System, charging system flow must be balanced with seal injection, letdown and seal return flows to maintain a constant pressurizer level and pressure. Adjusting the charging flow rate to a specific reference test flow rate and then returning the charging system to the original flow rate places an unnecessary transient on the charging system and causes undesirable perturbations within the Reactor Coolant System.

RELIEF REQUEST P-7 (Cont.)

Therefore, pumps will be tested in a range of flows and the results will be compared to acceptance criteria based a portion of the pump curve and the hydraulic acceptance criteria given in ISTB.

Past vibration data for the subject pumps have been reviewed and it has been determined that pump vibration does not vary significantly with flow rate over the range of the test flow rates. This alternative to the requirements of ISTB-5121 provides an acceptable level of quality and safety.

5.0 Proposed Alternative and Bases for Use

The charging/safety Injection pumps will be tested in a range of flows, and the results will be compared to acceptance criteria based on a portion of the pump curve and the hydraulic acceptance criteria given in ISTB. The guidelines set forth in Code Case OMN-16, "Use of a Pump Curve for Testing" will be followed.

Using the provisions of this relief request as an alternative to the specific requirements of ISTB-5121 identified above will provide adequate indication of pump performance and continue to provide an acceptable level of quality and safety. Therefore, pursuant to 10 CFR 50.55a(a)(3)(i) we request relief from the specific ISTB Code requirements identified in this relief request.

6.0 Duration of the Proposed Alternative

The proposed alternative described in Relief Request P-7 will be used for the Surry Power Station Unit 2 Fifth Ten Year Inservice Testing Interval until Code Case OMN-16 is approved for use by the NRC in Regulatory Guide 1.192, Operation and Maintenance Code Case Acceptability. When OMN-16 is approved by the NRC, OMN-16 can be used without a relief request and Relief Request P-7 will no longer be necessary.

7.0 Precedents

The following relief requests for other plants that are similar to P-7 were approved by the NRC.

Pump Relief Request P-8 for North Anna 1 was approved by the NRC by letter dated 9/30/2010 (TAC NOS. ME2748, ME2749, ME2753 to ME2760, ME2763 to ME2772, ME2778 to ME2789).

RELIEF REQUEST P-7 (Cont.)

Pump Relief Request PRR3 for Beaver Valley 1 was approved by the NRC by letter dated 9/27/2007 (TAC NOS. MD5118 – MD5131). PRR3 references NUREG-1482, Section 5.2.2, "Reference Curves.," which gives guidance based on OMN-7 and the conditions in Regulatory Guide 1.192. OMN-16 incorporates the conditions identified in Regulatory Guide 1.192.

8.0 References

1. ASME OM Code, 2004 Edition, 2005 and 2006 Addenda

RELIEF REQUEST V-1

Proposed alternative in accordance with 10CFR50.55a(a)(3)(i).
Alternative provides acceptable level of quality and safety.

1.0 ASME Code Components Affected

Valve(s):

2-CH-MOV-2115B	2-SI-MOV-2885A
2-CH-MOV-2115D	2-SI-MOV-2885B
2-SI-25	2-SI-MOV-2885C
	2-SI-MOV-2885D

System: Chemical and Volume Control and Safety Injection

Category: A for 2-CH-MOV-2115B and D, and 2-SI-MOV-2885A-D
AC for 1-SI-25

Class: 2

Function: RWST Isolation Valves

2.0 Applicable Code Edition and Addenda

ASME OM Code, 2004 Edition, 2005 and 2006 Addenda

3.0 Applicable Code Requirements

ISTC-3630(f) - Valves or valve combinations with leakage rates exceeding the values specified by the Owner in ISTC-3630(e) above shall be declared inoperable and be either repaired or replaced.

4.0 Reason for Request

Valves 2-CH-MOV-2115B and D, and 2-SI-25 are in the supply line to the charging pumps from the RWST. Valves 2-SI-MOV-2885A, B, C and D are on test lines that run from the discharge of the low head SI pumps to the RWST. During recirculation mode transfer, the RWST is isolated and the low head SI pumps recirculate highly contaminated water from the containment sump to the reactor vessel.

RELIEF REQUEST V-1 (Cont.)

The RWST isolation valves work as a system of valves to protect the RWST from the contaminated sump water. Permissible valve leakage rates are based on each valve's possible contribution to the total allowable leakage rate to the RWST. When the leakages from each valve have been measured and summed, an individual valve's permissible leakage rate may have been exceeded but the overall allowable leakage to the RWST may not have been exceeded. In these cases, a repair or replacement may not be necessary because the system of isolation valves has been verified to be performing adequately.

In addition to repair or replacement as corrective actions, an evaluation can be performed which demonstrates that even if a valve has exceeded its permissible leakage rate, the overall leakage rate to the RWST will be maintained below the overall allowable RWST leakage rate and hence the system function is satisfied. This evaluation should provide a high level of assurance that delaying the repair or replacement will not result in exceeding the overall limit before the next leak rate test. The evaluation should include a determination of the cause for the individual valve leakage. The evaluation should also address the effect of the degradation mechanism for the valve on the ability of the valve group to maintain overall leakage to the RWST below the overall allowable leakage rate during the subsequent 24 month interval. Evaluations will be documented and retained in plant records, and are available for subsequent review. This alternative to the requirements ISTC-3630(f) provides an acceptable level of quality and safety.

5.0 Proposed Alternatives and Bases for Use

In addition to repair or replacement as corrective actions, an evaluation can be performed which demonstrates that even if a valve has exceeded its permissible leakage rate, the overall leakage rate to the RWST will be maintained below the overall allowable RWST leakage rate. No repair or replacement is necessary if the evaluation is performed and system leakage is projected to be maintained below the overall permissible leakage rate throughout the subsequent 24 month interval.

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

RELIEF REQUEST V-1 (Cont.)

6.0 Duration of the Proposed Alternative

The proposed alternatives described in Relief Request V-1 will be used for the Surry Power Station Unit 2 Fifth Ten Year Inservice Testing Interval.

7.0 Precedents

A similar relief request for the Surry Unit 2 Fourth Ten Year Inservice Testing Interval was approved by the NRC in their safety evaluation entitled "Surry Power Station, Units 1 and 2 – American Society of Mechanical Engineers Inservice Testing Program (TAC NOS. MC0120 through MC0146)" dated July 2, 2004.

The following relief request for another plant that is similar to V-1 was approved by the NRC.

Pump Relief Request V-1 for North Anna 1 was approved by the NRC by letter dated 9/30/2010 (TAC NOS. ME2748, ME2749, ME2753 to ME2760, ME2763 to ME2772, ME2778 to ME2789).

8.0 References

1. ASME OM Code, 2004 Edition, 2005 and 2006 Addenda

ATTACHMENT 3

SURRY POWER STATION UNIT 2
INSERVICE TESTING PROGRAM
FIFTH TESTING INTERVAL UPDATE SUMMARY

VIRGINIA ELECTRIC AND POWER COMPANY
(DOMINION)

SURRY POWER STATION UNIT 2
INSERVICE TESTING PROGRAM
FIFTH TESTING INTERVAL UPDATE SUMMARY

The Surry Unit 2 ASME Inservice Testing (IST) Program for Pumps and Valves has been updated for the fifth 10 year testing interval which starts on May 10th, 2014. The Unit 2 IST program has the same fifth 10 year testing interval start date as Unit 1.

This update is required every 10 years by the Code of Federal Regulations, 10 CFR 50.55a(f)(4)(ii) which states in part that the IST programs "must comply with the requirements in the latest edition and addenda of the Code incorporated by reference in paragraph (b) of this section 12 months prior to the start of the 120-month interval." The Code of Federal Regulations, paragraph 10CFR50.55a(b)(3) refers to the ASME Code for Operation and Maintenance (OM) of Nuclear Power Plants, and includes the 2004 Edition, the 2005 Addenda and the 2006 Addenda. The Code reference became effective on July 21st, 2011 and applies to the fifth IST interval for Surry Unit 2. The Surry Unit 2 IST program has been updated to comply with the latest OM Code edition.

There are no significant technical changes to the ASME OM Code scope and testing requirements between the Surry IST Program fourth interval, which was based on the ASME OM Code, 1998 Edition and 2000 Addenda, and the fifth interval.

Fifth Interval IST Program Update Summary

Below is a section by section summary of changes between the fourth interval IST program and the fifth interval IST program for Surry Unit 2.

Section 1.0 INTRODUCTION

The starting and ending dates for the fifth interval are described

Section 2.0 GENERAL PROGRAM DEVELOPMENT

References to the ASME OM Code, 1998 Edition and 2000 Addenda, were replaced by references to the ASME OM Code, 2004 Edition 2005 Addenda and 2006 Addenda. A new subsection, Section 2.3 Program Relief Requests, was added.

Section 2.1 Program Scope

Revision number was deleted for RG 1.26 reference. General reference to the RG is adequate.

Section 2.21 Program Update

Interval reference was updated.

Section 2.3 Program Relief Requests

This section was added in order to document Relief Request G-1. Relief Request G-1 allows for grace on the time period between periodic tests. For tests with a frequency of less than 2 years, a grace period of 25% of the frequency is allowed and for tests with a frequency greater than two years, 6 months are allowed. This relief request is supported by the ASME Code Case OMN-20.

Section 3.0 PUMP INSERVICE TEST PROGRAM DESCRIPTION

Section 3.1 Program Development Philosophy

Minor editorial changes were made to this section.

Section 3.2 Program Implementation

No changes were made to this section.

Section 3.3 Program Administration

There were no changes to this section.

Section 3.4 Pump Reference List

There were no changes to this section.

Section 3.5 Pump Inservice Test Table

Minor editorial changes were made. Changes to relief requests are described in Section 3.6. Specific vibration points were removed from the tables.

In addition to minor editorial changes, the following changes were made to the PUMP INSERVICE TEST TABLE:

Unit 2 Pump No.	Comments/Program Change
1-CC-P-1C 1-CC-P-1D	Program Change: Relief Request P-5 was added to allow for the use of a hydraulic parameter upper limit of 1.06% for the comprehensive pump test. The Interval 4 Relief Request P-3 was renumbered to P-6 for Interval 5.
1-CH-P-2C 1-CH-P-2D	Program Change: Relief Request P-5 was added to allow for the use of a hydraulic parameter upper limit of 1.06% for the comprehensive pump test. The Interval 4 Relief Request P-4 was renumbered to P-3 for Interval 5. Relief Request P-1 for smooth running pumps was added to 1-CH-P-2C.
2-CC-P-2A 2-CC-P-2B	Program Change: Relief Request P-5 was added to allow for the use of a hydraulic parameter upper limit of 1.06% for the comprehensive pump test. The Interval 4 Relief Request P-5 was renumbered to P-4 for Interval 5. Relief Request P-1 for smooth running pumps was added to 2-CC-P-2B.
2-CH-P-1A 2-CH-P-1B 2-CH-P-1C	Program Change: Relief Request P-5 was added to allow for the use of a hydraulic parameter upper limit of 1.06% for the comprehensive pump test. Relief Request P-7 was added to allow for the use of a pump curve for the Group A quarterly pump test per ASME OM Code Case OMN-16. Relief Request P-1 for smooth running pumps was added to 2-CH-P-1A and 2-CH-P-1B.
2-FW-P-2 2-FW-P-3A 2-FW-P-3B	Program Change: Relief Request P-5 was added to allow for the use of a hydraulic parameter upper limit of 1.06% for the comprehensive pump test. Relief Request P-1 for smooth running pumps was added to 2-FW-P-3A.

Unit 2 Pump No.	Comments/Program Change
2-RH-P-1A 2-RH-P-1B	Program Change: Relief Request P-5 was added to allow for the use of a hydraulic parameter upper limit of 1.06% for the comprehensive pump test. Relief Request P-1 for smooth running pumps was added to both pumps. There was a provision in the Surry Interval 4 Relief Request P-2 that stated, "These pumps will be tested every cold shutdown outage and reactor refueling outage at the first practical opportunity after containment sub-atmospheric pressure is relieved, unless the pump has been tested within the previous three months." The provision "at the first practical opportunity after containment sub-atmospheric pressure is relieved" was removed for the Interval 5 relief request Relief.
2-RS-P-1A 2-RS-P-1B	Program Change: Relief Request P-5 was added to allow for the use of a hydraulic parameter upper limit of 1.06% for the comprehensive pump test.
2-RS-P-2A 2-RS-P-2B	Program Change: Relief Request P-5 was added to allow for the use of a hydraulic parameter upper limit of 1.06% for the comprehensive pump test.
2-SI-P-1A 2-SI-P-1B	Program Change: Relief Request P-5 was added to allow for the use of a hydraulic parameter upper limit of 1.06% for the comprehensive pump test.
2-SW-P-10A 2-SW-P-10B	Program Change: Relief Request P-5 was added to allow for the use of a hydraulic parameter upper limit of 1.06% for the comprehensive pump test.

Section 3.6 Pump Test Program Relief Requests

The relief requests that were carried over from the fourth interval were approved for use by the NRC for the fourth interval. All relief requests for the fifth interval have to be approved by the NRC regardless of their approval status from the fourth interval.

Unit 2 Relief Request	Program Change
P-1	Relief Request P-1 was carried over from the fourth interval and establishes a minimum reference value of 0.05 ips to be used for vibration testing for the pumps listed in Table P-1.1. The Code references were updated. The bases for including pumps in Table P-1.1 is that there is at least one vibration reference value (V_r) that is currently less than 0.05 inches per second (ips) assigned to each pump.
P-2	Relief Request P-2 was carried over from the fourth interval and allows residual heat removal pumps 2-RH-P-1A and 2-RH-P-1B to be tested during cold shutdowns. There was a provision in the Surry Interval 4 Relief Request P-2 that stated, "These pumps will be tested every cold shutdown outage and reactor refueling outage at the first practical opportunity after containment sub-atmospheric pressure is relieved, unless the pump has been tested within the previous three months." The provision "at the first practical opportunity after containment sub-atmospheric pressure is relieved" was removed for the Interval 5 relief request Relief.
P-3	Relief Request P-3 was carried over from the fourth interval (formally P-4). This request allows relief from requiring 2% accuracy on the inlet pressure gauges of 1-CH-P-2C and 1-CH-P-2D for group A tests as well as relief from requiring full scale range to be less than or equal to 3 times the reference value.
P-4	Relief Request P-4 was carried over from the fourth interval (formally P-5). This request provides relief from requiring full scale range to be less than or equal to 3 times the reference value for the inlet pressure gauges monitoring 2-CC-P-2A and 2-CC-P-2B.

Unit 2 Relief Request	Program Change
P-5	Relief Request P-5 has been added to the IST Program and increases the upper required action limit on comprehensive pump tests from 1.03% to 1.06% per OM Code Case OMN-19. This applies to all ASME classed pumps except for the CS pumps due to the test loop configurations ability to meet the design basis accident flow rate.
P-6	Relief Request P-6 was carried over from the fourth interval (formally P-3). The former P-3 relief was based off of OM Code Case OMN-9. OMN-9 is being replaced by OMN-16 and carries that same title. Relief Request P-6 allows for the use of a pump curve for testing the main component cooling pumps 1-CC-P-1C and 1-CC-P-1D.
P-7	Relief Request P-7 has been added to the IST Program and allows for the use of a pump curve for quarterly testing the charging pumps 2-CH-P-1A, 2-CH-P-1B and 2-CH-P-1C per ASME OM Code Case OMN-16.

Section 3.7 Alternative Testing for Non-Code Pumps.

This section deals with pumps that are outside the ASME Class 1, 2 and 3 boundaries and considered non-Code pumps. Relief from Code provisions is not required for non-Code pumps. However, cases where the Code provisions are not met are documented in this section. The Code references were updated in this section.

Unit 2 Non-Code Alternative Testing	Comments/Program Change
PNC-1	PNC-1 was carried over from the fourth interval and applies to 1-EE-P-1B and 1-EE-P-1E. The Code references were updated and verified.

Section 4.0 VALVE INSERVICE TEST PROGRAM DESCRIPTON

Section 4.1 Program Development Philosophy

Minor editorial changes were made to this section.

Section 4.2 Program Implementation

The Code references were updated.

Section 4.3 Program Administration

There were no changes to this section.

Section 4.4 Valve Inservice Test Table

Minor editorial changes were made in the valve table description and the valve table. Note 1 was updated to reflect the change of ASME OM Code Case OMN-8 being incorporated into ISTC-5100. There were no scope changes from Interval 4 to Interval 5 for valve testing. The cold shutdown and reactor refueling justifications were renumbered as described in Sections 4.6 and 4.7 below.

Section 4.5 Valve Test Program Relief Requests

Unit 2 Relief Request	Program Change
V-1	Relief Request V-1 was carried over from the fourth interval (formally V-2) and allows for flexibility with combined leak rates of valves on flow paths to the RWST.

Interval 4 Relief Request V-1 was withdrawn because the NRC found it unnecessary in their safety revaluation report. Interval 4 Relief Requests V-3, V-4 and V-5 were deleted from the Interval 4 program as check valves were moved to the check valve condition monitoring program.

4.6 Valve Test Program Cold Shutdown Justifications

During the course of the fourth interval, certain cold shutdown justifications were either withdrawn or replaced. The cold shutdown justification numbers for the fifth interval have been reordered to eliminate gaps in the number sequence. Also, the technical specification (TS) references were updated and minor editorial changes were made. Cold shutdown justifications with a change are discussed below.

Unit 2 Cold Shutdown Justification	Program Change
CSV-4	CSV number changed from CSV-5 to CSV-4.
CSV-5	CSV number changed from CSV-6 to CSV-5.
CSV-6	CSV number changed from CSV-7 to CSV-6.
CSV-7	CSV number changed from CSV-8 to CSV-7. Valve category for 2-CH-MOV-2289A was revised from A to B.
CSV-8	CSV number changed from CSV-9 to CSV-8. Valve category was revised from A to B. TS reference revised from TS 3.3.A.8 to TS 3.3.A.3 and the verbiage revised to reflect the current TS. The technical basis for the deferral did not change.
CSV-9	CSV number changed from CSV-10 to CSV-9. Valve category was revised from A to B.
CSV-10	CSV number changed from CSV-11 to CSV-10.
CSV-11	CSV number changed from CSV-12 to CSV-11.
CSV-12	CSV number changed from CSV-13 to CSV-12. Valve category was revised from A to B. Reference to TS 3.3.A.9 was deleted from the CSV. TS 3.3.A.9 was deleted from the current TS. The technical basis for the deferral did not change.
CSV-13	CSV number changed from CSV-14 to CSV-13.
CSV-14	CSV number changed from CSV-15 to CSV-14.
CSV-15	CSV number changed from CSV-16 to CSV-15.
CSV-16	CSV number changed from CSV-17 to CSV-16.
CSV-17	CSV number changed from CSV-18 to CSV-17. TS reference revised from TS 3.3.A.10 to TS 3.3.A.2.d to reflect the current TS. The technical basis for the deferral did not change.
CSV-18	CSV number changed from CSV-19 to CSV-18.

Unit 2 Cold Shutdown Justification	Program Change
CSV-19	CSV number changed from CSV-24 to CSV-19. Valve class for valves 1-CW-MOV-100A to 100D was revised from 3 to NC (non-Class).

4.7 Valve Test Program Reactor Refueling Justifications

During the course of the fourth interval, certain reactor refueling justifications were either withdrawn or replaced. The reactor refueling justification numbers for the fifth interval have been reordered to eliminate gaps in the number sequence as described below. There were no technical changes or the need for TS or Code reference changes to any of the reactor refueling justifications.

Unit 2 Reactor Refueling Justification	Program Change
RRV-1	RRV number changed from RRV-18 to RRV-1. Valve class for 2-RH-MOV-2720A was revised from 1 to 2.
RRV-2	RRV number changed from RRV-23 to RRV-2.
RRV-3	RRV number changed from RRV-24 to RRV-3.
RRV-4	RRV number changed from RRV-31 to RRV-4.

Section 4.8 Alternative Testing for Non-Code Valves

This section deals with valves that are outside the ASME Class 1, 2 and 3 boundaries and considered non-Code valves. Relief from Code provisions is not required for non-Code valves. However, cases where the Code provisions are not met are documented in this section. The non-Code alternative test numbers for the fifth interval have been reordered to eliminate gaps in the number sequence as described below. There were no technical changes or the need for TS reference changes to any of the non-Code alternative test descriptions.

Unit 2 Non-Code Alternative Test	Program Change
VNC-1	VNC number changed from VNC-2 to VNC-1 and minor editorial changes were made.
VNC-2	VNC number changed from VNC-3 to VNC-2.
VNC-3	VNC number changed from VNC-5 to VNC-3. VNC-3 was updated to reflect the change of ASME OM Code Case OMN-8 being incorporated into ISTC-5100.
VNC-4	VNC number changed from VNC-7 to VNC-4. Valve category was revised from B to C.

Section 5.0 REPORTING OF INSERVICE TEST RESULTS

There were no changes to this section.

Section 6.0 QUALITY ASSURANCE PROGRAM

There were no changes to this section.

ATTACHMENT 4

SURRY UNIT 2
INSERVICE TESTING PROGRAM PLAN
FIFTH TESTING INTERVAL

REVISION 0

VIRGINIA ELECTRIC AND POWER COMPANY
(DOMINION)

VIRGINIA ELECTRIC AND POWER COMPANY (DOMINION)

SURRY POWER STATION

UNIT 2

INSERVICE TESTING PROGRAM PLAN

FOR PUMPS AND VALVES

FIFTH TESTING INTERVAL

MAY 10, 2014 - MAY 09, 2024

REVISION 0

COMMERCIAL OPERATION: MAY 1, 1973

ADDRESSES:

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P. O. BOX 26666
RICHMOND, VIRGINIA 23261

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5570 HOG ISLAND RD
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PLAN: U2 IST PROGRAM PLAN INTERVAL 5

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INSERVICE TESTING PROGRAM FOR PUMPS AND VALVES

1.0 INTRODUCTION

This Pump and Valve Inservice Test (IST) Program Plan is applicable to the Surry Power Station Unit 2 which received its construction permit on June 25, 1968 and began commercial operation on May 1, 1973. Surry Power Station Unit 2 is a Pressurized Water Reactor located in Surry County, Virginia. The plant employs a Westinghouse Electric Corp. Nuclear Steam System.

The IST Program Plan is comprised of two subprograms – the IST Program for Pumps and the IST Program for Valves. The development, implementation and administration of these programs are detailed in subsequent sections. This IST Program Plan applies to the fifth IST interval for Surry Power Station Unit 2 which starts on May 10, 2014 and ends May 9, 2024.

2.0 GENERAL PROGRAM DEVELOPMENT

The Code of Federal Regulations, paragraph 10CFR50.55a(f) describes the inservice testing requirements for pumps and valves which are classified as ASME Code Class 1, Class 2 and Class 3. Paragraph 10CFR50.55a(f)(4)(ii) states that,

> "Inservice tests to verify operational readiness of pumps and valves, whose function is required for safety, conducted during successive 120-month intervals must comply with the requirements of the latest edition and addenda of the Code incorporated by reference in paragraph (b) of this section 12 months prior to the start of the 120-month interval, subject to the limitations and modifications listed in paragraph (b) of this section."

The Code of Federal Regulations, paragraph 10CFR50.55a(b)(3) refers to the ASME Code for Operation and Maintenance (OM) of Nuclear Power Plants, and includes the 2004 Edition, the 2005 Addenda and the 2006 Addenda. The Code reference became effective on July 1st, 2011 and applies to the fifth IST interval for Surry Unit 2. The IST Program for the fifth IST interval complies with these edition and addenda.

The ASME OM Code requires that the owner of each nuclear power plant prepare a "plan" for testing and inspection of systems and components under the jurisdiction of 10CFR50.55a. The Code, Subsection ISTA, General Requirements, Subsection ISTB, Inservice Testing of Pumps, and Subsection ISTC, Inservice Testing of Valves apply to the IST program. Subsections ISTA, ISTB and ISTC establish the IST program scope with the provision that the rules apply only to ASME Code Classes 1, 2 and 3 as stated by the NRC in the Code of Federal Regulations.

In accordance with ASME OM Code, Subsection ISTA-1100, Scope, the following are required to be included in the testing program:

1) Centrifugal and positive displacement pumps that are provided with an emergency power source and required to perform a specific function in shutting down the reactor to the safe shutdown condition, maintaining the safe shutdown condition or mitigating the consequences of an accident.

2) Active or passive valves (and their actuating and position indicating systems) which are required to perform a specific function in shutting down the reactor to the safe shutdown condition, maintaining the safe shutdown condition or mitigating the consequences of an accident.

3) Pressure relief devices that protect systems or portions of systems which perform a required function in shutting down the reactor to the safe shutdown condition, maintaining the safe shutdown condition or mitigating the consequences of an accident.

In addition to the general Code requirements outlined above, there are other interpretations and positions that have come about as a result of past regulatory and licensee actions including Generic Letter 89-04 and NUREG-1482, Guidelines for Inservice Testing at Nuclear Power Plants, Revision 1. Other than these guides, there is no specific guidance for developing the IST Program scope of testing. Therefore, a set of rules was established by which the scope of the Surry ASME IST Program is determined including components that are to be included and the extent and type of testing required for each. Based on these rules, the philosophy and assumptions used in determining the test requirements for selected pumps and valves were documented.

2.1 PROGRAM SCOPE

In the course of developing the Program scope, each of the significant safety systems included within the ISI Class boundaries and certain safety systems outside of the ISI Class boundaries (such as the emergency diesel fuel oil transfer system) were evaluated with respect to the function of each component and the need for its operability as it relates to the scope of the ASME OM Code. Supporting documents used include,

Final Safety Analysis Report (FSAR),
Technical Specifications,
USNRC Regulatory Guide 1.26
Past program correspondence,
Operating Procedures (normal, emergency and abnormal) and
Plant System Descriptions.

The sequence followed during the development effort was as follows:

1) Each of the plant systems was subjected to an overview to determine any potential active safety function as described in the scope statement. Those systems with no safety functions related to the ASME OM Code scope were excluded from further consideration. Plant documents as well as operating staff comments were utilized in this phase.

2) For the remaining systems, flow diagrams were studied and any component that could possibly have an active or passive safety function (other than simply maintaining the pressure boundary) was identified for further evaluation.

3) The function of each component identified from the flow diagrams was determined based on available documentation, staff review or general experience of the evaluator. Testing requirements were derived based on the component function(s) and Code requirements.

4) Available documents were reviewed and specific or implied component operational requirements were compared to the component functions.

5) The results of the steps described above were reviewed by several knowledgeable members of the plant staff and evaluated for accuracy and consistency, and compiled in an IST basis document. Based on this review, the final program scope was derived and the IST Program Plan developed.

2.2 PROGRAM UPDATE

During the fifth interval it is expected that the scope of the Program will occasionally be modified in response to unrelated activities including, but not limited to:

1) plant design changes,

2) changes in operating conditions (e.g. normal valve lineup),

3) changes in accident mitigating procedures philosophy and

4) later editions and addenda to the ASME OM Code.

As a result, it is expected that the IST Program may be revised to ensure continued compliance with the Code requirements relating to the scope of the test program. The site supervisor responsible for the IST Program is provided copies of plant modifications that are designated by engineering to have a potential IST impact. Should a change require a program revision, the IST corporate and site coordinators would then implement the change to the program plan and the appropriate test procedure(s) in a timely manner.

2.3 Program Relief Requests

The relief requests in this section apply to the general administration of the IST Program.

RELIEF REQUEST G-1

Proposed alternative in accordance with 10CFR50.55a(a)(3)(ii), Hardship or Unusual Difficulty Without Compensating Increase in Level of Quality or Safety.
Alternative provides acceptable level of quality and safety.

1.0 ASME Code Components Affected

All Pumps and Valves contained within the Inservice Testing Program scope

2.0 Applicable Code Edition and Addenda

ASME OM Code, 2004 Edition, 2005 and 2006 Addenda

3.0 Applicable Code Requirements

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

Code Paragraph	Description
ISTA-3120(a)	"The frequency for the inservice testing shall be in accordance with the requirements of Section 1ST."
ISTB-3400	Frequency of Inservice Tests
Table ISTB-3400-1	Inservice Test Frequency
ISTC-3510	Exercising Test Frequency
ISTC-3540	Manual Valves
ISTC-3630(a)	Frequency
ISTC-3700	Position Verification Testing
ISTC-5221 (c)(3)	"At least one valve from each group shall be disassembled and examined at each refueling outage; all valves in a group shall be disassembled and examined at least once every 8 years."
Appendix I, I-1320	Test Frequencies, Class 1 Pressure Relief Valves
Appendix I, I-1330	Test Frequencies, Class 1 Nonreclosing Pressure Relief Devices
Appendix I, I-1340	Test Frequencies - Class 1 Pressure Relief Valves that are used for Thermal Relief Application
Appendix I, I-1350	Test Frequencies - Class 2 and 3 Pressure Relief Valves
Appendix I, I-1360	Test Frequencies - Class 2 and 3 Nonreclosing Pressure Relief Devices
Appendix 1, I-1370	Test Frequencies - Class 2 and 3 Primary Containment Vacuum Relief Valves

RELIEF REQUEST G-1 (Cont.)

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

4.0 <u>Reason for Request</u>

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

ASME OM Code Section 1ST establishes the inservice test frequency for all components within the scope of the Code. The frequencies (e.g., quarterly) have always been interpreted as "nominal" frequencies (generally as defined in the Table 3.2 of NUREG 1482, Revision 1) and Owners routinely applied the surveillance extension time period (i.e., grace period) contained in the plant Technical Specifications (TS) Surveillance Requirements (SRs). The TS typically allow for a less than or equal to 25% extension of the surveillance test interval to accommodate plant conditions that may not be suitable for conducting the surveillance (TS 4.0.2). However, regulatory issues have been raised concerning the applicability of the TS "Grace Period" to ASME OM Code required inservice test frequencies irrespective of allowances provided under TS Administrative Controls (i.e., TS 6.4.I, "Inservice Testing Program," invokes TS 4.0.2 for various OM Code frequencies).

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

The NRC recognized this potential issue in the TS by allowing a frequency tolerance as described in TS 4.0.2. The lack of a similar tolerance applied to OM Code testing places an unusual hardship on the plant to adequately schedule work tasks without operational flexibility.

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

5.0 Proposed Alternative and Bases for Use

Code Case OMN-20 is included in the ASME OM Code, 2009 Edition and will be used as the alternative to the frequencies of the ASME OM Code.

The requirements of Code Case OMN-20 are described below.

ASME OM Division: 1 Section IST and earlier editions and addenda of ASME OM Code specify component test frequencies based either on elapsed time periods (e.g., quarterly, 2 years, etc.) or based on the occurrence of plant conditions or events (e.g., cold shutdown, refueling outage, upon detection of a sample failure, following maintenance, etc.)

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

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

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

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

RELIEF REQUEST G-1 (Cont.)

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

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

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

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

b. Components whose test frequencies are based on the occurrence of plant conditions or events may not have their period between tests extended except as allowed by ASME OM Code 2004 Edition, 2005 and 2006 Addenda, and earlier editions and addenda of ASME OM Code.

6.0 Duration of the Proposed Alternative

The proposed alternative described in Relief Request G-1 will be used for the Surry Power Station Unit 2 Fifth Ten Year Inservice Testing Interval.

7.0 Precedents

The following relief request for another plant that is similar to Relief Request G-1 was approved by the NRC.

RELIEF REQUEST G-1 (Cont.)

Request Number RV-01 for Quad Cities Units 1 and 2 was approved by the NRC by letter dated 2/14/2013 (TAC Nos. ME7981 through ME7988, ME7990 through ME7995.)

8.0 References

1. ASME OM Code, 2004 Edition, 2005 and 2006 Addenda
2. Surry TS Paragraph 4.0.2
3. Surry TS 6.4.I, Inservice Testing Program

3.0 PUMP INSERVICE TEST PROGRAM DESCRIPTION

3.1 PROGRAM DEVELOPMENT PHILOSOPHY

Surry Unit 2 Technical Specification 6.4.I describes the surveillance requirements that apply to the inservice testing of ASME Code Class 1, 2 and 3 pumps. The Surry Unit 2 Inservice Testing (IST) Program for Pumps has been established to meet the requirements of 10CFR50, the ASME OM Code, Subsection ISTB and Technical Specifications.

The scope of the program includes ASME Code Class 1, 2 and 3, and certain non-Code class pumps that are required to perform a specific function in shutting down the reactor to the safe shutdown condition, maintaining the safe shutdown condition or mitigating the consequences of an accident.

ISTB defines the rules and requirements of inservice testing of Code Class 1, 2, and 3 pumps and states that each pump to be tested by the rules of this subsection shall be identified by the owner and listed in the plant records.

The purpose of the IST Program Plan is to identify the pumps that are considered by Virginia Electric and Power (Dominion) Company as having a safety function and are therefore subject to the testing requirements of ISTB. The intent of the Code is to assess operational readiness and detect potentially adverse changes in the mechanical condition of these pumps. The relief requests for the IST Program Plan identify Code requirements considered to be impractical, provide technical basis for the request and propose alternate testing when warranted, or provide acceptable alternatives to Code requirements.

3.2 PROGRAM IMPLEMENTATION

Surveillance testing is performed to detect equipment malfunction or degradation and to initiate corrective action. The Surry Power Station Unit 2 IST Program provides a schedule for testing safety-grade pumps and is implemented as part of normal periodic surveillance testing.

Reference data are gathered during initial surveillance tests. With the ASME OM Code, these initial reference tests can be a preservice test as described in ISTB-3100 or the first inservice test as described in ISTB-3200. ISTB-3100 requires that at least five points along the pump curve be measured for pumps where the system resistance can be varied. ISTB-3200 refers to Group A tests, Group B tests and comprehensive tests. Group A tests apply to Group A pumps which are pumps that are

operated continuously or routinely during normal operation, cold shutdown, or refueling operations. Group B tests apply to Group B pumps which are pumps in standby systems that are not operated routinely except for testing. Comprehensive tests apply to both Group A and B pumps and require more accurate pressure instrumentation (0.5% versus 2% for the Group A and B tests), but are performed on a less frequent basis.

The Group A test parameters include differential pressure (or discharge pressure for positive displacement pumps), flow rate, vibration and speed for variable speed pumps. The Group B test parameters include differential pressure for pumps other than positive displacement pumps, flow rate and speed for variable speed pumps. Differential pressure need not be measured for positive displacement pumps. The Group A and B test parameters are typically measured with normal plant Instrumentation. If practicable, the Group A and B reference tests shall be performed within ± 20% of the pump design flow rate. If not practicable, the reference test shall be performed at the highest practical flow rate. Comprehensive test parameters include differential pressure (or discharge pressure for positive displacement pumps), flow rate, vibration and speed for variable speed pumps. The comprehensive reference test shall be performed within ± 20% of the pump design flow rate. Any deviation from this requirement for comprehensive tests requires a request for relief from Code provisions.

Group A and B inservice tests shall be performed every three months as required by Table ISTB-3400-1. Any deviation from this test frequency requires a request for relief from Code provisions. During subsequent surveillance tests, flow rate is normally selected as the independent test parameter and is set to match the reference flow rate. Other hydraulic and mechanical performance parameters are measured and evaluated against the appropriate reference values. The results of such evaluations determine whether or not corrective action is warranted. Comprehensive tests are performed every two years in a manner similar to the Group A and B inservice tests.

Each pump in the IST Program is tested according to a detailed test procedure. The procedure includes, as a minimum:

1) <u>References</u>: This section identifies references applicable to Technical Specifications and other necessary material as drawings.

2) <u>Purpose</u>: This section identifies test objectives.

3) Initial Conditions: Each procedure should identify those independent actions or procedures which shall be completed and station conditions which shall exist prior to use.

4) Precautions: Precautions should be established to alert the individual performing the task to those situations in which important measures should be taken early or where extreme care should be used to protect equipment and personnel. Cautionary notes applicable to specific steps in the procedure should be included in the main body of the procedure as appropriate and should be identified as such.

5) Instructions: The main body of a procedure should contain step by step instructions in the degree of detail necessary for performing a required test.

6) Acceptance Criteria: The ranges within which test data are considered acceptable are established and included in the test procedure. In the event that data fall outside the acceptable range, operator action is governed by approved station procedures.

Finally, it is recognized that the IST Program for Pumps sets forth minimum testing requirements. Additional testing is performed, as required, after pump maintenance or as determined necessary by personnel at Surry Power Station.

3.3 PROGRAM ADMINISTRATION

The engineering staff at Surry is responsible for the administration of the IST Program for Pumps. The operations staff is responsible for performing the periodic tests as required by this program. The IST Program for Pumps is implemented by station periodic test procedures.

3.4 PUMP REFERENCE LIST

This list gives a brief description of each pump identified in the Pump Inservice Test Program.

1-CC-P-1C	Component Cooling Water Pumps
1-CC-P-1D	Drawing: 11448-CBM-72D, Sheet 1

Description: These centrifugal pumps supply cooling water to transfer heat from heat exchangers containing reactor coolant or other radioactive fluids. The component cooling water pumps are constant speed pumps that operate routinely during normal operation and are defined as Group A pumps.

1-CH-P-2C	Boric Acid Transfer Pumps
1-CH-P-2D	Drawing: 11448-CBM-88A, Sheet 1

Description: These centrifugal pumps supply boric acid to the suction of the charging pumps for emergency boration. The boric acid transfer pumps operate at two constant speeds. The low speed is used when recirculating the contents of the boric acid storage tanks, and the high speed (approximately double the low speed) is used when the pumps discharge to the charging pump suction header during emergency boration events and blender operations. The tests are conducted with the pumps on high speed. The pumps operate routinely during normal operation and are defined as Group A pumps.

1-EE-P-1B	Emergency Diesel Generator Fuel Oil Transfer Pumps
1-EE-P-1E	Drawing: 11448-FB-38A, Sheet 2

Description: These positive displacement pumps supply fuel oil to the emergency diesel generator fuel oil day tank which directly supplies the emergency diesel generator. The emergency diesel generator fuel oil pumps are in a standby system and are defined as Group B pumps. The pumps are constant speed pumps.

2-CC-P-2A	Charging Pump Cooling Water Pumps
2-CC-P-2B	Drawing: 11548-CBM-71B, Sheet 2

Description: These centrifugal pumps supply cooling water to transfer heat from the charging pump mechanical seals. The charging pump cooling water pumps are constant speed pumps that operate routinely during normal operation and are defined as Group A pumps.

2-CH-P-1A	High Head Safety Injection/Charging Pumps
2-CH-P-1B	Drawing: 11548-CBM-88B, Sheet 2
2-CH-P-1C	

Description: These centrifugal pumps supply high pressure borated water to the reactor coolant system following a safety injection signal, and to provide normal charging to the reactor coolant system. The high head safety injection/charging pumps are constant speed pumps that operate routinely during normal operation and are defined as Group A pumps.

2-CS-P-1A	Containment Spray Pumps
2-CS-P-1B	Drawing: 11548-CBM-84A, Sheet 2

Description: These centrifugal pumps provide a cooled, chemically treated, borated spray to reduce containment pressure following a loss of coolant accident. The containment spray pumps are in a standby system and are defined as Group B pumps. The pumps are constant speed pumps.

2-FW-P-2 2-FW-P-3A 2-FW-P-3B	Auxiliary Feedwater Pumps Drawing: 11548-CBM-68A, Sheet 3

Description: These centrifugal pumps supply auxiliary feedwater to the steam generators following a loss of normal feedwater flow. The auxiliary feedwater pumps are in a standby system and are defined as Group B pumps. The steam driven pump 2-FW-P-2 is a variable speed pump, and the motor driven pumps 2-FW-P-3A and 3B are constant speed pumps.

2-RH-P-1A 2-RH-P-1B	Residual Heat Removal Pumps Drawing: 11548-CBM-87A, Sheet 1

Description: These centrifugal pumps remove decay heat from the reactor core and the reactor coolant system during plant cool down. The residual heat removal pumps are constant speed pumps that operate routinely during cold shutdowns and reactor refuelings and are defined as Group A pumps.

2-RS-P-1A 2-RS-P-1B	Inside Recirculation Spray Pumps Drawing: 11548-CBM-84B, Sheet 1

Description: These vertical line shaft pumps supply a borated spray to cool and depressurize the containment atmosphere following a containment depressurization actuation signal and maintain containment subatmospheric following an accident. The inside recirculation spray pumps are in a standby system and are defined as Group B pumps. Also, the pump sumps are maintained dry. According to ISTB-3430, they require a comprehensive test at least once every two years. No quarterly testing is required. Because the pumps are inside containment, they will receive the comprehensive test during reactor refueling outages. The pumps are constant speed pumps.

2-RS-P-2A 2-RS-P-2B	Outside Recirculation Spray Pumps Drawing: 11548-CBM-84B, Sheet 2

Description: These vertical line shaft pumps supply borated spray to cool and depressurize the containment atmosphere following a containment depressurization actuation signal and maintain containment

subatmospheric following an accident. The outside recirculation spray pumps are in a standby system and are defined as Group B pumps. Also, the pump sumps are maintained dry. According to ISTB-3430, they require a comprehensive test at least once every two years. No quarterly testing is required. The pumps are constant speed pumps.

2-SI-P-1A	Low Head Safety Injection Pumps
2-SI-P-1B	Drawing: 11548-CBM-89A, Sheet 1

Description: These vertical line shaft pumps supply low pressure borated water to the reactor coolant system following a safety injection signal. The low head safety injection pumps are in a standby system and are defined as Group B pumps. The pumps are constant speed pumps.

2-SW-P-10A	Charging Pump Service Water Pumps
2-SW-P-10B	Drawing: 11548-CBM-71B, Sheet 1

Description: These centrifugal pumps provide cooling water for Charging Pump Cooling Water Systems. The charging pump service water pumps are constant speed pumps that operate routinely during normal operation and are defined as Group A pumps.

3.5 PUMP INSERVICE TEST TABLE

The Pump Inservice Test Table identifies the pumps to be tested, code classes, required test quantities and frequencies. Relief from test requirements is requested in cases where Code requirements are determined to be impractical or where alternatives to the Code requirements are acceptable. Where relief is requested, technical justification is provided along with alternative test methods when applicable. Relief requests are contained in Section 3.6.

For non-Code pumps, a request for relief is not necessary when provisions of the Code are determined to be impractical. Section 3.7 contains a discussion of the testing requirements for non-Code pumps and descriptions of alternative testing in cases where the provisions of the Code are not met.

To aid the reader in interpreting the Pump Inservice Test Table, brief explanations of the table headings and abbreviations are provided below.

1) Pump Number - Each pump in the plant has a unique "mark" number which identifies the system to which the pump belongs.

2) Drawing and Sheet Number, Coordinate - The specific coordinates of each valve are supplied to facilitate location of the valves on the flow diagrams provided.

3) ASME Class - ASME Code Class of each pump as per 10CFR50.55a and Regulatory Guide 1.26.

Note: NC is for non-Code pumps. These pumps are important to safety but are not in systems that are classified ASME Class 1, 2 or 3.

5) ISTB Group - Pump group as defined in ISTB-2000 where:

Group A pumps - pumps that are operated continuously or routinely during normal operation, cold shutdown, or refueling operations and

Group B pumps - pumps in standby systems that are not operated routinely except for testing.

5) Flow Path - The flow path used for the test can either be the normal flow path for the system, a recirculation flow path or a flow path dedicated to testing.

6) System Resist - Either FIXED for a test loop with a fixed system resistance or VARIABLE for a test loop with a system resistance that can be varied.

7) Test Type - The required ISTB test quantities. Test types with "C_" as a prefix represent comprehensive tests that are conducted every 24 months. Test types without the prefix "C_" represent either Group A or B tests that are conducted every three months unless the test frequency has been deferred to cold shutdown or reactor refueling by a relief request. Examples of test type abbreviations are given below.

DEV_HEAD - developed pump head

DIFF_PRESSURE - differential pressure

DISCH_PRESSURE - discharge pressure

FLOW - flow

FLOW_TOTAL - flow total is the sum of branch flows

PUMP_SPEED - pump speed for variable speed pumps

VIB - vibration measured at a given bearing

8) Test Freq - The test frequency with the following abbreviations:

03 - the test will be performed every three months (Group A and B pump tests shall be performed every three months as required by Table ISTB-3400-1.)

CS - the test will be performed every cold shutdown (a relief request explains the need for deviating from Table ISTB-3400-1 test frequency requirements)

RR - the test will be performed every reactor refueling (a relief request explains the need for deviating from Table ISTB-3400-1 test frequency requirements)

24 - the test will be performed every 24 months (pumps with sumps that are maintained dry shall only have a comprehensive test performed every 2 years per ISTB-3430).

9) Ref Flow Status – ISTB-3300 requires that the reference flow rate be within 20% of pump design flow. The reference flow rate is the flow rate used to establish acceptance criteria. For Group A and B tests, ISTB-3300(e)(2) allows for testing outside the 20% range due to impracticality. For comprehensive tests, ISTB-3300(e)(1) requires that the tests to be performed within the 20% range with no exceptions. Therefore, relief from Code provisions is required when testing outside the 20% range for comprehensive tests.

FULL (full flow) in this column indicates that the reference flow rate is within 20% of pump design flow. If the reference flow rate does not meet this requirement a note is provided at the end of the pump table with an explanation.

10) Relief Request - Relief requests are presented in Section 3.6.

11) Non-Code Alter Test - Non-Code alternative tests apply to pumps that are not ASME Code class 1, 2 or 3. These tests are alternatives to Code tests and are described in Section 3.7.

SURRY UNIT 2
FIFTH INSERVICE TESTING INTERVAL
PUMP INSERVICE TEST TABLE

PUMP NUMBER	DRAWING NUMBER	SHEET NO	COOR	ASME CLASS	ISTB GROUP	FLOW PATH	SYSTEM RESIST	TEST TYPE	TEST FREQ	REF FLOW STATUS	RELIEF REQUEST (P-)	NON-CODE ALTER TEST (PNC-)
1-CC-P-1C	11448-CBM-072D	1 OF 5	B5	3	A	NORMAL	VARIABLE	C_DIFF_PRESS	24		5,6	
								C_FLOW_TOTAL	24	FULL	5,6	
								C_VIB	24		1	
								DIFF_PRESSURE	03		6	
								FLOW_TOTAL	03	NOTE 1	6	
								VIB	03		1	
	COMPONENT COOLING WATER CENTRIFUGAL PUMP											
1-CC-P-1D	11448-CBM-072D	1 OF 5	A5	3	A	NORMAL	VARIABLE	C_DIFF_PRESS	24		5,6	
								C_FLOW_TOTAL	24	FULL	5,6	
								C_VIB	24		1	
								DIFF_PRESSURE	03		6	
								FLOW_TOTAL	03	NOTE 1	6	
								VIB	03		1	
	COMPONENT COOLING WATER CENTRIFUGAL PUMP											
1-CH-P-2C	11448-CBM-088A	1 OF 4	B5	2	A	RECIRC	VARIABLE	C_DIFF_PRESS	24		5	
								C_FLOW	24	FULL	5	
								C_VIB	24		1	
								DIFF_PRESSURE	03		3	
								FLOW	03	FULL		
								VIB	03		1	
	BORIC ACID TRANSFER CENTRIFUGAL PUMP											
1-CH-P-2D	11448-CBM-088A	1 OF 4	B4	2	A	RECIRC	VARIABLE	C_DIFF_PRESS	24		5	
								C_FLOW	24	FULL	5	
								C_VIB	24		1	
								DIFF_PRESSURE	03		3	
								FLOW	03	FULL		
								VIB	03		1	
	BORIC ACID TRANSFER CENTRIFUGAL PUMP											
1-EE-P-1B	11448-FB-038A	2 OF 4	D7	NC	B	NORMAL	FIXED	C_DISCH_PRESS	NA			1
								C_FLOW	03	FULL		1
								C_VIB	03			1
								DISCH_PRESSURE	NA			1
								FLOW	03	FULL		1
	EMERGENCY DIESEL GENERATOR FUEL OIL TRANSFER POSITIVE DISPLACEMENT PUMP											

SURRY UNIT 2
FIFTH INSERVICE TESTING INTERVAL
PUMP INSERVICE TEST TABLE

PUMP NUMBER	DRAWING NUMBER	SHEET NO	COOR	ASME CLASS	ISTB GROUP	FLOW PATH	SYSTEM RESIST	TEST TYPE	TEST FREQ	REF FLOW STATUS	RELIEF REQUEST (P-)	NON-CODE ALTER TEST (PNC-)
1-EE-P-1E	11448-FB-038A	2 OF 4	C6	NC	B	NORMAL	FIXED	C_DISCH_PRESS	NA			1
								C_FLOW	03	FULL		1
								C_VIB	03			1
								DISCH_PRESSURE	NA			1
								FLOW	03	FULL		1
	EMERGENCY DIESEL GENERATOR FUEL OIL TRANSFER POSITIVE DISPLACEMENT PUMP											
2-CC-P-2A	11548-CBM-071B	2 OF 2	C7	3	A	NORMAL	VARIABLE	C_DIFF_PRESS	24		5	
								C_FLOW	24	FULL	5	
								C_VIB	24		1	
								DIFF_PRESSURE	03		4	
								FLOW	03	FULL		
								VIB	03		1	
	COMPONENT COOLING WATER TO CHARGING PUMP CENTRIFUGAL PUMP											
2-CC-P-2B	11548-CBM-071B	2 OF 2	C3	3	A	NORMAL	VARIABLE	C_DIFF_PRESS	24		5	
								C_FLOW	24	FULL	5	
								C_VIB	24		1	
								DIFF_PRESSURE	03		4	
								FLOW	03	FULL		
								VIB	03		1	
	COMPONENT COOLING WATER TO CHARGING PUMP CENTRIFUGAL PUMP											
2-CH-P-1A	11548-CBM-088B	2 OF 3	C8	2	A	CAVITY	VARIABLE	C_DIFF_PRESS	24		5	
								C_SUCTION_FLOW	24	FULL	5	
								C_VIB	24		1	
						NORMAL	VARIABLE	DIFF_PRESSURE	03		7	
								SUCTION_FLOW	03	NOTE 2	7	
								VIB	03		1	
	HIGH HEAD SAFETY INJECTION/CHARGING CENTRIFUGAL PUMP											

SURRY UNIT 2
FIFTH INSERVICE TESTING INTERVAL
PUMP INSERVICE TEST TABLE

PUMP NUMBER	DRAWING NUMBER	SHEET NO	COOR	ASME CLASS	ISTB GROUP	FLOW PATH	SYSTEM RESIST	TEST TYPE	TEST FREQ	REF FLOW STATUS	RELIEF REQUEST (P-)	NON-CODE ALTER TEST (PNC-)
2-CH-P-1B	11548-CBM-088B	2 OF 3	C6	2	A	CAVITY	VARIABLE	C_DIFF_PRESS	24		5	
								C_SUCTION_FLOW	24	FULL	5	
								C_VIB	24		1	
						NORMAL	VARIABLE	DIFF_PRESSURE	03		7	
								SUCTION_FLOW	03	NOTE 2	7	
								VIB	03		1	
	HIGH HEAD SAFETY INJECTION/CHARGING CENTRIFUGAL PUMP											
2-CH-P-1C	11548-CBM-088B	2 OF 3	C4	2	A	CAVITY	VARIABLE	C_DIFF_PRESS	24		5	
								C_SUCTION_FLOW	24	FULL	5	
								C_VIB	24		1	
						NORMAL	VARIABLE	DIFF_PRESSURE	03		7	
								SUCTION_FLOW	03	NOTE 2	7	
								VIB	03		1	
	HIGH HEAD SAFETY INJECTION/CHARGING CENTRIFUGAL PUMP											
2-CS-P-1A	11548-CBM-084A	2 OF 3	C6	2	B	RECIRC	FIXED	C_DIFF_PRESS	24			
								C_TOTAL_FLOW	24			
								C_VIB	24			
								DIFF_PRESSURE	03			
								TOTAL_FLOW	03			
	CONTAINMENT SPRAY PUMP											
2-CS-P-1B	11548-CBM-084A	2 OF 3	B5	2	B	RECIRC	FIXED	C_DIFF_PRESS	24			
								C_TOTAL_FLOW	24			
								C_VIB	24			
								DIFF_PRESSURE	03			
								TOTAL_FLOW	03			
CONTAINMENT SPRAY PUMP												

SURRY UNIT 2
FIFTH INSERVICE TESTING INTERVAL
PUMP INSERVICE TEST TABLE

PUMP NUMBER	DRAWING NUMBER	SHEET NO	COOR	ASME CLASS	ISTB GROUP	FLOW PATH	SYSTEM RESIST	TEST TYPE	TEST FREQ	REF FLOW STATUS	RELIEF REQUEST (P-)	NON-CODE ALTER TEST (PNC-)
2-FW-P-2	11548-CBM-068A	3 OF 4	B8	3	B	RECIRC	VARIABLE	C_DIFF_PRESS	24		5	
								C_FLOW	24	FULL	5	
								C_PUMP_SPEED	24			
								C_VIB	24			
								DIFF_PRESSURE	03			
								FLOW	03	FULL		
								PUMP_SPEED	03			
	AUXILIARY FEEDWATER STEAM DRIVEN CENTRIFUGAL PUMP											
2-FW-P-3A	11548-CBM-068A	3 OF 4	B6	3	B	RECIRC	VARIABLE	C_DIFF_PRESS	24		5	
								C_FLOW	24	FULL	5	
								C_VIB	24		1	
								DIFF_PRESSURE	03			
								FLOW	03	FULL		
	AUXILIARY FEEDWATER MOTOR DRIVEN CENTRIFUGAL PUMP											
2-FW-P-3B	11548-CBM-068A	3 OF 4	B5	3	B	RECIRC	VARIABLE	C_DIFF_PRESS	24		5	
								C_FLOW	24	FULL	5	
								C_VIB	24			
								DIFF_PRESSURE	03			
								FLOW	03	FULL		
	AUXILIARY FEEDWATER MOTOR DRIVEN CENTRIFUGAL PUMP											
2-RH-P-1A	11548-CBM-087A	1 OF 2	D7	2	A	RECIRC	VARIABLE	C_DIFF_PRESS	24		5	
								C_FLOW	24	FULL	5	
								C_VIB	24		1	
								DIFF_PRESSURE	CS		2	
								FLOW	CS	FULL	2	
								VIB	CS		1,2	
	RESIDUAL HEAT REMOVAL PUMP											
2-RH-P-1B	11548-CBM-087A	1 OF 2	D4	2	A	RECIRC	VARIABLE	C_DIFF_PRESS	24		5	
								C_FLOW	24	FULL	5	
								C_VIB	24		1	
								DIFF_PRESSURE	CS		2	
								FLOW	CS	FULL	2	
								VIB	CS		1,2	
	RESIDUAL HEAT REMOVAL PUMP											

SURRY UNIT 2
FIFTH INSERVICE TESTING INTERVAL
PUMP INSERVICE TEST TABLE

PUMP NUMBER	DRAWING NUMBER	SHEET NO	COOR	ASME CLASS	ISTB GROUP	FLOW PATH	SYSTEM RESIST	TEST TYPE	TEST FREQ	REF FLOW STATUS	RELIEF REQUEST (P-)	NON-CODE ALTER TEST (PNC-)
2-RS-P-1A	11548-CBM-084B	1 OF 2	B5	2	B	RECIRC	VARIABLE	C_DIFF_PRESS	24		5	
								C_FLOW	24	FULL	5	
								C_VIB	24			
	INSIDE RECIRCULATION SPRAY VERTICAL LINE SHAFT PUMP											
2-RS-P-1B	11548-CBM-084B	1 OF 2	B7	2	B	RECIRC	VARIABLE	C_DIFF_PRESS	24		5	
								C_FLOW	24	FULL	5	
								C_VIB	24			
	INSIDE RECIRCULATION SPRAY VERTICAL LINE SHAFT PUMP											
2-RS-P-2A	11548-CBM-084B	2 OF 2	C6	2	B	RECIRC	FIXED	C_DIFF_PRESS	24		5	
								C_FLOW	24		5	
								C_VIB	24			
	OUTSIDE RECIRCULATION SPRAY VERTICAL LINE SHAFT PUMP											
2-RS-P-2B	11548-CBM-084B	2 OF 2	C7	2	B	RECIRC	FIXED	C_DIFF_PRESS	24		5	
								C_FLOW	24		5	
								C_VIB	24			
	OUTSIDE RECIRCULATION SPRAY VERTICAL LINE SHAFT PUMP											
2-SI-P-1A	11548-CBM-089A	1 OF 3	C6	2	B	CAVITY	VARIABLE	C_DIFF_PRESS	24		5	
								C_FLOW	24	FULL	5	
								C_VIB	24			
						RECIRC	FIXED	DIFF_PRESSURE	03			
								FLOW	03	NOTE 3		
	LOW HEAD SAFETY INJECTION VERTICAL LINE SHAFT PUMP											
2-SI-P-1B	11548-CBM-089A	1 OF 3	C4	2	B	CAVITY	VARIABLE	C_DIFF_PRESS	24		5	
								C_FLOW	24	FULL	5	
								C_VIB	24			
						RECIRC	FIXED	DIFF_PRESSURE	03			
								FLOW	03	NOTE 3		
	LOW HEAD SAFETY INJECTION VERTICAL LINE SHAFT PUMP											

SURRY UNIT 2
FIFTH INSERVICE TESTING INTERVAL
PUMP INSERVICE TEST TABLE

PUMP NUMBER	DRAWING NUMBER	SHEET NO	COOR	ASME CLASS	ISTB GROUP	FLOW PATH	SYSTEM RESIST	TEST TYPE	TEST FREQ	REF FLOW STATUS	RELIEF REQUEST (P-)	NON-CODE ALTER TEST (PNC-)
2-SW-P-10A	11548-CBM-071B	1 OF 2	B8	3	A	NORMAL	VARIABLE	C_DIFF_PRESS	24		5	
								C_FLOW	24	FULL	5	
								C_VIB	24		1	
								DIFF_PRESSURE	03			
								FLOW	03	FULL		
								VIB	03		1	
	SERVICE WATER TO CHARGING PUMP CENTRIFUGAL PUMP											
2-SW-P-10B	11548-CBM-071B	1 OF 2	B3	3	A	NORMAL	VARIABLE	C_DIFF_PRESS	24		5	
								C_FLOW	24	FULL	5	
								C_VIB	24		1	
								DIFF_PRESSURE	03			
								FLOW	03	FULL		
								VIB	03		1	
	SERVICE WATER TO CHARGING PUMP CENTRIFUGAL PUMP											

PUMP INSERVICE TEST TABLE NOTES

Note 1 - As described in Relief Request P-6, pumps 1-CC-P-1C and D are tested over a range of flows every three months. The lower end of this range is less than 20% of pump design flow. However, to minimize system perturbations, the range will not be changed to accommodate the 20% of design flow.

Note 2 - The normal charging flow path is the only flow path available for Group A tests that are performed every three months for pumps 2-CH-P-1A, B and C. Flow within 20% of pump design flow cannot be achieved with this flow path.

Note 3 - The low head safety injection recirculation flow path is the only flow path available for Group B tests that are performed every three months for pumps 2-SI-P-1A and B. Flow within 20% of pump design flow cannot be achieved with this flow path.

3.6 PUMP TEST PROGRAM RELIEF REQUESTS

Relief Requests identify code requirements that are impractical for Surry Unit 2 and provide justification for the requested exception. Where appropriate, alternate testing to be performed in lieu of the code requirements is proposed.

RELIEF REQUEST P-1

Proposed alternative in accordance with 10CFR50.55a(a)(3)(i)
Alternative provides acceptable level of quality and safety.

1.0 ASME Code Components Affected

Refer to Table P-1.1

2.0 Applicable Code Edition and Addenda

ASME OM Code, 2004 Edition, 2005 and 2006 Addenda

3.0 Applicable Code Requirements

ISTB-3300, "Reference Values"

ISTB-3300(a) requires that initial reference values shall be determined from the results of testing meeting the requirements of ISTB-3100, "Preservice Testing," or from the results of the first inservice test.

ISTB-3300(d) requires that reference values shall be established at a point(s) of operation (reference point) readily duplicated during subsequent tests.

ISTB-3300(f) requires that all subsequent test results shall be compared to these initial reference values or to new reference values established in accordance with ISTB-3310, ISTB-3320, or ISTB-6200(c).

ISTB-5120, "Inservice Testing" (Centrifugal Pumps, Except Vertical Line Shaft Centrifugal Pumps)

ISTB-5121(e) and ISTB-5123(e), "Group A Test Procedure and Comprehensive Test Procedure", require that all deviations from the reference values shall be compared with the ranges of Table ISTB-5121-1 and corrective action taken as specified in ISTB-6200. Vibration measurements shall be compared to both the relative and absolute criteria shown in the alert and required action ranges of Table ISTB-5121-1. For example, if vibration exceeds either 6Vr, or 0.7 in/sec, the pump is in the required action range.

RELIEF REQUEST P-1 (Cont.)

ISTB-5220, "Inservice Testing" (Vertical Line Shaft Centrifugal Pumps)

ISTB-5221(e) and ISTB-5223(e), "Group A Test Procedure and Comprehensive Test Procedure", require that all deviations from the reference values shall be compared with the ranges of Table ISTB-5221-1 and corrective action taken as specified in ISTB-6200. Vibration measurements shall be compared to both the relative and absolute criteria shown in the alert and required action ranges of Table ISTB-5221-1.

Note: There are no ASME Code Classed positive displacement pumps in the Surry IST Program.

4.0 Reason for Request

The pumps listed in Table P-1.1 tend to be smooth running pumps. Each pump listed in Table P-1.1 has at least one vibration reference value (V_r) that is currently less than 0.05 inches per second (ips). Small values for V_r produce small acceptable ranges for pump operation. The acceptable ranges are defined in Tables ISTB-5121-1 and ISTB-5221-1 as less than or equal to $2.5V_r$. Based on a small acceptable range, a smooth running pump could be subject to unnecessary corrective action if the measured vibration parameter exceeds this acceptable range.

For very small reference values, hydraulic noise and instrument error can be a significant portion of the reading and affect the repeatability of subsequent measurements. Also, experience gathered from the North Anna preventive maintenance program has shown that changes in vibration levels in the range of 0.05 ips do not normally indicate significant degradation in pump performance.

To avoid unnecessary corrective action, a minimum value for V_r of 0.05 ips has been established for velocity measurements. This minimum value will be applied to individual vibration locations for the pumps listed in Table P-1.1 where the measured reference value is less than 0.05 ips.

When new reference values are established per ISTB-3310, ISTB-3320 or ISTB-6200(c), the measured parameters will be evaluated for each location to determine if the provisions of this relief request still apply.

In addition to the requirements of ISTB, the pumps in the ASME Inservice Testing Program are included in the Surry Predictive Maintenance Program. The Surry Predictive Maintenance Program currently employs predictive monitoring techniques such as:

RELIEF REQUEST P-1 (Cont.)

- vibration monitoring and analysis beyond that required by ISTB,
- oil sampling and analysis where applicable (e.g., for pumps with sufficiently large oil reservoirs).

If the measured parameters are outside the normal operating range or are determined by analysis to be trending toward an unacceptable degraded state, appropriate actions are taken that may include:

- increased monitoring to establish rate of change,
- review of component specific information to identify cause, and
- removal of the pump from service to perform maintenance.

It should be noted that all of the pumps in the IST Program will remain in the Predictive Maintenance Program even if certain pumps have very low vibration readings and are considered to be smooth running pumps. This alternative to the requirements of ISTB-3300, ISTB-5120 and ISTB-5220, and Table ISTB-5121-1 and Table ISTB-5221-1 provides an acceptable level of quality and safety.

5.0 Proposed Alternative and Basis for Use

For the pumps listed in Table P-1.1, if a measured reference value is below 0.05 ips for a particular vibration measurement location, then subsequent test results for that location may be compared to an acceptable range based on 0.05 ips. In addition to the Code requirements, all pumps in the IST Program are included in and will remain in the Surry Predictive Maintenance Program regardless of their smooth running status.

Using the provisions of this relief request as an alternative to the specific requirements of ISTB-3300, ISTB-5120 and ISTB-5220, and Table ISTB-5121-1 and Table ISTB-5221-1 will provide adequate indication of pump performance and continue to provide an acceptable level of quality and safety. Therefore, pursuant to 10CFR50.55a(a)(3)(i), Relief Request P-1 requests relief from the specific ISTB requirements identified in this request.

6.0 Duration of the Proposed Alternative

The proposed alternative described in Relief Request P-1 will be used for the Surry Power Station Unit 2 Fifth Ten Year Inservice Testing Interval.

RELIEF REQUEST P-1 (Cont.)

7.0 Precedents

A similar relief request for the Surry Unit 2 Fourth Ten Year Inservice Testing Interval was approved by the NRC in their safety evaluation entitled "Surry Power Station, Units 1 and 2 – American Society of Mechanical Engineers Inservice Testing Program (TAC NOS. MC0120 through MC0146)" dated July 2, 2004.

The following relief requests for other plants that are similar to Relief Request P-1 were approved by the NRC.

Pump Relief Request P-1 for North Anna 2 was approved by the NRC by letter dated 11/15/2010 (TAC NOS. ME2776 and ME2777).

Pump Relief Request PRR8 for Beaver Valley 1 was approved by the NRC by letter dated 9/27/2007 (TAC NOS. MD5118 – MD5131).

Pump Relief Request PRR8 for Beaver Valley 2 was approved by the NRC by letter dated 2/14/2008 (TAC NOS. MD5595 – MD5604).

8.0 References

1. ASME OM Code, 2004 Edition, 2005 and 2006 Addenda

RELIEF REQUEST P-1 (Cont.)

Table P-1.1

Pump Groups	System	Code Class	OM Group	Description	Pump Type	Pump Speed (rpm)
1-CC-P-1C 1-CC-P-1D	Component Cooling	3	A	Component Cooling Water Pumps	Centrifugal	1185
1-CH-P-2C 1-CH-P-2D	Chemical and Volume Control	2	A	Boric Acid Transfer Pumps	Centrifugal	3500
2-CC-P-2A 2-CC-P-2B	Component Cooling	3	A	Component Cooling Water Pump to Charging Pump	Centrifugal	3500
2-CH-P-1A 2-CH-P-1B 2-CH-P-1C	Chemical and Volume Control/Safety Injection	2	A	High Head Safety Injection/Charging Pump	Centrifugal	6018
2-FW-P-3A	Auxiliary Feedwater	3	B	Auxiliary Feedwater Motor Driven Pump	Centrifugal	3560
2-RH-P-1A 2-RH-P-1B	Residual Heat Removal	2	A	Residual Heat Removal Pump	Centrifugal	1780
2-SW-P-10A 2-SW-P-10B	Service Water	3	A	Service Water Pump to Charging Pump	Centrifugal	3500

RELIEF REQUEST P-2

Proposed alternative in accordance with 50.55a(f)(6)(i) and 10CFR50.55a(a)(3)(i)
Code requirement is impractical.
Alternative provides acceptable level of quality and safety.

1.0 ASME Code Components Affected

Pump(s): 2-RH-P-1A
2-RH-P-1B

System: Residual Heat Removal

Group: A

Class: 2

Function: The residual heat removal pumps remove decay heat from the reactor core and the reactor coolant system during plant cool down.

2.0 Applicable Code Edition and Addenda

ASME OM Code, 2004 Edition, 2005 and 2006 Addenda

3.0 Applicable Code Requirements

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

Table ISTB-3400-1, "Inservice Test Frequency," requires an inservice test be run on each Group A pump nominally every 3 months.

4.0 Reason for Request

ISTB-3400 and Table ISTB-3400-1

The residual heat removal (RHR) pumps are located inside containment. The pumps are low pressure (600 psig design pressure) pumps that take suction from and discharge to the reactor coolant system (RCS). The RCS is maintained at 2235 psig and the containment atmosphere is maintained at sub-atmospheric pressure during normal operation. The RHR motor operated suction and discharge isolation valves are interlocked with an output signal from RCS pressure transmitters which prevent the valves from being opened when the RCS pressure exceeds 460 psig. Therefore, testing the RHR pumps during normal operation is not possible.

RELIEF REQUEST P-2 (Cont.)

5.0 Proposed Alternative and Bases for Use

ISTB-3400 and Table ISTB-3400-1

These pumps will be tested every cold shutdown outage and reactor refueling outage, unless the pump has been tested within the previous three months. (During back-to-back cold shutdown or refueling outages, the test period remains valid for three months following each test, and no additional periodic testing needs to be performed within this three month test period.) For a cold shutdown or reactor refueling that extends longer than three months, the pumps will be tested every three months in accordance with ISTB 3400-1.

Using the provisions of this relief request as an alternative to the specific requirements of Table ISTB-3400-1 identified above, which have been identified to be impractical, will provide adequate indication of pump performance. Therefore, pursuant to 10 CFR 50.55a(f)(6)(i) we request relief from the specific ISTB Code requirements identified in this relief request.

6.0 Duration of the Proposed Alternative

The proposed alternative described in Relief Request P-2 will be used for the Surry Power Station Unit 2 Fifth Ten Year Inservice Testing Interval.

7.0 Precedents

A similar relief request for the Surry Unit 2 Fourth Ten Year Inservice Testing Interval was approved by the NRC in their safety evaluation entitled "Surry Power Station, Units 1 and 2 – American Society of Mechanical Engineers Inservice Testing Program (TAC NOS. MC4251 and MC4252)" dated September 28, 2004.

The following relief requests for other plants that are similar to Relief Request P-2 were approved by the NRC.

Pump Relief Request P-2 for North Anna 1 was approved by the NRC by letter dated 9/30/2010 (TAC NOS. ME2748, ME2749, ME2753 to ME2760, ME2763 to ME2772, ME2778 to ME2789).

Pump Relief Request PRR7 for Beaver Valley 1 was approved by the NRC by letter dated 9/27/2007 (TAC NOS. MD5118 – MD5131) and applies to ISTB-3400 and Table ISTB-3400-1.

RELIEF REQUEST P-2 (Cont.)

8.0 References

1. ASME OM Code, 2004 Edition, 2005 and 2006 Addenda

RELIEF REQUEST P-3

Proposed alternative in accordance with 50.55a(f)(6)(i) and 10CFR50.55a(a)(3)(i)
Code requirement is impractical.
Alternative provides acceptable level of quality and safety.

1.0 ASME Code Components Affected

Pump(s): 1-CH-P-2C
1-CH-P-2D

System: Chemical and Volume Control

Group: A

Class: 2

Function: The boric acid transfer pumps supply boric acid to the suction of the charging pumps for emergency boration.

2.0 Applicable Code Edition and Addenda

ASME OM Code, 2004 Edition, 2005 and 2006 Addenda

3.0 Applicable Code Requirements

Table ISTB-3500-1 requires that Group A test pressure instrument accuracy shall be within ± 2%.

ISTB-3510(b)(1) requires that the full-scale range of each analog instrument shall be not greater than three times the reference value.

4.0 Reason for Request

Table ISTB-3500-1

Calibrating the inlet pressure instruments for the boric acid transfer pumps to an accuracy within ± 2% has proven difficult and may be impractical in the future with the current instruments. Calibrating the inlet pressure instruments to an accuracy within ± 3% would be practical.

RELIEF REQUEST P-3 (Cont.)

ISTB-3510(b)(1)

The inlet pressure gauges have a full scale range of 0 to 15 psig. These instruments were sized by evaluating the static pressures present at the suction side of the pumps and applying the three times rule of ISTB-3510(b)(1). The static pressures range from 6 to 7 psig.

When the pumps are started, the pressure at the suction side of the pumps drops to approximately 2 psig; therefore, the inlet pressure gauges do not meet the three times rule for dynamic inlet pressure.

Using a lower range pressure gauge (i.e. 0 to 5 psig) would meet the three times rule for dynamic inlet pressure; however, the lower range gauge would be repeatedly exposed to an over range condition (static pressures in excess of 5 psig) which would damage the instruments.

Using a lower range temporary gauge on a quarterly basis presents a hardship because the process fluid contains boric acid and is contaminated. If contaminated, the temporary instruments would probably become waste material. However, with the current 0 to 15 psig inlet pressure gauges calibrated to $\pm$ 3%, a differential pressure can be determined that exceeds the accuracy requirements for differential pressure.

Each boric acid transfer pump discharge pressure gauge (0 to 150 psig range) has an instrument loop accuracy of 1.59%. Computing the maximum error for differential pressure using the current instrument configuration and an inlet pressure gauge accuracy of $\pm$ 3%, yields an error of 2.85 psid.

Computing the Code allowed error for differential pressure for an inlet pressure gauge with a 2% accuracy and a 0 to 5 psig range and a discharge pressure instrument with a 2% accuracy and a 0 to 150 psig range yields an error of 3.1 psid. With the current instrument configuration, the loop accuracy of each discharge pressure instrument could be as high as 1.75%, which equates to a 3.075 psid error, and still be within the Code allowed error of 3.1 psid for differential pressure. Therefore, for purposes of trending pump degradation using differential pressure and flow, the current instrument is adequate as long as the discharge pressure instrument loop accuracies remain at or below 1.75%.

RELIEF REQUEST P-3 (Cont.)

5.0 Proposed Alternative and Bases for Use

The inlet pressure gauges with a full scale range of 0 to 15 psig and calibrated to an accuracy within $\pm$ 3%, will be used to measure dynamic inlet pressures. Also, the loop accuracies for the discharge pressure gauges will be maintained at or below an accuracy of 1.75% to ensure that the differential pressure error is below the differential pressure error allowed by the Code.

Using the provisions of this relief request as an alternative to the specific requirements of Table ISTB-3500-1 and ISTB-3510(b)(1) identified above, which have been identified to be impractical, will provide adequate indication of pump performance. Therefore, pursuant to 10 CFR 50.55a(f)(6)(i) we request relief from the specific ISTB Code requirements identified in this relief request.

6.0 Duration of the Proposed Alternative

The proposed alternative described in Relief Request P-3 will be used for the Surry Power Station Unit 2 Fifth Ten Year Inservice Testing Interval.

7.0 Precedents

A similar relief request was approved by the NRC in their safety evaluation entitled "Surry Power Station, Units 1 and 2 – American Society of Mechanical Engineers Inservice Testing Program (TAC NOS. MC0120 through MC0146)" dated July 2, 2004.

The following relief requests for other plants that are similar to portions of P-3 were approved by the NRC.

Pump Relief Request PRR-03 for Brunswick Steam Electric Plant, Unit 1 and 2 was approved by the NRC by letter dated May 8, 2008 (TAC NOS. MD7425 through MD7438, and MD 7440 and MD7441). Note that Relief Request PRR-03 only applies to the full scale range requirements in ISTB-3510(b)(1), and not to the instrument accuracy requirements in Table ISTB-3500-1.

Pump Relief Request PRR006 for Fermi 2 was approved by the NRC by letter dated 76/2010 (TAC NOS. ME2548, ME2549, ME2551) and applies to Table ISTB-3510-1.

8.0 References

1. ASME OM Code, 2004 Edition, 2005 and 2006 Addenda

RELIEF REQUEST P-4

Proposed alternative in accordance with 10CFR50.55a(a)(3)(i).
Alternative provides acceptable level of quality and safety.

1.0 ASME Code Components Affected

Pump(s): 2-CC-P-2A
2-CC-P-2B

System: Component Cooling Water

Group: A

Class: 3

Function: The charging pump cooling water pumps supply cooling water to transfer heat from the charging pump mechanical seals coolers.

2.0 Applicable Code Edition and Addenda

ASME OM Code, 2004 Edition, 2005 and 2006 Addenda

3.0 Applicable Code Requirements

ISTB-3510(b)(1) requires that the full-scale range of each analog instrument shall be not greater than three times the reference value.

4.0 Reason for Request

Installed inlet pressure gauges used for the Group A tests have a full scale range of 0 to 3.5 psig. Readings from these inlet pressure gauges over the past year indicate that the dynamic pressures fall within the bottom third of full scale. However, the difference in the error between the 0 to 3.5 psig gauges and gauges that would meet the three times full-scale rule are so small that the 0 to 3.5 psig gauges can be considered to be equivalent in terms of accuracy for determining differential pressure.

RELIEF REQUEST P-4 (Cont.)

For example, inlet pressures as low as 0.8 psig have been recorded for pump 1-CC-P-2B. A gauge that meets the three times full-scale rule would have a full scale of 2.4 psig or less. A 2% accuracy for the 2.4 psig gauge translates to an error of 0.05 psig. A 2% accuracy for the 3.5 psig gauge translates to an error of 0.07 psig. The difference in error of 0.02 psig is insignificant when determining the differential pressures for these pumps which range between 50 and 60 psig. Therefore, the two gauges can be considered to be equivalent in terms of accuracy for determining differential pressure.

5.0 Proposed Alternative and Bases for Use

Inlet pressure for the Group A tests will be measured with gauges that have a full-scale of 0 to 3.5 psig.

Using the provisions of this relief request as an alternative to the specific requirements of ISTB-3510(b)(1) identified above will provide adequate indication of pump performance and continue to provide an acceptable level of quality and safety. Therefore, pursuant to 10 CFR 50.55a(a)(3)(i) we request relief from the specific ISTB Code requirements identified in this relief request.

6.0 Duration of the Proposed Alternative

The proposed alternative described in Relief Request P-4 will be used for the Surry Power Station Unit 2 Fifth Ten Year Inservice Testing Interval.

7.0 Precedents

A similar relief request was approved by the NRC in their safety evaluation entitled "Surry Power Station, Units 1 and 2 – American Society of Mechanical Engineers Inservice Testing Program (TAC NOS. MC0120 through MC0146)" dated July 2, 2004.

The following relief request for another plant that is similar to portions of P-4 was approved by the NRC.

Pump Relief Request PRR-03 for Brunswick Steam Electric Plant, Unit 1 and 2 was approved by the NRC by letter dated May 8, 2008 (TAC NOS. MD7425 through MD7438, and MD 7440 and MD7441).

8.0 References

1. ASME OM Code, 2004 Edition, 2005 and 2006 Addenda

RELIEF REQUEST P-5

Proposed alternative in accordance with 10CFR50.55a(a)(3)(i).
Alternative provides acceptable level of quality and safety.

1.0 ASME Code Components Affected

Refer to Table P-5.1

2.0 Applicable Code Edition and Addenda

ASME OM Code, 2004 Edition, 2005 and 2006 Addenda

3.0 Applicable Code Requirements

ISTB-5123, "Comprehensive Test Procedure" refers to Table ISTB-5121-1, "Centrifugal Pump Test Acceptance Criteria" that requires an upper required action limit of $1.03Q_r$ and $1.03DP_r$ where Q_r is the reference flow rate and DP_r is the reference differential pressure.

ISTB-5223, "Comprehensive Test Procedure" refers to Table ISTB-5221-1, "Vertical Line Shaft Centrifugal Pump Test Acceptance Criteria" that requires an upper required action limit of $1.03Q_r$ and $1.03DP_r$ where Q_r is the reference flow rate and DP_r is the reference differential pressure.

Note: There are no ASME Code Classed positive displacement pumps in the Surry IST Program.

4.0 Reason for Request

For some pump tests, Surry Power Station has had difficulty implementing the upper required action range limit of 1.03% above the established hydraulic parameter reference value for the comprehensive pump test. The difficulty arises when normal data scatter yields (1) a low measured reference value, and (2) high measured values for subsequent inservice tests. In these cases, some of the test data trend high near the upper required action range limit and may exceed the upper limit on occasion. The problem can be more severe for pumps with low differential pressures (50 psid or less) due to the smaller acceptable range.

RELIEF REQUEST P-5 (Cont.)

5.0 Proposed Alternative and Basis for Use

For the pumps listed in Table P-5.1, an upper required action limit of 1.06% times the reference value will be applied to the comprehensive pump test in accordance with ASME OM Code Case OMN-19, Alternative Upper Limit for the Comprehensive Pump Test. Also, for pumps that have a design basis accident flow rate, a pump periodic verification (PPV) test will be performed. Table P-5.1 identifies the pumps that have a design basis accident flow rate and indicates that a pump periodic verification test will be performed for these pumps.

Table P-5.1 includes all of the ASME Code Class pumps in the Surry IST program except for the containment spray (CS) pumps. The design basis accident flow rate cannot be achieved for the CS pumps with the existing test loop configuration. Therefore, the upper limit of 1.03% times the reference value will still be applied to the comprehensive pump test for the CS pumps. The reason the remaining pumps are included in the relief request is that data scatter can affect future tests for any of these pumps.

The following requirements shall be applied to the PPV test.

1) Apply the PPV test to pumps with a design basis accident flow rate as identified in Table P-5.1.
2) Performed the PPV test at least once every 2 years.
3) Determine if a PPV test is required before declaring a pump operable following replacement, repair, or maintenance on the pump.
4) Declared the pump inoperable if the PPV test flow rate and associated differential pressure cannot be achieved.
5) Maintain the necessary records for PPV test, including the applicable test parameters (e.g., flow rate and the associated differential pressure and speed for variable speed pumps) and their basis.
6) Account for the PPV test instrument accuracies in the test acceptance criteria.

Using the provisions of this relief request as an alternative to the specific requirements of ISTB-5123 and ISTB-5223, and Table ISTB-5121-1 and Table ISTB-5221-1 as described above will provide adequate indication of pump performance and continue to provide an acceptable level of quality and safety. Therefore, pursuant to 10CFR50.55a(a)(3)(i), Relief Request P-5 requests relief from the specific ISTB requirements identified in this request.

RELIEF REQUEST P-5 (Cont.)

6.0 Duration of the Proposed Alternative

The proposed alternative described in Relief Request P-5 will be used for the Surry Power Station Unit 2 Fifth Ten Year Inservice Testing Interval.

7.0 Precedents

None

8.0 References

1. ASME OM Code, 2004 Edition, 2005 and 2006 Addenda

RELIEF REQUEST P-5 (Cont.)

Table P-5.1

Pump Groups	System	Code Class	Description	Pump Type	Design Basis Accident Flow Rate (gpm)	Pump Periodic Verification Test Required
1-CC-P-1C 1-CC-P-1D	Component Cooling	3	Component Cooling Water Pumps	Centrifugal	None	No
1-CH-P-2C 1-CH-P-2D	Chemical and Volume Control	2	Boric Acid Transfer Pumps	Centrifugal	None	No
2-CC-P-2A 2-CC-P-2B	Component Cooling	3	Component Cooling Water Pump to Charging Pump	Centrifugal	30	Yes
2-CH-P-1A 2-CH-P-1B 2-CH-P-1C	Chemical and Volume Control/Safety Injection	2	High Head Safety Injection/Charging Pump	Centrifugal	436	Yes
2-FW-P-2	Auxiliary Feedwater	3	Auxiliary Feedwater Turbine Driven Pump	Centrifugal	400	Yes
2-FW-P-3A 2-FW-P-3B	Auxiliary Feedwater	3	Auxiliary Feedwater Motor Driven Pump	Centrifugal	300	Yes
2-RH-P-1A 2-RH-P-1B	Residual Heat Removal	2	Residual Heat Removal Pump	Centrifugal	None	No
2-RS-P-1A 2-RS-P-1B	Recirculation Spray	3	Inside Containment Recirculation Spray Pump	Vertical Line Shaft Centrifugal	3100	Yes
2-RS-P-2A 2-RS-P-2B	Recirculation Spray	3	Outside Containment Recirculation Spray Pump	Vertical Line Shaft Centrifugal	2900	Yes
2-SI-P-1A 2-SI-P-1B	Safety Injection	3	Low Head Safety Injection Pump	Vertical Line Shaft Centrifugal	2901	Yes

RELIEF REQUEST P-5 (Cont.)

Table P-5.1 (Cont.)

Pump Groups	System	Code Class	Description	Pump Type	Design Basis Accident Flow Rate (gpm)	Pump Periodic Verification Test Required
2-SW-P-10A 2-SW-P-10B	Service Water	3	Service Water Pump to Charging Pump	Centrifugal	42	Yes

RELIEF REQUEST P-6

Proposed alternative in accordance with 10CFR50.55a(a)(3)(i).
Alternative provides acceptable level of quality and safety.

1.0 ASME Code Components Affected

Pump(s): 1-CC-P-1C
1-CC-P-1D

System: Component Cooling

Group: A

Class: 3

Function: The component cooling water pumps supply cooling water to transfer heat from heat exchangers containing reactor coolant or other radioactive fluids.

2.0 Applicable Code Edition and Addenda

ASME OM Code, 2004 Edition, 2005 and 2006 Addenda

3.0 Applicable Code Requirements

ISTB-5121 requires that "Group A tests shall be conducted with the pump operating at a specified reference point."

ISTB-5123 requires that "Comprehensive tests shall be conducted with the pump operating at a specified reference point."

4.0 Reason for Request

During testing of the component cooling water pumps, flow is adjusted to the reference flow rate using an 18 inch butterfly valve. The butterfly valve is a crude throttling device and does not provide the fine tuning that is required to duplicate the reference flow rate from test to test. Consequently, throttling to the same reference flow rate during each test is not practical.

RELIEF REQUEST P-6 (Cont.)

5.0 Proposed Alternative and Bases for Use

The component cooling water pumps will be tested in a range of flows, and the results will be compared to acceptance criteria based on a portion of the pump curve and the hydraulic acceptance criteria given in ISTB. The guidelines set forth in Code Case OMN-16, "Use of a Pump Curve for Testing" will be followed.

Using the provisions of this relief request as an alternative to the specific requirements of ISTB-5121 and ISTB-5123 identified above will provide adequate indication of pump performance and continue to provide an acceptable level of quality and safety. Therefore, pursuant to 10 CFR 50.55a(a)(3)(i) we request relief from the specific ISTB Code requirements identified in this relief request.

6.0 Duration of the Proposed Alternative

The proposed alternative described in Relief Request P-6 will be used for the Surry Power Station Unit 2 Fifth Ten Year Inservice Testing Interval until Code Case OMN-16 is approved for use by the NRC in Regulatory Guide 1.192, Operation and Maintenance Code Case Acceptability. When OMN-16 is approved by the NRC, OMN-16 can be used without a relief request and Relief Request P-6 will no longer be necessary.

7.0 Precedents

A similar relief request was approved by the NRC in their safety evaluation entitled "Surry Power Station, Units 1 and 2 – American Society of Mechanical Engineers Inservice Testing Program (TAC NOS. MC0120 through MC0146)" dated July 2, 2004.

Pump Relief Request P-4 for North Anna 1 was approved by the NRC by letter dated 9/30/2010 (TAC NOS. ME2748, ME2749, ME2753 to ME2760, ME2763 to ME2772, ME2778 to ME2789).

Pump Relief Request PRR3 for Beaver Valley 1 was approved by the NRC by letter dated 9/27/2007 (TAC NOS. MD5118 – MD5131). PRR3 references NUREG-1482, Section 5.2.2, "Reference Curves.," which gives guidance based on OMN-9 and the conditions in Regulatory Guide 1.192. OMN-16 incorporates the conditions identified in Regulatory Guide 1.192.

These relief requests are similar to P-6 in that they use a portion of the pump curve instead of a reference point. However, the plant systems and conditions for not using a reference point differ.

RELIEF REQUEST P-6 (Cont.)

8.0 References

1. ASME OM Code, 2004 Edition, 2005 and 2006 Addenda

RELIEF REQUEST P-7

Proposed alternative in accordance with 10CFR50.55a(a)(3)(i).
Alternative provides acceptable level of quality and safety.

1.0 ASME Code Components Affected

Pump(s): 2-CH-P-1A
2-CH-P-1B
2-CH-P-1C

System: Chemical and Volume Control

Group: A

Class: 2

Function: These centrifugal pumps supply high pressure borated water to the reactor coolant system following a safety injection signal, and to provide normal charging to the reactor coolant system.

2.0 Applicable Code Edition and Addenda

ASME OM Code, 2004 Edition, 2005 and 2006 Addenda

3.0 Applicable Code Requirements

ISTB-5121 requires that "Group A tests shall be conducted with the pump operating at a specified reference point."

4.0 Reason for Request

Plant conditions may not be the same as when the reference values were established when performing the quarterly Group A tests. In the Chemical and Volume Control System, charging system flow must be balanced with seal injection, letdown and seal return flows to maintain a constant pressurizer level and pressure. Adjusting the charging flow rate to a specific reference test flow rate and then returning the charging system to the original flow rate places an unnecessary transient on the charging system and causes undesirable perturbations within the Reactor Coolant System.

RELIEF REQUEST P-7 (Cont.)

Therefore, pumps will be tested in a range of flows and the results will be compared to acceptance criteria based a portion of the pump curve and the hydraulic acceptance criteria given in ISTB.

Past vibration data for the subject pumps have been reviewed and it has been determined that pump vibration does not vary significantly with flow rate over the range of the test flow rates. This alternative to the requirements of ISTB-5121 provides an acceptable level of quality and safety.

5.0 Proposed Alternative and Bases for Use

The charging/safety Injection pumps will be tested in a range of flows, and the results will be compared to acceptance criteria based on a portion of the pump curve and the hydraulic acceptance criteria given in ISTB. The guidelines set forth in Code Case OMN-16, "Use of a Pump Curve for Testing" will be followed.

Using the provisions of this relief request as an alternative to the specific requirements of ISTB-5121 identified above will provide adequate indication of pump performance and continue to provide an acceptable level of quality and safety. Therefore, pursuant to 10 CFR 50.55a(a)(3)(i) we request relief from the specific ISTB Code requirements identified in this relief request.

6.0 Duration of the Proposed Alternative

The proposed alternative described in Relief Request P-7 will be used for the Surry Power Station Unit 2 Fifth Ten Year Inservice Testing Interval until Code Case OMN-16 is approved for use by the NRC in Regulatory Guide 1.192, Operation and Maintenance Code Case Acceptability. When OMN-16 is approved by the NRC, OMN-16 can be used without a relief request and Relief Request P-7 will no longer be necessary.

7.0 Precedents

The following relief requests for other plants that are similar to P-7 were approved by the NRC.

Pump Relief Request P-8 for North Anna 1 was approved by the NRC by letter dated 9/30/2010 (TAC NOS. ME2748, ME2749, ME2753 to ME2760, ME2763 to ME2772, ME2778 to ME2789).

RELIEF REQUEST P-7 (Cont.)

Pump Relief Request PRR3 for Beaver Valley 1 was approved by the NRC by letter dated 9/27/2007 (TAC NOS. MD5118 – MD5131). PRR3 references NUREG-1482, Section 5.2.2, "Reference Curves.," which gives guidance based on OMN-9 and the conditions in Regulatory Guide 1.192. OMN-16 incorporates the conditions identified in Regulatory Guide 1.192.

8.0 References

1. ASME OM Code, 2004 Edition, 2005 and 2006 Addenda

3.7 ALTERNATIVE TESTING FOR NON-CODE PUMPS

According to the minutes of public meeting on Generic Letter 89-04, "Paragraph (g) of 10 CFR 50.55a requires the use of Section XI of the ASME Code for inservice testing of components covered by the Code. Paragraph (g) has been replaced by Paragraph (f) in the currently approved 10 CFR 50.55a. For other components important to safety, the licensee also has the burden of demonstrating their continued operability." The minutes go on to state that, "The Code-required IST program is a reasonable vehicle to provide a periodic demonstration of the operability of pumps and valves not covered by the Code. If non-Code components are included in the ASME Code IST program (or some other licensee-developed inservice testing program) and certain Code provisions cannot be met, the Commission regulations (10 CFR 50.55a) do not require a 'request for relief' to be submitted to the staff. Nevertheless, documentation that provides assurance of the continued operability of the non-Code components through the performed tests should be available at the plant site." Non-Code components are components that are important to safety but are not in systems or portions of systems that are classified ASME Class 1, 2 or 3.

Surry Power Station has elected to include certain non-Code components in the ASME IST program. Where the Code provisions cannot be met for non-Code components, alternative testing is performed that is adequate to ensure continued operability. The alternate testing is described in this section. There may be other deviations from Code provisions that are not described in this section. For these cases, documentation is available at the plant site.

As indicated in the minutes of public meeting on Generic Letter 89-04, a 'request for relief' need not be submitted for non-Code components. Therefore, the alternative tests described in this section are not 'requests for relief' but are provided for information.

NON-CODE ALTERNATIVE TESTING PNC-1

System : Fuel Oil

Pump(s): 1-EE-P-1B
1-EE-P-1E

Group: B

Class: NC

Function: Emergency diesel generator fuel oil transfer pumps supply fuel oil to the emergency diesel generator fuel oil day tank which directly supplies the emergency diesel generator.

ISTB Code Requirements
Which Will Not Be Met

ISTB-3300 requires that reference values be determined from the results of preservice testing or from the results of the first inservice test.

ISTB-3310 requires that after maintenance, repair, or pump replacement either a Group A or Comprehensive Test shall be run. If there is a deviation from previous reference value, this test will be used to set new reference criteria.

Table ISTB-3400-1 requires that a comprehensive test be run biennially.

ISTB-3510(e) requires that the frequency response range of the vibration measuring transducers and their readout system shall be from one-third minimum pump shaft rotational speed to at least 1000 HZ.

ISTB-5300(a)(1) requires that for the Group A and comprehensive pump tests each pump shall be run at least 2 minutes before the test quantities are measured. This requirement does not apply to the quarterly Group B tests.

Basis for Alternate Testing For ISTB-3300

The pumps listed above have at least one vibration reference value (V_r) that is currently less than 0.05 inches per second (ips). Small values for V_r produce small acceptable ranges for pump operation. The acceptable ranges are defined in Table ISTB-5300-1 as less than or equal to $2.5V_r$. Based on a small acceptable range, a smooth running pump could be subject to unnecessary corrective action.

NON-CODE ALTERNATIVE TESTING PNC-1 (Cont.)

For very small reference values, hydraulic noise and instrument error can be a significant portion of the reading and affect the repeatability of subsequent measurements. Also, experience gathered from the Surry preventive maintenance program has shown that changes in vibration levels in the range of 0.05 ips do not normally indicate significant degradation in pump performance.

To avoid unnecessary corrective action, a minimum value for V_r of 0.05 ips has been established for velocity measurements. This minimum value will be applied to individual vibration locations for the pumps listed in Table P-1 where the measured reference value is less than 0.05 ips.

When new reference values are established per ISTB-3310, ISTB-3320 or ISTB-6200(c), the measured parameters will be evaluated for each location to determine if the provisions of this non-Code alternative test description still apply. If the measured V_r is greater than 0.05 ips, the requirements of ISTB-3300 will be applied. Conversely, if the measured V_r is less than 0.05 ips, a minimum value of 0.05 ips will be used for V_r even if the previous reference value was above 0.05 ips.

In addition to the requirements of ISTB, the pumps in the ASME Inservice Testing Program are included in the Surry Predictive Maintenance Program. The main attributes of the Surry Predictive Maintenance Program are described in Relief Request P-1.

It should be noted that all of the pumps in the IST Program will remain in the Predictive Maintenance Program even if certain pumps have very low vibration readings and are considered to be smooth running pumps. This alternative to the requirements of ISTB-3300 provides an acceptable level of quality and safety.

Basis for Alternate Testing For ISTB-3310

A Group B test with vibrations measurements will be used in lieu of the Group A or Comprehensive test after maintenance, repairs, or pump replacement. The basis for using the Group B test with vibration measurements in lieu of the Group A or Comprehensive test is given below.

Basis for Alternate Testing For Table ISTB-3400-1

For positive displacement pumps, the comprehensive test acceptable range for flow rate is 0.95 to 1.03 times the reference value as described in Table ISTB-5321-1. The flow rate reference valves (Q_r) for the fuel oil transfer pumps are typically between 9 and 10 gpm, which translates to total acceptable bands from 0.72 gpm (for Q_r = 9 gpm) to 0.8 gpm (for Q_r = 10 gpm). A review of test data shows that seasonal variations in

recorded flow rates either come close to or exceed the acceptable bands allowed by the Code. The Group A test acceptable range for flow rate is 0.95 to 1.1 times the reference value as described in Table ISTB-5321-1. Although this range bounds the seasonal variations, there is little margin on the low end of the band.

The Group B test acceptable range for flow rate is 0.9 to 1.1 times the reference value as described in Table ISTB-5321-1. This acceptable range translates to total acceptable bands from 1.8 gpm (for Qr = 9 gpm) to 2.0 gpm (for Qr = 10 gpm). These acceptable bands bound the seasonal variations in recorded flow rates. It should be noted that the pumps are tested every quarter at a flow rate that satisfies the comprehensive test requirements for flow rate.

Applying the comprehensive test or Group A acceptance criteria to the fuel oil transfer pumps could result in pumps failing the test and being declared inoperable, when in fact the pumps are operating acceptably. The pumps are required to deliver 3.42 gpm but were designed for a flow rate of 5 gpm of fuel oil. As described above, the pumps deliver from 9 to 10 gpm, so there is a wide margin of over capacity for the fuel oil transfer pumps.

The Group B test differs from the Group A and Comprehensive test in that it does not require discharge pressure to be compared to acceptance criteria. The Group A test has an acceptable range of 0.93 to 1.10 times the reference discharge pressure and the Comprehensive test has a range of 0.95 to 1.03 times the reference for discharge pressure. The acceptable range for discharge pressure for a comprehensive test would be 0.88 psi (P_r=11psi). As positive displacement pumps, the flow rate is almost constant over the range of discharge pressures, giving an almost vertical line for the pump curve. System engineering has determined that flow, not discharge pressure is the critical attribute for validating the design function of these pumps and is the only hydraulic parameter that needs to be measured to detect pump degradation. Therefore, the Group B hydraulic acceptance criteria, which exclude discharge pressure, will be used.

The Group B test does not require vibration data. However, to enhance the ability to detect degradation, vibration measurements will be taken in accordance with the requirements of Table 5321-1 for the Comprehensive test during the quarterly Group B test.

Given, the wide margin of over capacity for the fuel oil pumps, and the inclusion of vibration testing, the Group B test is adequate for detecting degradation in the positive displacement fuel oil transfer pumps in lieu of the comprehensive test. This program change was initiated by discussions with System Engineering and Margin Management Issue EE03.

NON-CODE ALTERNATIVE TESTING PNC-1 (Cont.)

Basis for Alternate Testing For ISTB-3510(e)

The minimum pump shaft rotational speed for these pumps is 690 rpm. To meet the one-third shaft speed requirement, the low end of the frequency response range would have to be 3.8 Hz. The transducers used for testing the diesel fuel oil transfer pumps have a low end frequency response of 10 Hz. These transducers are capable of detecting vibrations at frequencies of at least one times the rotational speed of the pump, which is adequate for detecting degradation in positive displacement pumps.

Basis for Alternate Testing For ISTB-5300(a)(1)

The pump operating time is limited due to operational restraints. While the diesels are running, these pumps start automatically when the fuel oil level in the day tank reaches the low level switch, and stop when the level reaches the high level switch. The pump run time can vary depending upon the diesel load and the resulting fuel consumption rate. If the pumps are allowed to run for two minutes prior to measuring the test quantities and the fuel consumption rate is low, not enough time is available to gather all of the required ASME OM test data.

Alternate Testing

Pumps with a measured reference value below 0.05 ips for a particular vibration measurement location shall have subsequent test results for that location compared to an acceptable range based on 0.05 ips. In addition to the Code requirements, all pumps in the IST Program are included in and will remain in the Surry Predictive Maintenance Program regardless of their smooth running status.

The transducers used for testing the diesel fuel oil transfer pumps have a low end frequency response of 10 Hz versus the 3.8 Hz required by the Code for a pump running at 690 rpm.

The measurement of ASME OM quantities will begin when the pump automatically starts on a low tank level signal.

The Group B test with Comprehensive test vibration criteria will be used for the quarterly Group B test, tests after maintenance, repairs, or pump replacement, and the Comprehensive test.

4.0 VALVE INSERVICE TEST PROGRAM DESCRIPTION

4.1 PROGRAM DEVELOPMENT PHILOSOPHY

Surry Unit 2 Technical Specification 6.4.I describes the surveillance requirements that apply to the inservice testing of ASME Code Class 1, 2 and 3 valves. The Surry Unit 2 Inservice Testing (IST) Program for Valves has been established to meet the requirements of 10CFR50, the ASME OM Code, Subsection ISTC and Technical Specifications.

The scope of the program includes ASME Class 1, 2 and 3, and certain non-Code class valves that are required to perform a specific function in shutting down the reactor to the safe shutdown condition, maintaining the safe shutdown condition or mitigating the consequences of an accident.

ISTC defines the rules and requirements of inservice testing of Code Class 1, 2, and 3 valves and states that each valve to be tested by the rules of this subsection shall be identified by the owner and listed in the plant records.

The purpose of the IST Program Plan is to identify the valves that are considered by Virginia Electric and Power (Dominion) Company as having a safety function and are therefore subject to the testing requirements of ISTC. The intent of the Code is to assess operational readiness and detect potentially adverse changes in the mechanical condition of these valves. The relief requests for the IST Program Plan identify Code requirements considered to be impractical, provide technical basis for the request and propose alternate testing when warranted, or provide an acceptable alternative to Code requirements. The relief requests are presented in Section 4.5.

Surry Unit 2 is committed to meeting the leak rate testing requirements of:

1) 10CFR50, Appendix J, Option B for containment isolation valves and

2) ISTC for other valves for which seat leakage is limited to a specific maximum amount (i.e. pressure isolation valves) unless relief is specifically requested from ISTC requirements.

4.2 PROGRAM IMPLEMENTATION

The Valve Inservice Test Program is executed as part of the normal plant surveillance routine. Three types of tests are conducted as part of the Valve Test Program:

1) Valve Exercise Tests,
2) Valve Leakage Tests and
3) Safety Valve Tests

The Exercise Tests verify that:

1) the valve strokes properly,
2) the valve responds to control commands,
3) the valve stroke time is within specific limits and
4) remote position indication accurately reflects the observed valve position. Remote valve position indication will be verified every two years.

Fail safe valves are tested by observing the valve operation upon loss of actuating power. In most cases, this can be accomplished using normal control circuits.

Those valves which are scheduled to be exercised during cold shutdown are subject to the requirements of ISTC-3521(g) which states that:

> "valve exercising during cold shutdown shall commence within 48 hr of achieving cold shutdown and continue until all testing is complete or the plant is ready to return to operation at power. For extended outages, testing need not be commenced in 48 hr provided all valves required to be tested during cold shutdown will be tested before or as part of plant startup. However, it is not the intent of this Subsection to keep the plant in cold shutdown to complete cold shutdown testing;"

Check valves which are scheduled to be exercised during cold shutdown are subject to the requirements of ISTC-3522(e) which is similar to ISTC-3521(g). Relief and Safety valves are required to be tested to the requirements of ISTC, Appendix I.

Certain valves cannot be full stroke exercised during normal operation following maintenance. These valves are described in the cold shutdown justifications (refer to Section 4.6) and reactor refueling justifications (refer to Section 4.7). If maintenance cannot be deferred to a shutdown condition, then an engineering evaluation must be performed prior to the maintenance to determine the effect of the maintenance on valve performance. If the evaluation shows that performance will not be affected, then no post maintenance testing is required. A partial stroke test will be performed if practicable.

To test check valves to the full open position, the maximum required accident condition flow must be measured through the valve. In certain cases, this flow cannot be practically established or verified. Per ISTC-5221(c), disassembly and examination of the check valves on a sampling basis is an acceptable alternative testing method.

As allowed by ISTC-5222, "Condition-Monitoring Program," Surry Power Station will apply Appendix II, "Check Valve Condition Monitoring Program," of the ASME OM Code, Subsection ISTC as an alternative to the requirements of ISTC-3510, ISTC-3520, ISTC-3530, ISTC-3550 and ISTC-5221, subject to the following provisions and limitations.

4.3 PROGRAM ADMINISTRATION

The engineering staff at Surry is responsible for the administration of the IST Program for Valves. The operations staff is responsible for performing the periodic tests as required by this program. The IST Program for Valves is implemented by station periodic test procedures.

4.4 VALVE INSERVICE TEST TABLE

The Valve Inservice Test Table describes how the Valve Program meets ISTC requirements. To aid the reader in the interpretation of the table, brief explanations of the table headings and abbreviations are provided.

For non-Code valves, a request for relief is not necessary when provisions of the Code will not be met. Section 4.8 contains a discussion of the testing requirements for non-Code valves and descriptions of alternative testing in cases where the provisions of the Code will not be met.

1) Valve Number - Each valve in the plant has a unique "mark" number which identifies the system to which the equipment belongs and type of equipment.

2) Drawing and Sheet Number, Coordinate - The specific coordinates of each valve are supplied to facilitate location of the valves on the flow diagrams provided.

3) Valve Type - A brief description of the actuator and valve type.

   The following abbreviations are used to describe actuator types. Valves may be actuated in more than one way.

   MO - Motor Operated
   AO - Pneumatic (Air Operated)
   MAN - Manually Operated
   SO - Electronic solenoid Operated Valves

4) Size - Nominal pipe diameter to which valve connects is given in inches.

5) Code Class - ASME Code Class of each valve as per 10 CFR 50.55a and Regulatory Guide 1.26.

   NOTE: NC is for non-Code valves. These valves are important to safety but are not in systems or portions of systems that are classified ASME Class 1, 2 or 3.

6) Category - Categories are defined by ISTC-1300. Each valve has specific testing requirements which are determined by the category to which it belongs. Valves marked with an "E" are passive valves.

7) Isolation Valve Type - Valves that are assigned a maximum leakage. The following abbreviations are used to describe the main isolation valve types:

   CIV - Containment Isolation Valve subject to Appendix J, Option B leakage testing as described in Technical Specification Section 4.4.B.

   PIV - Pressure Isolation Valve which protects low pressure safety related piping from RCS pressure. Technical Specification Section 3.1.C specifies the pressure isolation valves that are tested in accordance with this program.

8) Test Required - Testing requirements identified for the valves are identified here.

   ST - Stroke times shall be measured per ISTC-5100 or as modified by a specific relief request.

   EV - Exercise valve for operability at least once every 3 months per ISTC-5100 or as modified by a specific cold shutdown or reactor refueling justification which is allowed by ISTC-3521.

   LT - Leak test shall be performed per ISTC-3600 or as modified by specific relief request.

   CV - Check valves shall be exercised at least once every 3 months per ISTC-3510 or as modified by a specific cold shutdown or reactor refueling justification which is allowed by ISTC-3522.

   VP - Valve position indication shall be verified per ISTC-3700 or as modified by a specific relief request.

   SP - Set points of safety and relief valves shall be tested per ISTC, Appendix I or as modified by a specific relief request. Class 1 power

actuated relief valves are tested to the requirements of ISTC, Appendix I, I-7320.

FS - Valves with fail-safe actuators shall be tested by observing the operation of the valves upon loss of the actuator power at least once every 3 months per ISTC-3560 or as modified by a specific cold shutdown or reactor refueling justification which is allowed by ISTC-3521.

9) Test Position - The following abbreviations are used to describe normal valve positions to which the valves are tested (including the valve safety position):

O - Open
C - Close
OC - Open and Close
P - Partially Open

10) Test Frequency - The following abbreviations are used to describe the test frequency:

03 - Nominally every three months

24 - Every 24 months

60 - Every 60 months

120 - Every 120 months

CM - Per the test frequency determined by the Appendix II, Check Valve Condition Monitoring program

CS - Every cold shutdown but not more often than every three months

RR - Every reactor refueling outage

OPB - Per the test frequency determined by the Appendix J, Option B program for leak testing containment isolation valves

11) Relief Request Reference

12) Cold Shutdown Justification Reference

13) Reactor Refueling Justification Reference

14) Non-Code Alternative Test Reference

15) Function - A brief description of the function of the valve.

SURRY UNIT 2
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
2-BD-TV-200A	11548-CBM-124A	1 OF 4	C-7	AO GATE	2	2	B		EV	C	CS		11		
									FS	C	CS		11		
									ST	C	CS		11		
									VP	OC	24				
	"A" STEAM GENERATOR BLOWDOWN, INSIDE CONTAINMENT ISOLATION VALVE														
2-BD-TV-200B	11548-CBM-124A	1 OF 4	C-6	AO GATE	2	2	B		EV	C	CS		11		
									FS	C	CS		11		
									ST	C	CS		11		
									VP	OC	24				
	"A" STEAM GENERATOR BLOWDOWN, OUTSIDE CONTAINMENT ISOLATION VALVE														
2-BD-TV-200C	11548-CBM-124A	2 OF 4	C-7	AO GATE	2	2	B		EV	C	CS		11		
									FS	C	CS		11		
									ST	C	CS		11		
									VP	OC	24				
	"B" STEAM GENERATOR BLOWDOWN, INSIDE CONTAINMENT ISOLATION VALVE														
2-BD-TV-200D	11548-CBM-124A	2 OF 4	C-6	AO GATE	2	2	B		EV	C	CS		11		
									FS	C	CS		11		
									ST	C	CS		11		
									VP	OC	24				
	"B" STEAM GENERATOR BLOWDOWN, OUTSIDE CONTAINMENT ISOLATION VALVE														
2-BD-TV-200E	11548-CBM-124A	3 OF 4	C-7	AO GATE	2	2	B		EV	C	CS		11		
									FS	C	CS		11		
									ST	C	CS		11		
									VP	OC	24				
	"C" STEAM GENERATOR BLOWDOWN, INSIDE CONTAINMENT ISOLATION VALVE														
2-BD-TV-200F	11548-CBM-124A	3 OF 4	C-6	AO GATE	2	2	B		EV	C	CS		11		
									FS	C	CS		11		
									ST	C	CS		11		

SURRY UNIT 2
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
2-BD-TV-200F	11548-CBM-124A	3 OF 4	C-6	AO GATE	2	2	B		VP	OC	24				
	"C" STEAM GENERATOR BLOWDOWN, OUTSIDE CONTAINMENT ISOLATION VALVE														

SURRY UNIT 2
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
1-CC-569	11448-CBM-072D	1 OF 5	B-5	CHECK VALVE	18	3	C		CV	C O	CM CM				
	"D" COMPONENT COOLING PUMP DISCHARGE CHECK VALVE														
1-CC-578	11448-CBM-072D	1 OF 5	B-5	CHECK VALVE	18	3	C		CV	C O	CM CM				
	"C" COMPONENT COOLING PUMP DISCHARGE CHECK VALVE														
2-CC-001	11548-CBM-072A	2 OF 7	F-7	CHECK VALVE	6	3	C		CV	C O	CM CM				
	CC SUPPLY TO "A" RC PUMP LO, STATOR SHROUD & THERM BARRIER COOLERS, ISOL CHECK VLV														
2-CC-058	11548-CBM-072A	3 OF 7	F-7	CHECK VALVE	6	3	C		CV	C O	CM CM				
	CC SUPPLY TO "B" RC PUMP LO, STATOR SHROUD & THERM BARRIER COOLERS, ISOL CHECK VLV														
2-CC-059	11548-CBM-072A	4 OF 7	F-7	CHECK VALVE	6	3	C		CV	C O	CM CM				
	CC SUPPLY TO "C" RC PUMP LO, STATOR SHROUD & THERM BARRIER COOLERS, ISOL CHECK VLV														
2-CC-094	11548-CBM-072A	2 OF 7	C-6	CHECK VALVE	2	3	C		CV	C O	CM CM				
	COMPONENT COOLING WATER TO RCP THERMAL BARRIER ISOLATION CHECK VALVE														
2-CC-095	11548-CBM-072A	3 OF 7	C-6	CHECK VALVE	2	3	C		CV	C O	CM CM				
	COMPONENT COOLING WATER TO RCP THERMAL BARRIER ISOLATION CHECK VALVE														
2-CC-176	11548-CBM-072A	1 OF 7	F-7	CHECK VALVE	18	3	C		CV	C O	CM CM				
	CC SUPPLY TO RHR HEAT EXCHANGER CHECK VALVE														
2-CC-177	11548-CBM-072A	1 OF 7	F-7	CHECK VALVE	18	3	C		CV	C	CM				

SURRY UNIT 2
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
2-CC-177	11548-CBM-072A	1 OF 7	F-7	CHECK VALVE	18	3	C		CV	O	CM				
	CC SUPPLY TO RHR HEAT EXCHANGER CHECK VALVE														
2-CC-181	11548-CBM-072A	1 OF 7	E-2	MANUAL BFLY	18	3	B		EV	C	24				
										O	24				
	CC RETURN FROM RHR HEAT EXCHANGER MANUAL ISOLATION VALVE														
2-CC-185	11548-CBM-072A	1 OF 7	C-2	MANUAL BFLY	18	3	B		EV	C	24				
										O	24				
	CC RETURN FROM RHR HEAT EXCHANGER MANUAL ISOLATION VALVE														
2-CC-224	11548-CBM-072B	1 OF 3	D-2	CHECK VALVE	6	3	C		CV	C	CM				
										O	CM				
	CC SUPPLY TO "C" RECIRC AIR COOLING COILS, INSIDE CONTAINMENT ISOLATION CHECK VALVE														
2-CC-233	11548-CBM-072B	1 OF 3	D-6	CHECK VALVE	6	3	C		CV	C	CM				
										O	CM				
	CC SUPPLY TO "B" RECIRC AIR COOLING COILS, INSIDE CONTAINMENT ISOLATION CHECK VALVE														
2-CC-242	11548-CBM-072B	1 OF 3	D-8	CHECK VALVE	6	3	C		CV	C	CM				
										O	CM				
	CC SUPPLY TO "A" RECIRC AIR COOLING COILS, INSIDE CONTAINMENT ISOLATION CHECK VALVE														
2-CC-329	11548-CBM-071B	2 OF 2	D-3	CHECK VALVE	2	3	C		CV	C	CM				
										O	CM				
	CHARGING PUMP COOLING WATER PUMP DISCHARGE CHECK VALVE														
2-CC-555	11548-CBM-072A	2 OF 7	C-6	CHECK VALVE	2	3	C		CV	C	CM				
										O	CM				
	COMPONENT COOLING WATER TO RCP THERMAL BARRIER ISOLATION CHECK VALVE														
2-CC-556	11548-CBM-072A	3 OF 7	C-6	CHECK VALVE	2	3	C		CV	C	CM				
										O	CM				

SURRY UNIT 2
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
	COMPONENT COOLING WATER TO RCP THERMAL BARRIER ISOLATION CHECK VALVE														
2-CC-557	11548-CBM-072A	4 OF 7	C-6	CHECK VALVE	2	3	C		CV	C	CM				
										O	CM				
	COMPONENT COOLING WATER TO RCP THERMAL BARRIER ISOLATION CHECK VALVE														
2-CC-592	11548-CBM-072A	4 OF 7	C-6	CHECK VALVE	2	3	C		CV	C	CM				
										O	CM				
	COMPONENT COOLING WATER TO RCP THERMAL BARRIER ISOLATION CHECK VALVE														
2-CC-764	11548-CBM-071B	2 OF 2	C-7	CHECK VALVE	2	3	C		CV	C	CM				
										O	CM				
	CHARGING PUMP COOLING WATER PUMP DISCHARGE CHECK VALVE														
2-CC-806	11448-CBM-072E	1 OF 2	C-5	CHECK VALVE	1	3	C		CV	C	CM				
										O	CM				
	CHARGING PUMP SEAL COOLING SURGE TANK MAKEUP CHECK VALVE														
2-CC-LCV-201	11548-CBM-071B	2 OF 2	D-5	AO GATE	1	3	B		EV	C	CS		15		
										O	CS		15		
									FS	C	CS		15		
									ST	C	NA	NOTE 1			
										O	NA	NOTE 1			
	CHARGING PUMP SEAL COOLING SURGE TANK LEVEL CONTROL/ISOLATION VALVE														
2-CC-RV-212A	11548-CBM-072B	1 OF 3	C-7	RELIEF VALVE	0.75	3	C		SP	O	120	NOTE 2			
	REACTOR CONTAINMENT AIR RECIRCULATION COOLER RELIEF VALVE														
2-CC-RV-212B	11548-CBM-072B	1 OF 3	C-5	RELIEF VALVE	0.75	3	C		SP	O	120	NOTE 2			
	REACTOR CONTAINMENT AIR RECIRCULATION COOLER RELIEF VALVE														
2-CC-RV-212C	11548-CBM-072B	1 OF 3	C-3	RELIEF VALVE	0.75	3	C		SP	O	120	NOTE 2			
	REACTOR CONTAINMENT AIR RECIRCULATION COOLER RELIEF VALVE														

SURRY UNIT 2
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
2-CC-RV-216A	11548-CBM-072A	2 OF 7	C-6	RELIEF VALVE	0.75	3	C		SP	O	120	NOTE 2			
	RCP THERMAL BARRIER COOLING WATER THERMAL RELIEF VALVE														
2-CC-RV-216B	11548-CBM-072A	3 OF 7	C-6	RELIEF VALVE	0.75	3	C		SP	O	120	NOTE 2			
	RCP THERMAL BARRIER COOLING WATER THERMAL RELIEF VALVE														
2-CC-RV-216C	11548-CBM-072A	4 OF 7	C-6	RELIEF VALVE	0.75	3	C		SP	O	120	NOTE 2			
	RCP THERMAL BARRIER COOLING WATER THERMAL RELIEF VALVE														
2-CC-RV-219A	11548-CBM-072A	1 OF 7	E-3	RELIEF VALVE	1.5	3	C		SP	O	120	NOTE 2			
	"A" RHR HEAT EXCHANGER COMPONENT COOLING RELIEF VALVE														
2-CC-RV-219B	11548-CBM-072A	1 OF 7	D-3	RELIEF VALVE	1.5	3	C		SP	O	120	NOTE 2			
	"B" RHR HEAT EXCHANGER COMPONENT COOLING RELIEF VALVE														
2-CC-RV-224	11548-CBM-072A	5 OF 7	F-6	RELIEF VALVE	0.75	3	C		SP	O	120	NOTE 2			
	COMPONENT COOLING PIPING RELIEF														
2-CC-RV-238A	11548-CBM-072A	2 OF 7	F-6	RELIEF VALVE	0.75	3	C		SP	O	120	NOTE 2			
	REACTOR SHROULD COOLING COIL RELIEF VALVE														
2-CC-RV-238B	11548-CBM-072A	3 OF 7	F-6	RELIEF VALVE	0.75	3	C		SP	O	120	NOTE 2			
	REACTOR SHROULD COOLING COIL RELIEF VALVE														
2-CC-RV-238C	11548-CBM-072A	4 OF 7	F-6	RELIEF VALVE	0.75	3	C		SP	O	120	NOTE 2			
	REACTOR SHROULD COOLING COIL RELIEF VALVE														
2-CC-TV-205A	11548-CBM-072A	2 OF 7	B-4	AO BALL	6	3	B		EV	C	CS		2		
									FS	C	CS		2		
									ST	C	CS		2		
									VP	OC	24				
	CC RETURN FROM "A" RC PUMP LO,STATOR & SHROUD COOLERS, OUTSIDE CONTAINMENT ISOLATION VALVE														
2-CC-TV-205B	11548-CBM-072A	3 OF 7	B-4	AO BALL	6	3	B		EV	C	CS		2		
									FS	C	CS		2		
									ST	C	CS		2		

SURRY UNIT 2
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
2-CC-TV-205B	11548-CBM-072A	3 OF 7	B-4	AO BALL	6	3	B		VP	OC	24				
	CC RETURN FROM "B" RC PUMP LO,STATOR & SHROUD COOLERS, OUTSIDE CONTAINMENT ISOLATION VALVE														
2-CC-TV-205C	11548-CBM-072A	4 OF 7	B-4	AO BALL	6	3	B		EV	C	CS		2		
									FS	C	CS		2		
									ST	C	CS		2		
									VP	OC	24				
	CC RETURN FROM "C" RC PUMP LO,STATOR & SHROUD COOLERS, OUTSIDE CONTAINMENT ISOLATION VALVE														
2-CC-TV-209A	11548-CBM-072A	1 OF 7	B-7	AO BFLY	18	3	B		EV	C	03				
										O	03				
									FS	C	03				
									ST	C	03				
										O	03				
									VP	OC	24				
	CC RETURN FROM "A" RHR HEAT EXCHANGER, OUTSIDE CONTAINMENT ISOLATION VALVE														
2-CC-TV-209B	11548-CBM-072A	1 OF 7	C-7	AO BFLY	18	3	B		EV	C	03				
										O	03				
									FS	C	03				
									ST	C	03				
										O	03				
									VP	OC	24				
	CC RETURN FROM "B" RHR HEAT EXCHANGER, OUTSIDE CONTAINMENT ISOLATION VALVE														
2-CC-TV-210A	11548-CBM-072B	1 OF 3	E-7	AO BFLY	6	3	B		EV	C	03				
									FS	C	03				
									ST	C	03				
									VP	OC	24				
	CC RETURN FROM "A" RECIRC AIR COOLING COILS, OUTSIDE CONTAINMENT ISOLATION VALVE														
2-CC-TV-210B	11548-CBM-072B	1 OF 3	E-5	AO BFLY	6	3	B		EV	C	03				
									FS	C	03				

SURRY UNIT 2
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
2-CC-TV-210B	11548-CBM-072B	1 OF 3	E-5	AO BFLY	6	3	B		ST	C	03				
									VP	OC	24				
	CC RETURN FROM "B" RECIRC AIR COOLING COILS, OUTSIDE CONTAINMENT ISOLATION VALVE														
2-CC-TV-210C	11548-CBM-072B	1 OF 3	E-4	AO BFLY	6	3	B		EV	C	03				
									FS	C	03				
									ST	C	03				
									VP	OC	24				
	CC RETURN FROM "C" RECIRC AIR COOLING COILS, OUTSIDE CONTAINMENT ISOLATION VALVE														
2-CC-TV-220A	11548-CBM-072A	2 OF 7	C-5	AO GATE	1.5	3	B		EV	C	CS		13		
									ST	C	CS		13		
									VP	OC	24				
	CC RETURN FROM REACTOR COOLANT PUMP THERMAL BARRIER ISOLATION VALVE														
2-CC-TV-220B	11548-CBM-072A	3 OF 7	C-5	AO GATE	1.5	3	B		EV	C	CS		13		
									ST	C	CS		13		
									VP	OC	24				
	CC RETURN FROM REACTOR COOLANT PUMP THERMAL BARRIER ISOLATION VALVE														
2-CC-TV-220C	11548-CBM-072A	4 OF 7	C-5	AO GATE	1.5	3	B		EV	C	CS		13		
									ST	C	CS		13		
									VP	OC	24				
	CC RETURN FROM REACTOR COOLANT PUMP THERMAL BARRIER ISOLATION VALVE														
2-CC-TV-240A	11548-CBM-072A	1 OF 7	D-7	AO GLOBE	3	3	B		EV	C	CS		13		
									FS	C	CS		13		
									ST	C	CS		13		
									VP	OC	24				

SURRY UNIT 2
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
	CC RETURN FROM COOLANT PUMP THERMAL BARRIERS, INSIDE CONTAINMENT ISOLATION VALVE														
2-CC-TV-240B	11548-CBM-072A	1 OF 7	D-7	AO GLOBE	3	3	B		EV	C	CS		13		
									FS	C	CS		13		
									ST	C	CS		13		
									VP	OC	24				
	CC RETURN FROM REACTOR COOLANT PUMP THERMAL BARRIERS, OUTSIDE CONTAINMENT ISOLATION VALVE														

SURRY UNIT 2
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
1-CH-109	11448-CBM-088A	1 OF 4	C-5	CHECK VALVE	2	2	C		CV	C O	CM CM				
	"C" BORIC ACID TRANSFER PUMP DISCHARGE CHECK VALVE														
1-CH-116	11448-CBM-088A	1 OF 4	C-4	CHECK VALVE	2	2	C		CV	C O	CM CM				
	"D" BORIC ACID TRANSFER PUMP DISCHARGE CHECK VALVE														
2-CH-225	11548-CBM-088B	1 OF 2	D-3	CHECK VALVE	1	2	C		CV	C O	CM CM				
	MANUAL EMERGENCY BORATION PATH CHECK VALVE														
2-CH-227	11548-CBM-088B	1 OF 2	B-5	CHECK VALVE	2	2	C		CV	C O	CM CM				
	MAIN EMERGENCY BORATION LINE TO CHARGING PUMP SUCTION CHECK VALVE														
2-CH-228	11548-CBM-088B	1 OF 2	B-4	MANUAL GATE	1	2	B		EV	O	24				
	MANUAL EMERGENCY BORATION PATH MANUAL VALVE														
2-CH-229	11548-CBM-088B	1 OF 2	B-4	CHECK VALVE	1	2	C		CV	C O	CM CM				
	MANUAL EMERGENCY BORATION PATH CHECK VALVE														
2-CH-230	11548-CBM-088B	1 OF 3	C-6	CHECK VALVE	4	2	C		CV	C O	CM CM				
	CHARGING PUMP SUPPLY FROM VOLUME CONTROL TANK DISCHARGE CHECK VALVE														
2-CH-256	11548-CBM-088B	2 OF 2	D-7	CHECK VALVE	2	2	C		CV	C O	CM CM				
	"A" CHARGING PUMP DISCHARGE RECIRC LINE CHECK VALVE														
2-CH-258	11548-CBM-088B	2 OF 2	D-7	CHECK VALVE	3	2	C		CV	C O	CM CM				
	"A" CHARGING PUMP DISCHARGE CHECK VALVE														

SURRY UNIT 2
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
2-CH-265	11548-CBM-088B	2 OF 2	D-6	CHECK VALVE	2	2	C		CV	C	CM				
										O	CM				
	"B" CHARGING PUMP DISCHARGE RECIRC LINE CHECK VALVE														
2-CH-267	11548-CBM-088B	2 OF 2	D-6	CHECK VALVE	3	2	C		CV	C	CM				
										O	CM				
	"B" CHARGING PUMP DISCHARGE CHECK VALVE														
2-CH-274	11548-CBM-088B	2 OF 2	D-4	CHECK VALVE	2	2	C		CV	C	CM				
										O	CM				
	"C" CHARGING PUMP DISCHARGE RECIRC LINE CHECK VALVE														
2-CH-276	11548-CBM-088B	2 OF 2	D-4	CHECK VALVE	3	2	C		CV	C	CM				
										O	CM				
	"C" CHARGING PUMP DISCHARGE CHECK VALVE														
2-CH-309	11548-CBM-088C	1 OF 2	D-4	CHECK VALVE	3	2	C		CV	C	CM				
										O	CM				
	MAIN CHARGING SUPPLY HEADER CHECK VALVE														
2-CH-FCV-2113A	11548-CBM-088B	1 OF 2	C-3	AO GLOBE	1	2	B		EV	O	03				
									FS	O	03				
									ST	O	NA	NOTE 1			
									VP	OC	24				
	MANUAL EMERGENCY BORATION PATH FLOW CONTROL VALVE														
2-CH-FCV-2114A	11548-CBM-088B	1 OF 2	D-4	AO GLOBE	2	2	B		EV	C	03				
									FS	C	03				
									ST	C	NA	NOTE 1			
									VP	OC	24				
	PRIMARY GRADE WATER SUPPLY TO BORIC ACID BLENDER ISOLATION VALVE														
2-CH-FCV-2160	11548-CBM-088C	1 OF 2	A-4	AO GLOBE	2	1	E		VP	OC	24				
	CHARGING FLOW CONTROL TO LOOP FILL HEADER ISOLATION VALVE														
2-CH-LCV-2460A	11548-CBM-088C	1 OF 2	F-7	AO GLOBE	2	1	B		EV	C	CS		6		

SURRY UNIT 2
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
2-CH-LCV-2460A	11548-CBM-088C	1 OF 2	F-7	AO GLOBE	2	1	B		FS	C	CS		6		
									ST	C	CS		6		
									VP	OC	24				
	NORMAL LETDOWN TO REGENERATIVE HEAT EXCHANGER ISOLATION														
2-CH-LCV-2460B	11548-CBM-088C	1 OF 2	F-7	AO GLOBE	2	1	B		EV	C	CS		6		
									FS	C	CS		6		
									ST	C	CS		6		
									VP	OC	24				
	NORMAL LETDOWN TO REGENERATIVE HEAT EXCHANGER ISOLATION														
2-CH-MOV-2115B	11548-CBM-088B	2 OF 2	B-3	MO GATE	8	2	A		EV	C	03				
										O	03				
									LT	C	24	1			
									ST	C	03				
										O	03				
									VP	OC	24				
	CHARGING PUMP SUPPLY ISOLATION VALVE FROM REFUELING WATER STORAGE TANK														
2-CH-MOV-2115C	11548-CBM-088B	1 OF 2	C-6	MO GATE	4	2	B		EV	C	CS		4		
									ST	C	CS		4		
									VP	OC	24				
	CHARGING PUMP SUPPLY ISOLATION FROM VOLUME CONTROL TANK														
2-CH-MOV-2115D	11548-CBM-088B	2 OF 2	C-3	MO GATE	8	2	A		EV	C	03				
										O	03				
									LT	C	24	1			
									ST	C	03				
										O	03				
									VP	OC	24				
	CHARGING PUMP SUPPLY ISOLATION VALVE FROM REFUELING WATER STORAGE TANK														
2-CH-MOV-2115E	11548-CBM-088B	1 OF 2	C-6	MO GATE	4	2	B		EV	C	CS		4		
									ST	C	CS		4		
									VP	OC	24				

SURRY UNIT 2
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
	CHARGING PUMP SUPPLY ISOLATION VALVE FROM VOLUME CONTROL														
2-CH-MOV-2267A	11548-CBM-088B	2 OF 3	C-7	MO GATE	6	2	E		VP	OC	24				
	CHARGING PUMP SUCTION ISOLATION VALVE FROM RWST, VCT AND LHSI PUMP														
2-CH-MOV-2267B	11548-CBM-088B	2 OF 3	B-7	MO GATE	6	2	E		VP	OC	24				
	LOW HEAD SI PUMP TO CHARGING PUMP SUCTION ISOLATION VALVE														
2-CH-MOV-2269A	11548-CBM-088B	2 OF 3	C-5	MO GATE	6	2	E		VP	OC	24				
	CHARGING PUMP SUCTION ISOLATION VALVE FROM RWST, VCT AND LHSI PUMP														
2-CH-MOV-2269B	11548-CBM-088B	2 OF 3	B-5	MO GATE	6	2	E		VP	OC	24				
	LOW HEAD SI PUMP TO CHARGING PUMP SUCTION ISOLATION VALVE														
2-CH-MOV-2270A	11548-CBM-088B	2 OF 3	C-3	MO GATE	6	2	E		VP	OC	24				
	CHARGING PUMP SUCTION ISOLATION VALVE FROM RWST, VCT AND LHSI PUMP														
2-CH-MOV-2270B	11548-CBM-088B	2 OF 3	B-3	MO GATE	6	2	E		VP	OC	24				
	LOW HEAD SI PUMP TO CHARGING PUMP SUCTION ISOLATION VALVE														
2-CH-MOV-2275A	11548-CBM-088B	2 OF 2	D-7	MO GATE	2	2	B		EV	C	03				
										O	03				
									ST	C	03				
										O	03				
									VP	OC	24				
	"A" CHARGING PUMP MINIMUM RECIRCULATION ISOLATION VALVE														
2-CH-MOV-2275B	11548-CBM-088B	2 OF 2	D-5	MO GATE	2	2	B		EV	C	03				
										O	03				
									ST	C	03				
										O	03				
									VP	OC	24				
	"B" CHARGING PUMP MINIMUM RECIRCULATION ISOLATION VALVE														

SURRY UNIT 2
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
2-CH-MOV-2275C	11548-CBM-088B	2 OF 2	D-3	MO GATE	2	2	B		EV	C	03				
										O	03				
									ST	C	03				
										O	03				
									VP	OC	24				
	"C" CHARGING PUMP MINIMUM RECIRCULATION ISOLATION VALVE														
2-CH-MOV-2286A	11548-CBM-088B	2 OF 2	E-7	MO GATE	3	2	B		EV	C	03				
										O	03				
									ST	C	03				
										O	03				
									VP	OC	24				
	CHARGING PUMP MAIN DISCHARGE ISOLATION VALVE														
2-CH-MOV-2286B	11548-CBM-088B	2 OF 2	E-6	MO GATE	3	2	B		EV	C	03				
										O	03				
									ST	C	03				
										O	03				
									VP	OC	24				
	CHARGING PUMP MAIN DISCHARGE ISOLATION VALVE														
2-CH-MOV-2286C	11548-CBM-088B	2 OF 2	E-4	MO GATE	3	2	B		EV	C	03				
										O	03				
									ST	C	03				
										O	03				
									VP	OC	24				
	CHARGING PUMP MAIN DISCHARGE ISOLATION VALVE														
2-CH-MOV-2287A	11548-CBM-088B	2 OF 2	D-7	MO GATE	3	2	B		EV	C	03				
										O	03				
									ST	C	03				
										O	03				
									VP	OC	24				
	CHARGING PUMP MAIN DISCHARGE ISOLATION VALVE														
2-CH-MOV-2287B	11548-CBM-088B	2 OF 2	D-6	MO GATE	3	2	B		EV	C	03				
										O	03				

SURRY UNIT 2
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
2-CH-MOV-2287B	11548-CBM-088B	2 OF 2	D-6	MO GATE	3	2	B		ST	C	03				
										O	03				
									VP	OC	24				
	CHARGING PUMP MAIN DISCHARGE ISOLATION VALVE														
2-CH-MOV-2287C	11548-CBM-088B	2 OF 2	D-4	MO GATE	3	2	B		EV	C	03				
										O	03				
									ST	C	03				
										O	03				
									VP	OC	24				
	CHARGING PUMP MAIN DISCHARGE ISOLATION VALVE														
2-CH-MOV-2289A	11548-CBM-088C	1 OF 2	B-4	MO GATE	3	2	B		EV	C	CS		7		
									ST	C	CS		7		
									VP	OC	24				
	MAIN CHARGING HEADER ISOLATION VALVE														
2-CH-MOV-2289B	11548-CBM-088C	1 OF 2	B-3	MO GATE	3	2	B		EV	C	CS		7		
									ST	C	CS		7		
									VP	OC	24				
	MAIN CHARGING HEADER ISOLATION VALVE, OUTSIDE CONTAINMENT														
2-CH-MOV-2350	11548-CBM-088B	1 OF 2	B-5	MO GATE	2	2	B		EV	O	03		10		
									ST	O	03		10		
									VP	OC	24				
	EMERGENCY BORATION TO CHARGING PUMP SUCTION														
2-CH-MOV-2373	11548-CBM-088B	2 OF 3	E-7	MO GATE	3	2	B		EV	C	RR			4	
									ST	C	RR			4	
									VP	OC	24				
	CHARGING PUMP RECIRCULATION HEADER ISOLATION VALVE														
2-CH-MOV-2381	11548-CBM-088B	1 OF 2	C-8	MO GATE	3	2	A	CIV	EV	C	CS		5		
									LT	C	OPB				
									ST	C	CS		5		
									VP	OC	24				
	REACTOR COOLANT PUMP SEAL WATER RETURN, OUTSIDE CONTAINMENT ISOLATION VALVE														

SURRY UNIT 2
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
2-CH-RV-2203	11548-CBM-088C	1 OF 2	F-4	RELIEF VALVE	2	2	C		SP	O	120				
	LETDOWN RELIEF VLV DOWNSTREAM OF REGEN HX, RV DISCHARGE TO PRESSURIZER RELIEF TANK														
2-CH-RV-2382A	11548-CBM-088C	2 OF 2	F-5	RELIEF VALVE	2	2	C		SP	O	120				
	REACTOR COOLANT PUMP SEAL WATER RELIEF VALVE, RV DISCHARGE TO PRESSURIZER RELIEF TANK														
2-CH-RV-2382B	11548-CBM-088B	1 OF 2	C-7	RELIEF VALVE	2	2	C		SP	O	120				
	SEAL WATER HEAT EXCHANGER RELIEF VALVE, RV DISCHARGE TO VOLUME CONTROL TANK														
2-CH-TV-2204A	11548-CBM-088C	1 OF 2	D-3	AO GATE	2	2	A	CIV	EV	C	CS		6		
									FS	C	CS		6		
									LT	C	OPB				
									ST	C	CS		6		
									VP	OC	24				
	LETDOWN CONTROL FROM REGEN HX, INSIDE CONTAINMENT ISOLATION VALVE														
2-CH-TV-2204B	11548-CBM-088A	2 OF 2	D-3	AO GATE	2	2	A	CIV	EV	C	CS		6		
									FS	C	CS		6		
									LT	C	OPB				
									ST	C	CS		6		
									VP	OC	24				
	LETDOWN CONTROL FROM REGEN HX, OUTSIDE CONTAINMENT ISOLATION VALVE														

SURRY UNIT 2
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
2-CS-013	11548-CBM-084A	2 OF 3	F-4	CHECK VALVE	8	2	AC	CIV	CV	C	CM				
										O	CM				
									LT	C	OPB				
	"A" CONT SPRAY PUMP INSIDE CONTAINMENT ISOLATION DISCHARGE CHECK VALVE														
2-CS-024	11548-CBM-084A	2 OF 3	E-4	CHECK VALVE	8	2	AC	CIV	CV	C	CM				
										O	CM				
									LT	C	OPB				
	"B" CONT SPRAY PUMP INSIDE CONTAINMENT ISOLATION DISCHARGE CHECK VALVE														
2-CS-045	11548-CBM-084A	1 OF 3	F-8	CHECK VALVE	2	2	C		CV	C	CM				
										O	CM				
	RWST COOLING SYSTEM RETURN ISOLATION CHECK VALVE														
2-CS-104	11548-CBM-084A	2 OF 3	F-3	CHECK VALVE	8	2	C		CV	C	CM				
										O	CM				
	CONTAINMENT SPRAY PUMP DISCHARGE CHECK VALVE														
2-CS-105	11548-CBM-084A	2 OF 3	E-3	CHECK VALVE	8	2	C		CV	C	CM				
										O	CM				
	CONTAINMENT SPRAY PUMP DISCHARGE CHECK VALVE														
2-CS-147	11548-CBM-084A	2 OF 3	C-4	CHECK VALVE	3	2	AC		CV	C	CM				
										O	CM				
									LT	C	24				
	CONTAINMENT SPRAY BLEED LINE CHECK VALVE														
2-CS-150	11548-CBM-084A	2 OF 3	C-4	CHECK VALVE	3	2	AC		CV	C	CM				
										O	CM				
									LT	C	24				
	CONTAINMENT SPRAY BLEED LINE CHECK VALVE														

SURRY UNIT 2
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
2-CS-MOV-200A	11548-CBM-084A	2 OF 3	B-7	MO GATE	12	2	B		EV	O	03				
									ST	O	03				
									VP	OC	24				
	CONTAINMENT SPRAY PUMP SUCTION ISOLATION VALVE														
2-CS-MOV-200B	11548-CBM-084A	2 OF 3	A-7	MO GATE	12	2	B		EV	O	03				
									ST	O	03				
									VP	OC	24				
	CONTAINMENT SPRAY PUMP SUCTION ISOLATION VALVE														
2-CS-MOV-201A	11548-CBM-084A	2 OF 3	F-5	MO GATE	8	2	A	CIV	EV	C	03				
										O	03				
									LT	C	OPB				
									ST	C	03				
										O	03				
									VP	OC	24				
	"A" CONT SPRAY PUMP DISCHARGE ISOLATION VALVE, OUTSIDE CONTAINMENT ISOLATION VALVE														
2-CS-MOV-201B	11548-CBM-084A	2 OF 3	F-5	MO GATE	8	2	A	CIV	EV	C	03				
										O	03				
									LT	C	OPB				
									ST	C	03				
										O	03				
									VP	OC	24				
	"A" CONT SPRAY PUMP DISCHARGE ISOLATION VALVE, OUTSIDE CONTAINMENT ISOLATION VALVE														
2-CS-MOV-201C	11548-CBM-084A	2 OF 3	E-5	MO GATE	8	2	A	CIV	EV	C	03				
										O	03				
									LT	C	OPB				
									ST	C	03				
										O	03				
									VP	OC	24				
	"B" CONT SPRAY PUMP DISCHARGE ISOLATION VALVE, OUTSIDE CONTAINMENT ISOLATION VALVE														

SURRY UNIT 2
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
2-CS-MOV-201D	11548-CBM-084A	2 OF 3	E-5	MO GATE	8	2	A	CIV	EV	C	03				
										O	03				
									LT	C	OPB				
									ST	C	03				
										O	03				
									VP	OC	24				
	"B" CONT SPRAY PUMP DISCHARGE ISOLATION VALVE, OUTSIDE CONTAINMENT ISOLATION VALVE														
2-CS-MOV-202A	11548-CBM-084A	3 OF 3	C-6	MO BFLY	6	2	B		EV	O	03				
									ST	O	03				
									VP	OC	24				
	CHEMICAL ADDITION TANK DISCHARGE TO RWST ISOLATION VALVE														
2-CS-MOV-202B	11548-CBM-084A	3 OF 3	B-6	MO BFLY	6	2	B		EV	O	03				
									ST	O	03				
									VP	OC	24				
	CHEMICAL ADDITION TANK DISCHARGE TO RWST ISOLATION VALVE														

SURRY UNIT 2
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
2-CV-002	11548-CBM-085A	1 OF 2	D-4	MAN GATE	8	2	AE	CIV	LT	C	OPB				
	CONTAINMENT VACUUM EJECTOR SUPPLY, OUTSIDE CONTAINMENT ISOLATION VALVE														
2-CV-HCV-200	11548-CBM-085A	1 OF 2	D-3	AO GATE	8	2	AE	CIV	LT	C	OPB				
									VP	OC	24				
	CONTAINMENT VACUUM EJECTOR, INSIDE CONTAINMENT ISOLATION														
2-CV-TV-250A	11548-CBM-085A	2 OF 2	E-4	AO GATE	2	2	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				
	"A" CONTAINMENT VACUUM PUMP SUCTION ISOLATION VALVE, OUTSIDE CONTAINMENT ISOLATION VALVE														
2-CV-TV-250B	11548-CBM-085A	2 OF 2	E-5	AO GATE	2	2	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				
	"A" CONTAINMENT VACUUM PUMP SUCTION ISOLATION VALVE, OUTSIDE CONTAINMENT ISOLATION VALVE														
2-CV-TV-250C	11548-CBM-085A	2 OF 2	D-4	AO GATE	2	2	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				
	"B" CONTAINMENT VACUUM PUMP SUCTION ISOLATION VALVE, OUTSIDE CONTAINMENT ISOLATION VALVE														
2-CV-TV-250D	11548-CBM-085A	2 OF 2	D-5	AO GATE	2	2	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				
	"B" CONTAINMENT VACUUM PUMP SUCTION ISOLATION VALVE, OUTSIDE CONTAINMENT ISOLATION VALVE														

SURRY UNIT 2
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
2-CW-MOV-200A	11548-CBM-071A	2 OF 3	F-7	MO BFLY	96	NC	B		EV	C	03		19		
									EV	P	03		19		
									ST	C	03		19		
									VP	OC	24				
	CONDENSER DISCHARGE ISOLATION VALVE														
2-CW-MOV-200B	11548-CBM-071A	2 OF 3	F-7	MO BFLY	96	NC	B		EV	C	03		19		
									EV	P	03		19		
									ST	C	03		19		
									VP	OC	24				
	CONDENSER DISCHARGE ISOLATION VALVE														
2-CW-MOV-200C	11548-CBM-071A	2 OF 3	F-6	MO BFLY	96	NC	B		EV	C	03		19		
									EV	P	03		19		
									ST	C	03		19		
									VP	OC	24				
	CONDENSER DISCHARGE ISOLATION VALVE														
2-CW-MOV-200D	11548-CBM-071A	2 OF 3	F-5	MO BFLY	96	NC	B		EV	C	03		19		
									EV	P	03		19		
									ST	C	03		19		
									VP	OC	24				
	CONDENSER DISCHARGE ISOLATION VALVE														
2-CW-MOV-206A	11548-CBM-071A	2 OF 3	D-7	MO BFLY	96	3	B		EV	C	03		19		
									ST	C	03		19		
									VP	OC	24				
	CONDENSER INLET ISOLATION VALVE														
2-CW-MOV-206B	11548-CBM-071A	2 OF 3	D-7	MO BFLY	96	3	B		EV	C	03		19		
									ST	C	03		19		
									VP	OC	24				
	CONDENSER INLET ISOLATION VALVE														
2-CW-MOV-206C	11548-CBM-071A	2 OF 3	D-5	MO BFLY	96	3	B		EV	C	03		19		
									ST	C	03		19		
									VP	OC	24				
	CONDENSER INLET ISOLATION VALVE														
2-CW-MOV-206D	11548-CBM-071A	2 OF 3	D-5	MO BFLY	96	3	B		EV	C	03		19		
									ST	C	03		19		

SURRY UNIT 2
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
2-CW-MOV-206D	11548-CBM-071A	2 OF 3	D-5	MO BFLY	96	3	B		VP	OC	24				
	CONDENSER INLET ISOLATION VALVE														

SURRY UNIT 2
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
2-DA-TV-200A	11548-CBM-083B	3 OF 3	B-3	AO GATE	2	2	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				
	REACTOR CONTAINMENT SUMP PUMPS DISCHARGE, INSIDE CONTAINMENT ISOLATION VALVE														
2-DA-TV-200B	11548-CBM-083A	1 OF 2	E-3	AO GATE	2	2	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				
	REACTOR CONTAINMENT SUMP PUMPS DISCHARGE, OUTSIDE CONTAINMENT ISOLATION VALVE														
2-DA-TV-203A	11548-CBM-083B	3 OF 3	E-3	AO GATE	2	2	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				
	POST ACCIDENT SAMPLE SYSTEM RETURN, OUTSIDE CONTAINMENT ISOLATION VALVE														
2-DA-TV-203B	11548-CBM-083B	3 OF 3	E-3	AO GATE	2	2	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				
	POST ACCIDENT SAMPLE SYSTEM RETURN, OUTSIDE CONTAINMENT TRIP VALVE														

SURRY UNIT 2
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
2-DG-TV-208A	11548-CBM-083B	1 OF 3	B-2	AO GATE	2	2	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				
	PRIMARY DRAIN TRANSFER PUMPS DISCHARGE, INSIDE CONTAINMENT ISOLATION VALVE														
2-DG-TV-208B	11548-CBM-083A	2 OF 2	C-3	AO GATE	2	2	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				
	PRIMARY DRAIN TRANSFER PUMPS DISCHARGE, OUTSIDE CONTAINMENT ISOLATION VALVE														

SURRY UNIT 2
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
1-EE-013	11448-FB -038A	2 OF 3	D-7	CHECK VALVE	1.5	NC	C		CV	C	CM				
										O	CM				
	DIESEL EMERGENCY GENERATOR FUEL OIL PUMP DISCHARGE CHECK														
1-EE-031	11448-FB -038A	2 OF 3	D-6	CHECK VALVE	1.5	NC	C		CV	C	CM				
										O	CM				
	DIESEL EMERGENCY GENERATOR FUEL OIL PUMP DISCHARGE CHECK														
1-EE-RV-104	11448-FB -038A	2 OF 3	D-7	RELIEF VALVE	0.5	NC	C		SP	O	120				4
	DIESEL FUEL OIL PUMP DISCHARGE RELIEF VALVE RV DISCHARGE TO PUMP SUCTION														
1-EE-RV-107	11448-FB -038A	2 OF 3	D-6	RELIEF VALVE	0.5	NC	C		SP	O	120				4
	DIESEL FUEL OIL PUMP DISCHARGE RELIEF VALVE RV DISCHARGE TO PUMP SUCTION														
1-EE-SOV-102	11448-FB -038A	2 OF 3	D-4	SO GATE	1	NC	B		EV	O	03				2
	DIESEL FUEL OIL PUMP DISCHARGE VALVE														
1-EE-SOV-103	11448-FB -038A	2 OF 3	D-4	SO GATE	1	NC	B		EV	O	03				2
	DIESEL FUEL OIL PUMP DISCHARGE VALVE														

SURRY UNIT 2
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
2-EG-040	11448-FB -046B	1 OF 3	B-6	CHECK VALVE	0.75	NC	AC		CV	C	CM				
										O	CM				
									LT	C	24				
	DIESEL GENERATOR COMPRESSOR DISCHARGE CHECK VALVE														
2-EG-042	11448-FB -046B	1 OF 3	B-5	CHECK VALVE	0.75	NC	AC		CV	C	CM				
										O	CM				
									LT	C	24				
	DIESEL GENERATOR COMPRESSOR DISCHARGE CHECK VALVE														
2-EG-043	11448-FB -046B	1 OF 3	E-7	AIR PILOT	0	NC	B		EV	O	03				
									ST	O	NA				1
	EMERGENCY DIESEL GENERATOR STARTING AIR/DRIVE AIR CONTROL VALVE														
2-EG-044	11448-FB -046B	1 OF 3	E-3	AIR PILOT	0	NC	B		EV	O	03				
									ST	O	NA				1
	EMERGENCY DIESEL GENERATOR STARTING AIR/DRIVE AIR CONTROL VALVE														
2-EG-045	11448-FB -046B	1 OF 3	E-7	CHECK VALVE	0	NC	C		CV	C	CM				
										O	CM				
	EMERGENCY DIESEL GENERATOR START PRESSURE EQUALIZING CHECK VALVE														
2-EG-046	11448-FB -046B	1 OF 3	E-4	CHECK VALVE	0	NC	C		CV	C	CM				
										O	CM				
	EMERGENCY DIESEL GENERATOR START PRESSURE EQUALIZING CHECK VALVE														
2-EG-SOV-200A	11448-FB -046B	1 OF 3	D-7	SO GATE	1	NC	B		EV	C	03				
										O	03				
									ST	C	NA				1
										O	NA				1
	DIESEL AIR START SYSTEM SOLENOID VALVE														
2-EG-SOV-200B	11448-FB -046B	1 OF 3	D-4	SO GATE	1	NC	B		EV	C	03				
										O	03				
									ST	C	NA				1
										O	NA				1
	DIESEL AIR START SYSTEM SOLENOID VALVE														

SURRY UNIT 2
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
2-FP-151	11548-CBB-047B	1 OF 1	D-6	MAN BALL	4	2	AE	CIV	LT	C	OPB				
	FIRE PROTECTION SUPPLY TO CONTAINMENT, OUTSIDE CONTAINMENT ISOLATION VALVE														
2-FP-152	11548-CBB-047B	1 OF 1	D-7	MAN BALL	4	2	AE	CIV	LT	C	OPB				
	FIRE PROTECTION SUPPLY TO CONTAINMENT, OUTSIDE CONTAINMENT ISOLATION VALVE														

SURRY UNIT 2
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
2-FW-010	11548-CBM-068A	1 OF 4	E-6	CHECK VALVE	14	2	C		CV	C O	CM CM				
	"A" MAIN FEEDWATER SUPPLY, INSIDE CONTAINMENT PENETRATION CHECK VALVE														
2-FW-012	11548-CBM-068A	1 OF 4	E-5	CHECK VALVE	14	2	C		CV	C O	CM CM				
	"A" MAIN FEEDWATER SUPPLY, OUTSIDE CONTAINMENT PENETRATION CHECK VALVE														
2-FW-027	11548-CBM-068A	1 OF 4	E-6	CHECK VALVE	3	2	C		CV	C O	CM CM				
	"A" AUXILIARY FEEDWATER HEADER CHECK VALVE AT MAIN FEEDWATER HEADER														
2-FW-030	11548-CBM-068A	1 OF 4	B-6	CHECK VALVE	3	2	C		CV	C O	CM CM				
	AUXILIARY FEEDWATER HEADER SUPPLY ISOLATION CHECK VALVE														
2-FW-031	11548-CBM-068A	1 OF 4	B-5	CHECK VALVE	3	2	C		CV	C O	CM CM				
	AUXILIARY FEEDWATER HEADER SUPPLY ISOLATION CHECK VALVE														
2-FW-041	11548-CBM-068A	1 OF 4	D-6	CHECK VALVE	14	2	C		CV	C O	CM CM				
	"B" MAIN FEEDWATER HEADER SUPPLY, INSIDE CONTAINMENT PENETRATION CHECK VALVE														
2-FW-043	11548-CBM-068A	1 OF 4	D-5	CHECK VALVE	14	2	C		CV	C O	CM CM				
	"B" MAIN FEEDWATER SUPPLY, OUTSIDE CONTAINMENT PENETRATION CHECK VALVE														
2-FW-058	11548-CBM-068A	1 OF 4	C-6	CHECK VALVE	3	2	C		CV	C O	CM CM				
	"B" AUXILIARY FEEDWATER HEADER CHECK VALVE AT MAIN FEEDWATER HEADER														

SURRY UNIT 2
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
2-FW-061	11548-CBM-068A	1 OF 4	B-6	CHECK VALVE	3	2	C		CV	C O	CM CM				
	AUXILIARY FEEDWATER HEADER SUPPLY ISOLATION CHECK VALVE														
2-FW-062	11548-CBM-068A	1 OF 4	B-6	CHECK VALVE	3	2	C		CV	C O	CM CM				
	AUXILIARY FEEDWATER HEADER SUPPLY ISOLATION CHECK VALVE														
2-FW-072	11548-CBM-068A	1 OF 4	C-6	CHECK VALVE	14	2	C		CV	C O	CM CM				
	"C" MAIN FEEDWATER SUPPLY, INSIDE CONTAINMENT PENETRATION CHECK VALVE														
2-FW-074	11548-CBM-068A	1 OF 4	C-5	CHECK VALVE	14	2	C		CV	C O	CM CM				
	"C" MAIN FEEDWATER SUPPLY, OUTSIDE CONTAINMENT PENETRATION CHECK VALVE														
2-FW-089	11548-CBM-068A	1 OF 4	B-7	CHECK VALVE	3	2	C		CV	C O	CM CM				
	"C" AUXILIARY FEEDWATER HEADER CHECK VALVE AT MAIN FEEDWATER HEADER														
2-FW-092	11548-CBM-068A	1 OF 4	B-7	CHECK VALVE	3	2	C		CV	C O	CM CM				
	AUXILIARY FEEDWATER HEADER SUPPLY ISOLATION CHECK VALVE														
2-FW-093	11548-CBM-068A	1 OF 4	B-7	CHECK VALVE	3	2	C		CV	C O	CM CM				
	AUXILIARY FEEDWATER HEADER SUPPLY ISOLATION CHECK VALVE														
2-FW-131	11548-CBM-068A	1 OF 4	B-4	CHECK VALVE	6	2	C		CV	C O	CM CM				
	AUXILIARY FEEDWATER HEADER CHECK VALVE AT CONTAINMENT PENETRATION - INSIDE														
2-FW-133	11548-CBM-068A	1 OF 4	B-4	CHECK VALVE	6	2	C		CV	C O	CM CM				
	AUXILIARY FEEDWATER HEADER CHECK VALVE AT CONTAINMENT PENETRATION - OUTSIDE														

SURRY UNIT 2
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
2-FW-136	11548-CBM-068A	1 OF 4	A-4	CHECK VALVE	6	2	C		CV	C	CM				
										O	CM				
	AUXILIARY FEEDWATER HEADER CHECK VALVE AT CONTAINMENT PENETRATION - INSIDE														
2-FW-138	11548-CBM-068A	1 OF 4	A-4	CHECK VALVE	6	2	C		CV	C	CM				
										O	CM				
	AUXILIARY FEEDWATER HEADER CHECK VALVE AT CONTAINMENT PENETRATION - OUTSIDE														
2-FW-140	11548-CBM-068A	3 OF 4	E-8	MANUAL GATE	6	3	B		EV	C	24				
	AFW PUMP DISCHARGE HEADER ALIGNMENT/CROSS CONNECT VALVE														
2-FW-141	11548-CBM-068A	3 OF 4	E-7	MANUAL GATE	6	3	B		EV	C	24				
	AFW PUMP DISCHARGE HEADER ALIGNMENT/CROSS CONNECT VALVE														
2-FW-142	11548-CBM-068A	3 OF 4	D-8	CHECK VALVE	6	3	C		CV	C	CM				
										O	CM				
	TURBINE DRIVEN AUXILIARY FEEDWATER PUMP DISCHARGE CHECK														
2-FW-144	11548-CBM-068A	3 OF 4	D-7	CHECK VALVE	1	3	C		CV	C	CM				
										O	CM				
	TURBINE DRIVEN AUXILIARY FEEDWATER PUMP RECIRC LINE CHECK														
2-FW-148	11548-CBM-068A	3 OF 4	E-7	CHECK VALVE	1	3	C		CV	C	CM				
										O	CM				
	AUXILIARY FEEDWATER TO PUMP OIL COOLER CHECK VALVE														
2-FW-155	11548-CBM-068A	3 OF 4	E-6	MANUAL GATE	4	3	B		EV	C	24				
	AFW PUMP DISCHARGE HEADER ALIGNMENT/CROSS CONNECT VALVE														
2-FW-156	11548-CBM-068A	3 OF 4	E-6	MANUAL GATE	4	3	B		EV	C	24				
	AFW PUMP DISCHARGE HEADER ALIGNMENT/CROSS CONNECT VALVE														
2-FW-157	11548-CBM-068A	3 OF 4	D-6	CHECK VALVE	6	3	C		CV	C	CM				
										O	CM				
	"A" MOTOR DRIVEN AUXILIARY FEEDWATER PUMP DISCHARGE CHECK														

SURRY UNIT 2
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
2-FW-159	11548-CBM-068A	3 OF 4	D-6	CHECK VALVE	1	3	C		CV	C O	CM CM				
	"A" MOTOR DRIVEN AUXILIARY FEEDWATER PUMP RECIRC LINE CHECK VALVE														
2-FW-163	11548-CBM-068A	3 OF 4	E-6	CHECK VALVE	1	3	C		CV	C O	CM CM				
	AUXILIARY FEEDWATER TO PUMP OIL COOLER CHECK VALVE														
2-FW-170	11548-CBM-068A	3 OF 4	E-5	MANUAL GATE	4	3	B		EV	C	24				
	AFW PUMP DISCHARGE HEADER ALIGNMENT/CROSS CONNECT VALVE														
2-FW-171	11548-CBM-068A	3 OF 4	E-5	MANUAL GATE	4	3	B		EV	C	24				
	AFW PUMP DISCHARGE HEADER ALIGNMENT/CROSS CONNECT VALVE														
2-FW-172	11548-CBM-068A	3 OF 4	D-5	CHECK VALVE	6	3	C		CV	C O	CM CM				
	"B" MOTOR DRIVEN AUXILIARY FEEDWATER PUMP DISCHARGE CHECK														
2-FW-174	11548-CBM-068A	3 OF 4	D-5	CHECK VALVE	1	3	C		CV	C O	CM CM				
	"B" MOTOR DRIVEN AUXILIARY FEEDWATER PUMP RECIRC LINE CHECK VALVE														
2-FW-178	11548-CBM-068A	3 OF 4	E-4	CHECK VALVE	1	3	C		CV	C O	CM CM				
	AUXILIARY FEEDWATER TO PUMP OIL COOLER CHECK VALVE														
2-FW-272	11548-CBM-068A	1 OF 4	A-8	CHECK VALVE	6	2	C		CV	C O	CM CM				
	CHECK VALVE AT CONT PENE (CROSS-CONNECT FOR UNIT 2 AUX FEED FROM UNIT 1)														
2-FW-273	11548-CBM-068A	1 OF 4	A-7	CHECK VALVE	6	2	C		CV	C O	CM CM				
	CHECK VALVE AT CONT PENE (CROSS-CONNECT FOR UNIT 2 AUX FEED FROM UNIT 1)														

SURRY UNIT 2
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
2-FW-305	11548-CBM-068A	1 OF 4	A-5	CHECK VALVE	6	2	C		CV	C	CM				
										O	CM				
	CHECK VALVE AT CONT PENE (CROSS-CONNECT FOR UNIT 2 AUX FEED FROM UNIT 1)														
2-FW-306	11548-CBM-068A	1 OF 4	A-5	CHECK VALVE	6	2	C		CV	C	CM				
										O	CM				
	CHECK VALVE AT CONT PENE (CROSS-CONNECT FOR UNIT 2 AUX FEED FROM UNIT 1)														
2-FW-FCV-2478	11548-CBM-068A	1 OF 4	E-4	AO GATE	14	NC	B		EV	C	CS		14		
									FS	C	CS		14		
									ST	C	NA				3
									VP	OC	24				
	MAIN FEEDWATER REGULATING VALVE														
2-FW-FCV-2488	11548-CBM-068A	1 OF 4	D-4	AO GATE	14	NC	B		EV	C	CS		14		
									FS	C	CS		14		
									ST	C	NA				3
									VP	OC	24				
	MAIN FEEDWATER REGULATING VALVE														
2-FW-FCV-2498	11548-CBM-068A	1 OF 4	B-4	AO GATE	14	NC	B		EV	C	CS		14		
									FS	C	CS		14		
									ST	C	NA				3
									VP	OC	24				
	MAIN FEEDWATER REGULATING VALVE														
2-FW-HCV-255A	11548-CBM-068A	1 OF 4	F-3	AO GATE	4	NC	B		EV	C	CS		14		
									FS	C	CS		14		
									ST	C	NA				3
									VP	OC	24				
	MAIN FEEDWATER REGULATING VALVE BYPASS VALVE														
2-FW-HCV-255B	11548-CBM-068A	1 OF 4	D-3	AO GATE	4	NC	B		EV	C	CS		14		
									FS	C	CS		14		
									ST	C	NA				3
									VP	OC	24				
	MAIN FEEDWATER REGULATING VALVE BYPASS VALVE														

SURRY UNIT 2
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
2-FW-HCV-255C	11548-CBM-068A	1 OF 4	C-3	AO GATE	4	NC	B		EV	C	CS		14		
									FS	C	CS		14		
									ST	C	NA				3
									VP	OC	24				
	MAIN FEEDWATER REGULATING VALVE BYPASS VALVE														
2-FW-MOV-251A	11548-CBM-068A	1 OF 4	B-7	MO GLOBE	3	2	B		EV	C	03				
										O	03				
									ST	C	03				
										O	03				
									VP	OC	24				
	NORMAL AUXILIARY FEEDWATER SUPPLY TO "C" STEAM GENERATOR														
2-FW-MOV-251B	11548-CBM-068A	1 OF 4	B-7	MO GLOBE	3	2	B		EV	C	03				
										O	03				
									ST	C	03				
										O	03				
									VP	OC	24				
	STANDBY AUXILIARY FEEDWATER SUPPLY TO "C" STEAM GENERATOR														
2-FW-MOV-251C	11548-CBM-068A	1 OF 4	B-6	MO GLOBE	3	2	B		EV	C	03				
										O	03				
									ST	C	03				
										O	03				
									VP	OC	24				
	STANDBY AUXILIARY FEEDWATER SUPPLY TO "B" STEAM GENERATOR														
2-FW-MOV-251D	11548-CBM-068A	1 OF 4	B-6	MO GLOBE	3	2	B		EV	C	03				
										O	03				
									ST	C	03				
										O	03				
									VP	OC	24				
	NORMAL AUXILIARY FEEDWATER SUPPLY TO "B" STEAM GENERATOR														
2-FW-MOV-251E	11548-CBM-068A	1 OF 4	B-6	MO GLOBE	3	2	B		EV	C	03				
										O	03				
									ST	C	03				
										O	03				
									VP	OC	24				
	STANDBY AUXILIARY FEEDWATER SUPPLY TO "A" STEAM GENERATOR														

SURRY UNIT 2
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
2-FW-MOV-251F	11548-CBM-068A	1 OF 4	B-5	MO GLOBE	3	2	B		EV	C	03				
										O	03				
									ST	C	03				
										O	03				
									VP	OC	24				
	STANDBY AUXILIARY FEEDWATER SUPPLY TO "A" STEAM GENERATOR														
2-FW-MOV-260A	11448-CBM-068A	3 OF 4	F-7	MO GLOBE	6	3	B		EV	O	03				
									ST	O	03				
									VP	OC	24				
	CROSS - CONNECT FOR UNIT 1 AUXILIARY FEEDWATER FROM UNIT 2														
2-FW-MOV-260B	11448-CBM-068A	3 OF 4	F-7	MO GLOBE	6	3	B		EV	O	03				
									ST	O	03				
									VP	OC	24				
	CROSS - CONNECT FOR UNIT 1 AUXILIARY FEEDWATER FROM UNIT 2														

SURRY UNIT 2
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
2-GW-TV-200	11448-CBM-090C	1 OF 1	C-4	SO GATE	0.375	2	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				
	SUCTION LINE TO HYDROGEN ANALYZER - UNIT 1														
2-GW-TV-201	11448-CBM-090C	1 OF 1	C-4	SO GATE	0.375	2	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				
	SUCTION LINE TO HYDROGEN ANALYZER - UNIT 1														
2-GW-TV-202	11448-CBM-090C	1 OF 1	B-4	SO GATE	0.375	2	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				
	DISCHARGE LINE TO HYDROGEN ANALYZER - UNIT 1														
2-GW-TV-203	11448-CBM-090C	1 OF 1	B-4	SO GATE	0.375	2	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				
	DISCHARGE LINE TO HYDROGEN ANALYZER - UNIT 1														
2-GW-TV-204	11448-CBM-090C	1 OF 1	E-4	SO GATE	0.375	2	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				
	SUPPLY TO UNIT 2 HYDROGEN ANALYZER, OUTSIDE CONTAINMENT ISOLATION VALVE														
2-GW-TV-205	11448-CBM-090C	1 OF 1	E-4	SO GATE	0.375	2	A	CIV	EV	C	03				

SURRY UNIT 2
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
2-GW-TV-205	11448-CBM-090C	1 OF 1	E-4	SO GATE	0.375	2	A	CIV	FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				
	SUPPLY TO UNIT 2 HYDROGEN ANALYZER, OUTSIDE CONTAINMENT ISOLATION VALVE														
2-GW-TV-206	11448-CBM-090C	1 OF 1	D-4	SO GATE	0.375	2	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				
	RETURN FROM UNIT 2 HYDROGEN ANALYZER, OUTSIDE CONTAINMENT ISOLATION VALVE														
2-GW-TV-207	11448-CBM-090C	1 OF 1	D-4	SO GATE	0.375	2	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				
	RETURN FROM UNIT 2 HYDROGEN ANALYZER, OUTSIDE CONTAINMENT ISOLATION VALVE														
2-GW-TV-211A	11448-CBM-090C	1 OF 1	F-3	SO GATE	0.375	2	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				
	UNIT 1 SAMPLE LINE TO AIR SAMPLE PANEL, INSIDE CONTAINMENT ISOLATION VALVE														
2-GW-TV-211B	11448-CBM-090C	1 OF 1	F-3	SO GATE	0.375	2	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				

SURRY UNIT 2
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
	UNIT 1 SAMPLE LINE TO AIR SAMPLE PANEL, OUTSIDE CONTAINMENT ISOLATION VALVE														

SURRY UNIT 2
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
2-IA-381	11548-FM -075C	2 OF 2	B-6	CHECK VALVE	0.75	NC	C		CV	C	CM				
										O	CM				
	BOTTLED AIR SUPPLY TO 2-RC-PCV-2456 SUPPLY CHECK VALVE														
2-IA-384	11548-FM -075C	2 OF 2	B-5	CHECK VALVE	0.75	NC	C		CV	C	CM				
										O	CM				
	BOTTLED AIR SUPPLY TO 2-RC-PCV-2455C SUPPLY CHECK VALVE														
2-IA-395	11548-FM -075C	2 OF 2	B-6	CHECK VALVE	0.75	NC	AC		CV	C	CM				
										O	CM				
									LT	C	24				
	BOTTLED AIR SUPPLY TO 2-RC-PCV-2456 ISOLATION CHECK VALVE														
2-IA-396	11548-FM -075C	2 OF 2	B-5	CHECK VALVE	0.75	NC	AC		CV	C	CM				
										O	CM				
									LT	C	24				
	BOTTLED AIR SUPPLY TO 2-RC-PCV-2455C ISOLATION CHECK VALVE														
2-IA-446	11448-CBM-075C	1 OF 5	D-7	MAN GATE	2	2	AE	CIV	LT	C	OPB				
	BACKUP INSTRUMENT AIR TO CONTAINMENT FROM UNIT 2														
2-IA-704	11548-CBM-075B	2 OF 2	C-3	MAN GATE	2	2	AE	CIV	LT	C	OPB				
	BACKUP INSTRUMENT AIR TO CONTAINMENT FROM UNIT 2														
2-IA-864	11548-CBM-075C	1 OF 2	E-3	CHECK VALVE	2	2	AC	CIV	CV	C	CM				
										O	CM				
									LT	C	OPB				
	INSTRUMENT AIR SUPPLY TO CONTAINMENT, INSIDE CONTAINMENT ISOLATION CHECK VALVE														
2-IA-868	11548-CBM-075C	1 OF 2	E-3	CHECK VALVE	2	2	AC	CIV	CV	C	CM				
										O	CM				
									LT	C	OPB				
	INSTRUMENT AIR SUPPLY TO CONTAINMENT, INSIDE CONTAINMENT ISOLATION CHECK VALVE														
2-IA-947	11548-FM -075D	1 OF 1	D-7	CHECK VALVE	0.5	NC	AC		CV	C	CM				

SURRY UNIT 2
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
2-IA-947	11548-FM -075D	1 OF 1	B-7	CHECK VALVE	0.5	NC	AC		CV	O	CM				
									LT	C	24				
	BOTTLED AIR SUPPLY TO 2-MS-PCV-202A,B ISOLATION CHECK VALVE														
2-IA-948	11548-FM -075D	1 OF 1	D-8	CHECK VALVE	0.5	NC	C		CV	C	CM				
										O	CM				
	BOTTLED AIR SUPPLY TO 2-MS-PCV-202A,B SUPPLY CHECK VALVE														
2-IA-RV-210	11548-FM -075C	2 OF 2	B-7	RELIEF VALVE	0	NC	C		SP	O	120				
	BOTTLED AIR SUPPLY TO PORVS RELIEF VALVE														
2-IA-RV-211	11548-FM -075C	2 OF 2	A-5	RELIEF VALVE	0	NC	C		SP	O	120				
	BOTTLED AIR SUPPLY TO PORVS RELIEF VALVE														
2-IA-RV-223	11548-FM -075C	2 OF 2	B-5	RELIEF VALVE	0	NC	C		SP	O	120				
	BOTTLED AIR SUPPLY TO PORVS RELIEF VALVE														
2-IA-RV-224	11548-FM -075C	2 OF 2	B-6	RELIEF VALVE	0	NC	C		SP	O	120				
	BOTTLED AIR SUPPLY TO PORVS RELIEF VALVE														
2-IA-TV-200	11548-CBM-075B	2 OF 2	B-3	AO GATE	2	2	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				
	INSTRUMENT AIR SUPPLY TO CONTAINMENT, OUTSIDE CONTAINMENT ISOLATION VALVE														
2-IA-TV-201A	11548-CBM-075J	1 OF 1	A-3	AO GATE	3	2	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				
	INSTRUMENT AIR SUCTION FROM CONTAINMENT														
2-IA-TV-201B	11548-CBM-075J	1 OF 1	A-3	AO GATE	3	2	A	CIV	EV	C	03				
									FS	C	03				

SURRY UNIT 2
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
2-IA-TV-201B	11548-CBM-075J	1 OF 1	A-3	AO GATE	3	2	A	CIV	LT	C	OPB				
									ST	C	03				
									VP	OC	24				
	INSTRUMENT AIR SUCTION FROM CONTAINMENT														

SURRY UNIT 2
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
2-LM-TV-200A	11548-CBM-085A	1 OF 2	B-6	AO GATE	0.375	2	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				

CONTAINMENT LEAKAGE MONITORING OPEN SYSTEM SUPPLY, OUTSIDE CONTAINMENT ISOLATION VALVE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
2-LM-TV-200B	11548-CBM-085A	1 OF 2	B-6	AO GATE	0.375	2	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				

CONTAINMENT LEAKAGE MONITORING OPEN SYSTEM SUPPLY, OUTSIDE CONTAINMENT ISOLATION VALVE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
2-LM-TV-200C	11548-CBM-085A	1 OF 2	B-5	AO GATE	0.375	2	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				

CONTAINMENT LEAKAGE MONITORING OPEN SYSTEM SUPPLY, OUTSIDE CONTAINMENT ISOLATION VALVE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
2-LM-TV-200D	11548-CBM-085A	1 OF 2	B-5	AO GATE	0.375	2	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				

CONTAINMENT LEAKAGE MONITORING OPEN SYSTEM SUPPLY, OUTSIDE CONTAINMENT ISOLATION VALVE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
2-LM-TV-200E	11548-CBM-085A	1 OF 2	B-4	AO GATE	0.375	2	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				

SURRY UNIT 2
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
	CONTAINMENT LEAKAGE MONITORING OPEN SYSTEM SUPPLY, OUTSIDE CONTAINMENT ISOLATION VALVE														
2-LM-TV-200F	11548-CBM-085A	1 OF 2	B-5	AO GATE	0.375	2	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				
	CONTAINMENT LEAKAGE MONITORING OPEN SYSTEM SUPPLY, OUTSIDE CONTAINMENT ISOLATION VALVE														
2-LM-TV-200G	11548-CBM-085A	1 OF 2	B-6	AO GATE	0.375	2	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				
	CONTAINMENT LEAKAGE MONITORING OPEN SYSTEM SUPPLY, OUTSIDE CONTAINMENT ISOLATION VALVE														
2-LM-TV-200H	11548-CBM-085A	1 OF 2	B-7	AO GATE	0.375	2	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				
	CONTAINMENT LEAKAGE MONITORING OPEN SYSTEM SUPPLY, OUTSIDE CONTAINMENT ISOLATION VALVE														

SURRY UNIT 2
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
2-MS-087	11548-CBM-064A	1 OF 6	C-6	MANUAL GATE	4	2	B		EV	C	24				
	MAIN STEAM LINE TO TURBINE DRIVEN AUXILIARY FEEDWATER PUMP ISOLATION VALVE														
2-MS-120	11548-CBM-064A	2 OF 6	C-6	MANUAL GATE	4	2	B		EV	C	24				
	MAIN STEAM LINE TO TURBINE DRIVEN AUXILIARY FEEDWATER PUMP ISOLATION VALVE														
2-MS-158	11548-CBM-064A	3 OF 6	C-6	MANUAL GATE	4	2	B		EV	C	24				
	MAIN STEAM LINE TO TURBINE DRIVEN AUXILIARY FEEDWATER PUMP ISOLATION VALVE														
2-MS-176	11548-CBM-064A	4 OF 6	C-7	CHECK VALVE	3	2	C		CV	C	CM				
										O	CM				
	"A" MAIN STEAM HEADER SUPPLY CHECK VALVE TO TURBINE DRIVEN AUXILIARY FEEDWATER PUMP														
2-MS-178	11548-CBM-064A	4 OF 6	D-7	CHECK VALVE	3	2	C		CV	C	CM				
										O	CM				
	"B" MAIN STEAM HEADER SUPPLY CHECK VALVE TO TURBINE DRIVEN AUXILIARY FEEDWATER PUMP														
2-MS-182	11548-CBM-064A	4 OF 6	D-7	CHECK VALVE	3	2	C		CV	C	CM				
										O	CM				
	"C" MAIN STEAM HEADER SUPPLY CHECK VALVE TO TURBINE DRIVEN AUXILIARY FEEDWATER PUMP														
2-MS-NRV-201A	11548-CBM-064A	1 OF 6	E-4	MO STOP CHECK	30	NC	C		CV	C	CM				
										O	CM				
									VP	OC	24				
	"A" MAIN STEAM HEADER NON-RETURN VALVE														
2-MS-NRV-201B	11548-CBM-064A	2 OF 6	D-3	MO STOP CHECK	30	NC	C		CV	C	CM				
										O	CM				
									VP	OC	24				
	"B" MAIN STEAM HEADER NON-RETURN VALVE														
2-MS-NRV-201C	11548-CBM-064A	3 OF 6	D-3	MO STOP CHECK	30	NC	C		CV	C	CM				

SURRY UNIT 2
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
2-MS-NRV-201C	11548-CBM-064A	3 OF 6	D-3	MO STOP CHECK	30	NC	C		CV	O	CM				
									VP	OC	24				
	"C" MAIN STEAM HEADER NON-RETURN VALVE														
2-MS-PCV-202A	11548-CBM-064A	4 OF 6	C-4	AO GATE	3	2	B		EV	C	03				
										O	03				
									FS	O	03				
									ST	C	03				
										O	03				
									VP	OC	24				
	MAIN STEAM SUPPLY TRIP VALVE TO TURBINE DRIVEN AUXILIARY FEEDWATER PUMP														
2-MS-PCV-202B	11548-CBM-064A	4 OF 6	D-5	AO GATE	3	2	B		EV	C	03				
										O	03				
									FS	O	03				
									ST	C	03				
										O	03				
									VP	OC	24				
	MAIN STEAM SUPPLY TRIP VALVE TO TURBINE DRIVEN AUXILIARY FEEDWATER PUMP														
2-MS-RV-201A	11548-CBM-064A	1 OF 6	E-5	AO ANGLE	4	2	B		EV	C	RR			3	
									FS	C	RR			3	
									ST	C	NA	NOTE 1			
									VP	OC	24				
	"A" MAIN STEAM HEADER DISCHARGE TO ATMOSPHERE POWER OPERATED RELIEF VALVE														
2-MS-RV-201B	11548-CBM-064A	2 OF 6	E-6	AO ANGLE	4	2	B		EV	C	RR			3	
									FS	C	RR			3	
									ST	C	NA	NOTE 1			
									VP	OC	24				
	"B" MAIN STEAM HEADER DISCHARGE TO ATMOSPHERE POWER OPERATED RELIEF VALVE														
2-MS-RV-201C	11548-CBM-064A	3 OF 6	E-5	AO ANGLE	4	2	B		EV	C	RR			3	
									FS	C	RR			3	

SURRY UNIT 2
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
2-MS-RV-201C	11548-CBM-064A	3 OF 6	E-5	AO ANGLE	4	2	B		ST VP	C OC	NA 24	NOTE 1			
	"C" MAIN STEAM HEADER DISCHARGE TO ATMOSPHERE POWER OPERATED RELIEF VALVE														
2-MS-SV-201A	11548-CBM-064A	1 OF 6	E-6	SAFETY VALVE	4	2	C		SP	O	60				
	"A" MAIN STEAM HEADER SAFETY VALVE, SV DISCHARGE TO ATMOS														
2-MS-SV-201B	11548-CBM-064A	2 OF 6	D-6	SAFETY VALVE	4	2	C		SP	O	60				
	"B" MAIN STEAM HEADER SAFETY VALVE, SV DISCHARGE TO ATMOS														
2-MS-SV-201C	11548-CBM-064A	3 OF 6	D-6	SAFETY VALVE	4	2	C		SP	O	60				
	"C" MAIN STEAM HEADER SAFETY VALVE, SV DISCHARGE TO ATMOS														
2-MS-SV-202A	11548-CBM-064A	1 OF 6	E-6	SAFETY VALVE	6	2	C		SP	O	60				
	"A" MAIN STEAM HEADER SAFETY VALVE, SV DISCHARGE TO ATMOS														
2-MS-SV-202B	11548-CBM-064A	2 OF 6	D-5	SAFETY VALVE	6	2	C		SP	O	60				
	"B" MAIN STEAM HEADER SAFETY VALVE, SV DISCHARGE TO ATMOS														
2-MS-SV-202C	11548-CBM-064A	3 OF 6	D-6	SAFETY VALVE	6	2	C		SP	O	60				
	"C" MAIN STEAM HEADER SAFETY VALVE, SV DISCHARGE TO ATMOS														
2-MS-SV-203A	11548-CBM-064A	1 OF 6	E-6	SAFETY VALVE	6	2	C		SP	O	60				
	"A" MAIN STEAM HEADER SAFETY VALVE, SV DISCHARGE TO ATMOS														
2-MS-SV-203B	11548-CBM-064A	2 OF 6	D-6	SAFETY VALVE	6	2	C		SP	O	60				
	"B" MAIN STEAM HEADER SAFETY VALVE, SV DISCHARGEE TO ATMOS														
2-MS-SV-203C	11548-CBM-064A	3 OF 6	D-6	SAFETY VALVE	6	2	C		SP	O	60				
	"C" MAIN STEAM HEADER SAFETY VALVE, SV DISCHARGE TO ATMOS														
2-MS-SV-204A	11548-CBM-064A	1 OF 6	E-6	SAFETY VALVE	6	2	C		SP	O	60				
	"A" MAIN STEAM HEADER SAFETY VALVE, SV DISCHARGE TO ATMOS														
2-MS-SV-204B	11548-CBM-064A	2 OF 6	D-6	SAFETY VALVE	6	2	C		SP	O	60				

SURRY UNIT 2
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
	"B" MAIN STEAM HEADER SAFETY VALVE, SV DISCHARGE TO ATMOS														
2-MS-SV-204C	11548-CBM-064A	3 OF 6	D-6	SAFETY VALVE	6	2	C		SP	O	60				
	"C" MAIN STEAM HEADER SAFETY VALVE, SV DISCHARGE TO ATMOS														
2-MS-SV-205A	11548-CBM-064A	1 OF 6	E-5	SAFETY VALVE	6	2	C		SP	O	60				
	"A" MAIN STEAM HEADER SAFETY VALVE, SV DISCHARGE TO ATMOS														
2-MS-SV-205B	11548-CBM-064A	2 OF 6	D-5	SAFETY VALVE	6	2	C		SP	O	60				
	"B" MAIN STEAM HEADER SAFETY VALVE, SV DISCHARGE TO ATMOS														
2-MS-SV-205C	11548-CBM-064A	3 OF 6	D-5	SAFETY VALVE	6	2	C		SP	O	60				
	"C" MAIN STEAM HEADER SAFETY VALVE, SV DISCHARGE TO ATMOS														
2-MS-TV-201A	11548-CBM-064A	1 OF 6	D-4	AO CHECK VALVE	30	2	B		EV	C	CS		1		
									ST	C	CS		1		
									VP	OC	24				
	"A" MAIN STEAM HEADER TRIP VALVE														
2-MS-TV-201B	11548-CBM-064A	2 OF 6	C-4	AO CHECK VALVE	30	2	B		EV	C	CS		1		
									ST	C	CS		1		
									VP	OC	24				
	"B" MAIN STEAM HEADER TRIP VALVE														
2-MS-TV-201C	11548-CBM-064A	3 OF 6	C-4	AO CHECK VALVE	30	2	B		EV	C	CS		1		
									ST	C	CS		1		
									VP	OC	24				
	"C" MAIN STEAM HEADER TRIP VALVE														

SURRY UNIT 2
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
2-RC-160	11548-CBM-086B	2 OF 3	D-7	CHECK VALVE	3	2	AC	CIV	CV	C	CM				
										O	CM				
									LT	C	OPB				
	PRIMARY GRADE WATER SUPPLY TO PRESSURIZER RELIEF TANK														
2-RC-HCV-2556A	11548-CBM-086A	1 OF 3	E-8	AO PLUG	2	1	E		VP	OC	24				
	LOOP FILL BOUNDARY VALVE														
2-RC-HCV-2556B	11548-CBM-086A	2 OF 3	D-8	AO PLUG	2	1	E		VP	OC	24				
	LOOP FILL BOUNDARY VALVE														
2-RC-HCV-2556C	11548-CBM-086A	3 OF 3	D-3	AO PLUG	2	1	E		VP	OC	24				
	LOOP FILL BOUNDARY VALVE														
2-RC-MOV-2535	11548-CBM-086B	1 OF 3	E-4	MO GATE	3	1	B		EV	C	03				
										O	03				
									ST	C	03				
										O	03				
									VP	OC	24				
	BLOCK VALVE FOR PRESSURIZER POWER OPERATED RELIEF VALVE														
2-RC-MOV-2536	11548-CBM-086B	1 OF 3	D-4	MO GATE	3	1	B		EV	C	03				
										O	03				
									ST	C	03				
										O	03				
									VP	OC	24				
	BLOCK VALVE FOR PRESSURIZER POWER OPERATED RELIEF VALVE														
2-RC-PCV-2455C	11548-CBM-086B	1 OF 3	D-3	AO PLUG	3	1	BC		EV	C	CS		3		
										O	CS		3		
									FS	C	CS		3		
									ST	C	CS		3		
										O	CS		3		
									VP	OC	24				

SURRY UNIT 2
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
	PRESSURIZER POWER OPERATED PRESSURE CONTROL VALVE DISCHARGE TO PRESSURIZER RELIEF TANK														
2-RC-PCV-2456	11548-CBM-086B	1 OF 3	E-3	AO PLUG	3	1	BC		EV	C	CS		3		
										O	CS		3		
									FS	C	CS		3		
									ST	C	CS		3		
										O	CS		3		
									VP	OC	24				
	PRESSURIZER POWER OPERATED PRESSURE CONTROL VALVE DISCHARGE TO PRESSURIZER RELIEF TANK														
2-RC-SOV-200A1	11548-CBM-086A	3 OF 3	B-5	SO GATE	1	1	B		EV	C	CS		16		
										O	CS		16		
									FS	C	CS		16		
									ST	C	CS		16		
										O	CS		16		
									VP	OC	24				
	REACTOR VESSEL VENT LINE ISOLATION VALVE TO REFUELING CAVITY														
2-RC-SOV-200A2	11548-CBM-086A	3 OF 3	A-5	SO GATE	1	1	B		EV	C	CS		16		
										O	CS		16		
									FS	C	CS		16		
									ST	C	CS		16		
										O	CS		16		
									VP	OC	24				
	REACTOR VESSEL VENT LINE ISOLATION VALVE TO REFUELING CAVITY														
2-RC-SOV-200B1	11548-CBM-086A	3 OF 3	B-5	SO GATE	1	1	B		EV	C	CS		16		
										O	CS		16		
									FS	C	CS		16		
									ST	C	CS		16		
										O	CS		16		
									VP	OC	24				
	REACTOR VESSEL VENT LINE ISOLATION VALVE TO REFUELING CAVITY														

SURRY UNIT 2
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
2-RC-SOV-200B2	11548-CBM-086A	3 OF 3	A-5	SO GATE	1	1	B		EV	C	CS		16		
										O	CS		16		
									FS	C	CS		16		
									ST	C	CS		16		
										O	CS		16		
									VP	OC	24				
	REACTOR VESSEL VENT LINE ISOLATION VALVE TO REFUELING CAVITY														
2-RC-SV-2551A	11548-CBM-086B	1 OF 3	E-6	SAFETY VALVE	6	1	C		SP	O	60				
	PRESSURIZER SAFETY VALVE, SV DISCHARGE TO PRESSURIZER RELIEF TANK														
2-RC-SV-2551B	11548-CBM-086B	1 OF 3	E-5	SAFETY VALVE	6	1	C		SP	O	60				
	PRESSURIZER SAFETY VALVE, SV DISCHARGE TO PRESSURIZER RELIEF TANK														
2-RC-SV-2551C	11548-CBM-086B	1 OF 3	E-5	SAFETY VALVE	6	1	C		SP	O	60				
	PRESSURIZER SAFETY VALVE, SV DISCHARGE TO PRESSURIZER RELIEF TANK														
2-RC-TV-2519A	11548-CBM-086B	2 OF 3	D-7	AO GATE	3	2	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				
	PRIMARY GRADE WATER SUPPLY TO PRT-#2 RCP SEAL STANDPIPES & FLUSH CONNECT, OUT CONT ISO VLV														

SURRY UNIT 2
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
2-RH-005	11548-CBM-087A	1 OF 2	E-5	CHECK VALVE	10	2	C		CV	C	CM				
										O	CM				
	"B" RHR PUMP DISCHARGE CHECK VALVE														
2-RH-011	11548-CBM-087A	1 OF 2	E-7	CHECK VALVE	10	2	C		CV	C	CM				
										O	CM				
	"A" RHR PUMP DISCHARGE CHECK VALVE														
2-RH-047	11548-CBM-087A	2 OF 2	C-3	CHECK VALVE	10	1	C		CV	C	CM				
										O	CM				
	RHR DISCHARGE TO LOOP 2 COLD LEG CHECK VALVE														
2-RH-108	11548-CBM-087A	2 OF 2	E-3	MANUAL GATE	6	2	AE	CIV	LT	C	OPB				
	RHR SUPPLY ISOLATION TO REFUEL WATER STORAGE TANK, OUTSIDE CONTAINMENT ISOLATION VALVE														
2-RH-MOV-2700	11548-CBM-087A	1 OF 2	A-5	MO GATE	14	1	B		EV	O	RR			1	
									ST	O	RR			1	
									VP	OC	24				
	RHR PUMP SUPPLY ISOLATION FROM RC LOOP 1 HOT LEG														
2-RH-MOV-2701	11548-CBM-087A	1 OF 2	A-4	MO GATE	14	1	B		EV	O	RR			1	
									ST	O	RR			1	
									VP	OC	24				
	RHR PUMP SUPPLY ISOLATION FROM RC LOOP 1 HOT LEG														
2-RH-MOV-2720A	11548-CBM-087A	2 OF 2	C-3	MO GATE	10	2	B		EV	O	RR			1	
									ST	O	RR			1	
									VP	OC	24				
	RHR RETURN ISOLATION TO "B" ACCUMULATOR DISCHARGE LINE														
2-RH-MOV-2720B	11548-CBM-087A	2 OF 2	B-3	MO GATE	10	1	B		EV	O	RR			1	
									ST	O	RR			1	
									VP	OC	24				
	RHR RETURN ISOLATION TO "C" ACCUMULATOR DISCHARGE LINE														
2-RH-RV-2721	11548-CBM-087A	2 OF 2	D-4	RELIEF VALVE	3	2	C		SP	O	120				

SURRY UNIT 2
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
	RHR SYSTEM RELIEF VALVE														

SURRY UNIT 2
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
2-RL-003	11548-CBM-118A	1 OF 1	D-7	MAN DIAPHRAGM	3	2	AE	CIV	LT	C	OPB				
	REFUELING PURIFICATION FROM RP PUMPS TO REACTOR CAVITY, OUTSIDE CONT ISOLATION VALVE														
2-RL-005	11548-CBM-118A	1 OF 1	D-6	MAN DIAPHRAGM	3	2	AE	CIV	LT	C	OPB				
	REFUELING PURIFICATION FROM RP PUMPS TO REACTOR CAVITY, INSIDE CONT ISOLATION VALVE														
2-RL-013	11548-CBM-118A	1 OF 1	B-7	MAN DIAPHRAGM	3	2	AE	CIV	LT	C	OPB				
	REFUELING PURIFICATION FROM REACTOR CAVITY TO RP PUMPS, INSIDE CONT ISOLATION VALVE														
2-RL-015	11548-CBM-118A	1 OF 1	B-7	MAN DIAPHRAGM	3	2	AE	CIV	LT	C	OPB				
	REFUELING PURIFICATION FROM REACTOR CAVITY TO RP PUMPS, OUTSIDE CONT ISOLATION VALVE														

SURRY UNIT 2
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
2-RM-003	11548-CBM-130B	1 OF 1	B-5	CHECK VALVE	0.75	2	AC	CIV	CV	C	CM				
										O	CM				
									LT	C	OPB				
	RETURN TO CONTAINMENT FROM RADIATION MONITORING CABINET, INSIDE CONT ISOL CHECK VALVE														
2-RM-TV-200A	11548-CBM-130B	1 OF 1	B-4	AO GATE	0.75	2	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				
	RETURN ISOLATION FROM AIR RADIATION MONITOR TO CONTAINMENT, OUTSIDE CONT ISOLATION VALVE														
2-RM-TV-200B	11548-CBM-130B	1 OF 1	F-8	AO GATE	0.75	2	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				
	SUPPLY ISOL TO AIR RAD MONITOR FROM CONTAINMENT VENT DUCT, OUTSIDE CONT ISOLATION VALVE														
2-RM-TV-200C	11548-CBM-130B	1 OF 1	E-8	AO GATE	0.75	2	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				
	SUPPLY ISOL TO AIR RAD MONITOR FROM CONTAINMENT VENT DUCT, INSIDE CONT ISOLATION VALVE														

SURRY UNIT 2
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
2-RS-011	11548-CBM-084B	2 OF 2	E-5	CHECK VALVE	10	2	AC	CIV	CV	C	CM				
										O	CM				
									LT	C	OPB				
	"B" OUTSIDE RECIRC SPRAY PUMP INSIDE CONTAINMENT ISOLATION CHECK VALVE														
2-RS-017	11548-CBM-084B	2 OF 2	D-5	CHECK VALVE	10	2	AC	CIV	CV	C	CM				
										O	CM				
									LT	C	OPB				
	"A" OUTSIDE RECIRC SPRAY PUMP INSIDE CONTAINMENT ISOLATION CHECK VALVE														
2-RS-132	11548-CBM-084B	1 OF 2	C-4	CHECK VALVE	3	2	AC		CV	C	CM				
										O	CM				
									LT	C	24				
	RECIRCULATION SPRAY BLEED LINE CHECK VALVE														
2-RS-135	11548-CBM-084B	1 OF 2	C-6	CHECK VALVE	3	2	AC		CV	C	CM				
										O	CM				
									LT	C	24				
	RECIRCULATION SPRAY BLEED LINE CHECK VALVE														
2-RS-MOV-255A	11548-CBM-084B	2 OF 2	B-6	MO PLUG	12	2	B		EV	C	03				
										O	03				
									ST	C	03				
										O	03				
									VP	OC	24				
	"A" OUTSIDE RECIRC SPRAY PUMP SUCTION ISOLATION VALVE FROM CONTAINMENT SUMP														
2-RS-MOV-255B	11548-CBM-084B	2 OF 2	B-6	MO PLUG	12	2	B		EV	C	03				
										O	03				
									ST	C	03				
										O	03				
									VP	OC	24				
	"B" OUTSIDE RECIRC SPRAY PUMP SUCTION ISOLATION VALVE FROM CONTAINMENT SUMP														

SURRY UNIT 2
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
2-RS-MOV-256A	11548-CBM-084B	2 OF 2	D-6	MO BFLY	10	2	A	CIV	EV	C	03				
										O	03				
									LT	C	OPB				
									ST	C	03				
										O	03				
									VP	OC	24				
	"A" OUTSIDE RECIRC SPRAY PUMP DISCHARGE ISOLATION, OUTSIDE CONTAINMENT ISOLATION VALVE														
2-RS-MOV-256B	11548-CBM-084B	2 OF 2	E-6	MO BFLY	10	2	A	CIV	EV	C	03				
										O	03				
									LT	C	OPB				
									ST	C	03				
										O	03				
									VP	OC	24				
	"A" OUTSIDE RECIRC SPRAY PUMP DISCHARGE ISOLATION, OUTSIDE CONTAINMENT ISOLATION VALVE														

SURRY UNIT 2
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
2-RT-02	11548-CBM-124A	1 OF 4	E-7	MANUAL GLOBE	3	2	AE	CIV	LT	C	OPB				
	STEAM GENERATOR RECIRCULATION INSIDE CONTAINMENT ISOLATION VALVE														
2-RT-06	11548-CBM-124A	1 OF 4	E-6	MANUAL BALL	3	2	AE	CIV	LT	C	OPB				
	STEAM GENERATOR RECIRCULATION OUTSIDE CONTAINMENT ISOLATION VALVE														
2-RT-21	11548-CBM-124A	2 OF 4	E-7	MANUAL GLOBE	3	2	AE	CIV	LT	C	OPB				
	STEAM GENERATOR RECIRCULATION INSIDE CONTAINMENT ISOLATION VALVE														
2-RT-25	11548-CBM-124A	2 OF 4	E-6	MANUAL BALL	3	2	AE	CIV	LT	C	OPB				
	STEAM GENERATOR RECIRCULATION OUTSIDE CONTAINMENT ISOLATION VALVE														
2-RT-40	11548-CBM-124A	3 OF 4	E-7	MANUAL GLOBE	3	2	AE	CIV	LT	C	OPB				
	STEAM GENERATOR RECIRCULATION INSIDE CONTAINMENT ISOLATION VALVE														
2-RT-44	11548-CBM-124A	3 OF 4	E-6	MANUAL BALL	3	2	AE	CIV	LT	C	OPB				
	STEAM GENERATOR RECIRCULATION OUTSIDE CONTAINMENT ISOLATION VALVE														

SURRY UNIT 2
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
2-SA-081	11548-CBM-075E	1 OF 1	B-6	MAN GATE	2	2	AE	CIV	LT	C	OPB				
	SERVICE AIR SUPPLY TO UNIT 1 CONTAINMENT, INSIDE CONTAINMENT ISOLATION VALVE														
2-SA-082	11548-CBM-075E	1 OF 1	B-6	MAN GATE	2	2	AE	CIV	LT	C	OPB				
	SERVICE AIR SUPPLY TO UNIT 1 CONTAINMENT, OUTSIDE CONTAINMENT ISOLATION VALVE														

SURRY UNIT 2
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
2-SI-025	11548-CBM-089A	1 OF 3	E-5	CHECK VALVE	8	2	AC		CV	C	CM				
										O	CM				
									LT	C	24	1			
	RWST SUPPLY CHECK VALVE TO CHARGING PUMP SUCTION HEADER														
2-SI-032	11548-CBM-089B	1 OF 4	E-3	MAN GLOBE	1	2	AE	CIV	LT	C	OPB				
	ACCUMULATOR MAKEUP LINE, OUTSIDE CONTAINMENT ISOLATION VALVE														
2-SI-046A	11548-CBM-089A	1 OF 3	A-3	CHECK VALVE	12	2	C		CV	C	CM				
										O	CM				
	RWST SUPPLY CHECK VALVE TO "A" LOW HEAD SI PUMP SUCTION														
2-SI-046B	11548-CBM-089A	1 OF 3	B-3	CHECK VALVE	12	2	C		CV	C	CM				
										O	CM				
	RWST SUPPLY CHECK VALVE TO "B" LOW HEAD SI PUMP SUCTION														
2-SI-047	11548-CBM-089A	1 OF 3	B-5	CHECK VALVE	12	2	C		CV	C	CM				
										O	CM				
	"B" LOW HEAD SI PUMP SUCTION CHECK VALVE FROM CONTAINMENT														
2-SI-050	11548-CBM-089A	1 OF 3	C-4	CHECK VALVE	10	2	C		CV	C	CM				
										O	CM				
	"B" LOW HEAD SI PUMP DISCHARGE CHECK VALVE														
2-SI-053	11548-CBM-089A	2 OF 3	B-4	CHECK VALVE	2	2	C		CV	C	CM				
										O	CM				
	"B" LOW HEAD SI PUMP MINIMUM FLOW/TEST LINE DISCHARGE CHECK														
2-SI-056	11548-CBM-089A	1 OF 3	B-7	CHECK VALVE	12	2	C		CV	C	CM				
										O	CM				
	"A" LOW HEAD SI PUMP SUCTION CHECK VALVE FROM CONTAINMENT														
2-SI-061	11548-CBM-089A	2 OF 3	B-5	CHECK VALVE	2	2	C		CV	C	CM				
										O	CM				
	"A" LOW HEAD SI PUMP MINIMUM FLOW/TEST LINE DISCHARGE CHECK														
2-SI-073	11548-CBM-089A	2 OF 3	E-7	MAN GLOBE	0.75	2	AE	CIV	LT	C	OPB				

SURRY UNIT 2
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
	ACCUMULATOR TEST LINE, OUTSIDE CONTAINMENT ISOLATION VALVE														
2-SI-079	11548-CBM-089B	4 OF 4	F-7	CHECK VALVE	6	1	AC	PIV	CV	C	CM				
										O	CM				
									LT	C	24				
	RCS COLD LEG SI ADMISSION CHECK VALVE														
2-SI-082	11548-CBM-089B	4 OF 4	E-7	CHECK VALVE	6	1	AC	PIV	CV	C	CM				
										O	CM				
									LT	C	24				
	RCS COLD LEG SI ADMISSION CHECK VALVE														
2-SI-085	11548-CBM-089B	4 OF 4	D-7	CHECK VALVE	6	1	AC	PIV	CV	C	CM				
										O	CM				
									LT	C	24				
	RCS COLD LEG SI ADMISSION CHECK VALVE														
2-SI-088	11548-CBM-089B	4 OF 4	D-7	CHECK VALVE	6	1	C		CV	C	CM				
										O	CM				
	RCS HOT LEG SI ADMISSION CHECK VALVE														
2-SI-091	11548-CBM-089B	4 OF 4	B-7	CHECK VALVE	6	1	C		CV	C	CM				
										O	CM				
	RCS HOT LEG SI ADMISSION CHECK VALVE														
2-SI-094	11548-CBM-089B	4 OF 4	C-7	CHECK VALVE	6	1	C		CV	C	CM				
										O	CM				
	RCS HOT LEG SI ADMISSION CHECK VALVE														
2-SI-107	11548-CBM-089B	1 OF 4	B-7	CHECK VALVE	12	1	C		CV	C	CM				
										O	CM				
	"A" ACCUMULATOR DISCHARGE CHECK VALVE														
2-SI-109	11548-CBM-089B	1 OF 4	B-8	CHECK VALVE	12	1	C		CV	C	CM				
										O	CM				
	"A" ACCUMULATOR COLD LEG ADMISSION CHECK VALVE														

SURRY UNIT 2
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
2-SI-128	11548-CBM-089B	2 OF 4	B-6	CHECK VALVE	12	1	C		CV	C O	CM CM				
	"B" ACCUMULATOR DISCHARGE CHECK VALVE														
2-SI-130	11548-CBM-089B	2 OF 4	B-7	CHECK VALVE	12	1	C		CV	C O	CM CM				
	"B" ACCUMULATOR COLD LEG ADMISSION CHECK VALVE														
2-SI-145	11548-CBM-089B	3 OF 4	B-5	CHECK VALVE	12	1	C		CV	C O	CM CM				
	"C" ACCUMULATOR DISCHARGE CHECK VALVE														
2-SI-147	11548-CBM-089B	3 OF 4	B-7	CHECK VALVE	12	1	C		CV	C O	CM CM				
	"C" ACCUMULATOR COLD LEG ADMISSION CHECK VALVE														
2-SI-224	11548-CBM-089B	4 OF 4	F-3	CHECK VALVE	3	2	C		CV	C O	CM CM				
	HIGH HEAD SI FROM CHARGING PUMPS TO RCS COLD LEGS, INSIDE CONT CHECK VALVE														
2-SI-225	11548-CBM-089B	4 OF 4	E-3	CHECK VALVE	3	2	C		CV	C O	CM CM				
	HIGH HEAD SI FROM CHARGING PUMPS TO RCS COLD LEGS, INSIDE CONT CHECK VALVE														
2-SI-226	11548-CBM-089B	4 OF 4	C-3	CHECK VALVE	3	2	C		CV	C O	CM CM				
	HIGH HEAD SI FROM CHARGING PUMPS TO RCS HOT LEGS, INSIDE CONT CHECK VALVE														
2-SI-227	11548-CBM-089B	4 OF 4	C-3	CHECK VALVE	3	2	C		CV	C O	CM CM				
	HIGH HEAD SI FROM CHARGING PUMPS TO RCS HOT LEGS, INSIDE CONT CHECK VALVE														
2-SI-228	11548-CBM-089B	4 OF 4	B-3	CHECK VALVE	6	2	C		CV	C O	CM CM				

SURRY UNIT 2
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
	LOW HEAD SI FROM LHSI PUMP TO RCS HOT LEGS, INSIDE CONT CHECK VALVE														
2-SI-229	11548-CBM-089B	4 OF 4	B-3	CHECK VALVE	6	2	C		CV	C O	CM CM				
	LOW HEAD SI FROM LHSI PUMP TO RCS HOT LEGS, INSIDE CONT CHECK VALVE														
2-SI-235	11548-CBM-089B	4 OF 4	F-7	CHECK VALVE	2	1	C		CV	C O	CM CM				
	HIGH HEAD SI TO RCS COLD LEG, INSIDE MISSILE BARRIER CHECK VALVE														
2-SI-236	11548-CBM-089B	4 OF 4	E-7	CHECK VALVE	2	1	C		CV	C O	CM CM				
	HIGH HEAD SI TO RCS COLD LEG, INSIDE MISSILE BARRIER CHECK VALVE														
2-SI-237	11548-CBM-089B	4 OF 4	D-7	CHECK VALVE	2	1	C		CV	C O	CM CM				
	HIGH HEAD SI TO RCS COLD LEG, INSIDE MISSILE BARRIER CHECK VALVE														
2-SI-238	11548-CBM-089B	4 OF 4	D-7	CHECK VALVE	6	1	C		CV	C O	CM CM				
	LOW HEAD SAFETY INJECTION SUPPLY CHECK VALVE TO RCS HOT LEG														
2-SI-239	11548-CBM-089B	4 OF 4	B-7	CHECK VALVE	6	1	C		CV	C O	CM CM				
	LOW HEAD SAFETY INJECTION SUPPLY CHECK VALVE TO RCS HOT LEG														
2-SI-240	11548-CBM-089B	4 OF 4	C-7	CHECK VALVE	6	1	C		CV	C O	CM CM				
	LOW HEAD SAFETY INJECTION SUPPLY CHECK VALVE TO RCS HOT LEG														
2-SI-241	11548-CBM-089B	4 OF 4	F-7	CHECK VALVE	6	1	AC	PIV	CV LT	C O C	CM CM 24				
	LOW HEAD SI TO RCS COLD LEG ISOLATION CHECK VALVE														

SURRY UNIT 2
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
2-SI-242	11548-CBM-089B	4 OF 4	E-7	CHECK VALVE	6	1	AC	PIV	CV	C	CM				
										O	CM				
									LT	C	24				
	LOW HEAD SI TO RCS COLD LEG ISOLATION CHECK VALVE														
2-SI-243	11548-CBM-089B	4 OF 4	D-7	CHECK VALVE	6	1	AC	PIV	CV	C	CM				
										O	CM				
									LT	C	24				
	LOW HEAD SI TO RCS COLD LEG ISOLATION CHECK VALVE														
2-SI-304	11548-CBM-089B	1 OF 4	F-3	CHECK VALVE	1	2	AC	CIV	CV	C	CM				
										O	CM				
									LT	C	OPB				
	NITROGEN SUPPLY TO ACCUMULATORS, INSIDE CONTAINMENT ISOLATION CHECK VALVE														
2-SI-327	11548-CBM-089A	1 OF 3	C-6	CHECK VALVE	10	2	C		CV	C	CM				
										O	CM				
	"A" LOW HEAD SI PUMP DISCHARGE CHECK VALVE														
2-SI-400	11548-CBM-089A	1 OF 3	E-4	CHECK VALVE	10	2	C		CV	C	CM				
										O	CM				
	RWST SUPPLY CHECK VALVE TO CHARGING PUMP SUCTION HEADER														
2-SI-MOV-2842	11548-CBM-089A	3 OF 3	D-7	MO GATE	3	2	B		EV	C	CS		12		
										O	CS		12		
									ST	C	CS		12		
										O	CS		12		
									VP	OC	24				
	HIGH HEAD SI FROM CHARGING HEADER TO RCS COLD LEGS ISOLATION VALVE														
2-SI-MOV-2860A	11548-CBM-089A	1 OF 3	B-7	MO GATE	12	2	B		EV	O	03				
									ST	O	03				
									VP	OC	24				
	"A" LOW HEAD SI PUMP SUCTION ISOLATION FROM CONTAINMENT SUMP														

SURRY UNIT 2
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
2-SI-MOV-2860B	11548-CBM-089A	1 OF 3	B-5	MO GATE	12	2	B		EV	O	03				
									ST	O	03				
									VP	OC	24				
	"B" LOW HEAD SI PUMP SUCTION ISOLATION FROM CONTAINMENT SUMP														
2-SI-MOV-2862A	11548-CBM-089A	1 OF 3	A-3	MO GATE	12	2	B		EV	C	03				
									ST	C	03				
									VP	OC	24				
	"A" LOW HEAD SI PUMP SUCTION FROM RWST														
2-SI-MOV-2862B	11548-CBM-089A	1 OF 3	B-3	MO GATE	12	2	B		EV	C	03				
									ST	C	03				
									VP	OC	24				
	"B" LOW HEAD SI PUMP SUCTION FROM RWST														
2-SI-MOV-2863A	11548-CBM-089A	2 OF 3	C-5	MO GATE	8	2	B		EV	C	03				
										O	03				
									ST	C	03				
										O	03				
									VP	OC	24				
	"A" LOW HEAD SAFETY INJECTION PUMP SUPPLY ISOLATION TO CHARGING PUMPS														
2-SI-MOV-2863B	11548-CBM-089A	2 OF 3	D-3	MO GATE	8	2	B		EV	C	03				
										O	03				
									ST	C	03				
										O	03				
									VP	OC	24				
	"B" LOW HEAD SAFETY INJECTION PUMP SUPPLY ISOLATION TO CHARGING PUMPS														
2-SI-MOV-2864A	11548-CBM-089A	2 OF 3	D-6	MO GATE	10	2	B		EV	C	03				
										O	03				
									ST	C	03				
										O	03				
									VP	OC	24				

SURRY UNIT 2
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
	"A" LOW HEAD SI PUMP COLD LEG DISCHARGE STOP VALVE														
2-SI-MOV-2864B	11548-CBM-089A	2 OF 3	D-4	MO GATE	10	2	B		EV	C	03				
										O	03				
									ST	C	03				
										O	03				
									VP	OC	24				
	"B" LOW HEAD SI PUMP COLD LEG DISCHARGE STOP VALVE														
2-SI-MOV-2865A	11548-CBM-089B	1 OF 4	C-7	MO GATE	12	2	B		EV	C	CS		17		
										O	CS		17		
									ST	C	CS		17		
										O	CS		17		
									VP	OC	24				
	"A" ACCUMULATOR DISCHARGE ISOLATION VALVE TO RCS COLD LEG														
2-SI-MOV-2865B	11548-CBM-089B	2 OF 4	C-6	MO GATE	12	2	B		EV	C	CS		17		
										O	CS		17		
									ST	C	CS		17		
										O	CS		17		
									VP	OC	24				
	"B" ACCUMULATOR DISCHARGE ISOLATION VALVE TO RCS COLD LEG														
2-SI-MOV-2865C	11548-CBM-089B	3 OF 4	C-5	MO GATE	12	2	B		EV	C	CS		17		
										O	CS		17		
									ST	C	CS		17		
										O	CS		17		
									VP	OC	24				
	"C" ACCUMULATOR DISCHARGE ISOLATION VALVE TO RCS COLD LEG														
2-SI-MOV-2867C	11548-CBM-089A	3 OF 3	F-6	MO GATE	3	2	B		EV	C	CS		9		
										O	CS		9		
									ST	C	CS		9		
										O	CS		9		
									VP	OC	24				
	BORON INJECTION TANK OUTLET TO RCS COLD LEG ISOLATION VALVE														

SURRY UNIT 2
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
2-SI-MOV-2867D	11548-CBM-089A	3 OF 3	E-6	MO GATE	3	2	B		EV	C	CS		9		
										O	CS		9		
									ST	C	CS		9		
										O	CS		9		
									VP	OC	24				
	BORON INJECTION TANK OUTLET TO RCS COLD LEG ISOLATION VALVE														
2-SI-MOV-2869A	11548-CBM-089A	3 OF 3	C-7	MO GATE	3	2	B		EV	C	CS		12		
										O	CS		12		
									ST	C	CS		12		
										O	CS		12		
									VP	OC	24				
	HIGH HEAD SI FROM CHARGING HEADER TO RCS HOT LEGS ISOLATION VALVE														
2-SI-MOV-2869B	11548-CBM-089A	3 OF 3	E-4	MO GATE	3	2	B		EV	C	CS		12		
										O	CS		12		
									ST	C	CS		12		
										O	CS		12		
									VP	OC	24				
	HIGH HEAD SI FROM CHARGING HEADER TO RCS HOT LEGS ISOLATION VALVE														
2-SI-MOV-2885A	11548-CBM-089A	2 OF 3	B-5	MO GATE	2	2	A		EV	C	03				
									LT	C	24	1			
									ST	C	03				
									VP	OC	24				
	"A" LOW HEAD SI PUMP MINIMUM FLOW/TEST LINE ISOLATION														
2-SI-MOV-2885B	11548-CBM-089A	2 OF 3	B-4	MO GATE	2	2	A		EV	C	03				
									LT	C	24	1			
									ST	C	03				
									VP	OC	24				
	"B" LOW HEAD SI PUMP MINIMUM FLOW/TEST LINE ISOLATION														
2-SI-MOV-2885C	11548-CBM-089A	2 OF 3	B-4	MO GATE	2	2	A		EV	C	03				
									LT	C	24	1			

SURRY UNIT 2
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
2-SI-MOV-2885C	11548-CBM-089A	2 OF 3	B-4	MO GATE	2	2	A		ST	C	03				
									VP	OC	24				
	"B" LOW HEAD SI PUMP MINIMUM FLOW/TEST LINE ISOLATION														
2-SI-MOV-2885D	11548-CBM-089A	2 OF 3	B-5	MO GATE	2	2	A		EV	C	03				
									LT	C	24	1			
									ST	C	03				
									VP	OC	24				
	"A" LOW HEAD SI PUMP MINIMUM FLOW/TEST LINE ISOLATION														
2-SI-MOV-2890A	11548-CBM-089A	2 OF 3	C-7	MO GATE	10	2	B		EV	C	CS		18		
										O	CS		18		
									ST	C	CS		18		
										O	CS		18		
									VP	OC	24				
	"A" LOW HEAD SI PUMP HOT LEG DISCHARGE STOP ISOLATION VALVE														
2-SI-MOV-2890B	11548-CBM-089A	2 OF 3	E-7	MO GATE	10	2	B		EV	C	CS		18		
										O	CS		18		
									ST	C	CS		18		
										O	CS		18		
									VP	OC	24				
	"B" LOW HEAD SI PUMP HOT LEG DISCHARGE STOP ISOLATION VALVE														
2-SI-MOV-2890C	11548-CBM-089A	2 OF 3	D-7	MO GATE	10	2	B		EV	C	CS		8		
										O	CS		8		
									ST	C	CS		8		
										O	CS		8		
									VP	OC	24				
	LOW HEAD SI PUMPS COLD LEG DISCHARGE STOP ISOLATION VALVE														
2-SI-RV-2845A	11548-CBM-089A	2 OF 3	E-6	RELIEF VALVE	1	2	C		SP	O	120				
	"A" LOW HEAD SI PUMP DISCHARGE RELIEF VALVE, RV DISCHARGE TO SAFEGUARDS AREA SUMP														
2-SI-RV-2845B	11548-CBM-089A	2 OF 3	E-5	RELIEF VALVE	1	2	C		SP	O	120				

SURRY UNIT 2
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
	LOW HEAD SI HEADER TO COLD LEG RELIEF VALVE, RV DISCHARGE TO SAFEGUARDS AREA SUMP														
2-SI-RV-2845C	11548-CBM-089A	2 OF 3	E-6	RELIEF VALVE	1	2	C		SP	O	120				
	"B" LOW HEAD SI PUMP DISCHARGE RELIEF VALVE, RV DISCHARGE TO SAFEGUARDS AREA SUMP														
2-SI-RV-2858A	11548-CBM-089B	1 OF 4	E-7	RELIEF VALVE	1	2	C		SP	O	120				
	SI ACCUMULATOR RELIEF VALVE														
2-SI-RV-2858B	11548-CBM-089B	2 OF 4	E-6	RELIEF VALVE	1	2	C		SP	O	120				
	SI ACCUMULATOR RELIEF VALVE														
2-SI-RV-2858C	11548-CBM-089B	3 OF 4	E-5	RELIEF VALVE	1	2	C		SP	O	120				
	SI ACCUMULATOR RELIEF VALVE														
2-SI-RV-2859	11548-CBM-089B	1 OF 4	D-3	RELIEF VALVE	0.75	2	C		SP	O	120	NOTE 2			
	SI ACCUMULATOR TEST LINE RELIEF VALVE														
2-SI-TV-200	11548-CBM-089A	3 OF 3	B-7	AO GATE	1	2	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				
	NITROGEN SUPPLY TO ACCUMULATORS, OUTSIDE CONTAINMENT ISOLATION VALVE														
2-SI-TV-201A	11548-CBM-089B	1 OF 4	C-3	AO GATE	1	2	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				
	ACCUMULATORS TO WASTE GAS CHARCOAL FILTERS, INSIDE CONTAINMENT ISOLATION VALVE														
2-SI-TV-201B	11548-CBM-089B	1 OF 4	B-2	AO GATE	1	2	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				

SURRY UNIT 2
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
	ACCUMULATORS TO WASTE GAS CHARCOAL FILTERS, OUTSIDE CONTAINMENT ISOLATION VALVE														
2-SI-TV-202A	11548-CBM-089A	1 OF 3	E-7	AO GATE	8	2	B		EV FS ST VP	O O O OC	03 03 03 24				
	UNIT 1 RWST TO UNIT 2 RWST CROSS TIE														
2-SI-TV-202B	11548-CBM-089A	1 OF 3	E-7	AO GATE	8	2	B		EV FS ST VP	O O O OC	03 03 03 24				
	UNIT 1 RWST TO UNIT 2 RWST CROSS TIE														

SURRY UNIT 2
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
2-SS-TV-200A	11548-CBM-082A	2 OF 3	F-7	SO GATE	0.375	1	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				
	PRESSURIZER LIQUID SPACE SAMPLE LINE, INSIDE CONTAINMENT ISOLATION VALVE														
2-SS-TV-200B	11548-CBM-082A	2 OF 3	F-6	AO GATE	0.375	1	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				
	PRESSURIZER LIQUID SPACE SAMPLE LINE, OUTSIDE CONTAINMENT ISOLATION VALVE														
2-SS-TV-201A	11548-CBM-082A	2 OF 3	E-7	SO GATE	0.375	1	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				
	PRESSURIZER VAPOR SPACE SAMPLE LINE, INSIDE CONTAINMENT ISOLATION VALVE														
2-SS-TV-201B	11548-CBM-082A	2 OF 3	E-6	AO GATE	0.375	1	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				
	PRESSURIZER VAPOR SPACE SAMPLE LINE, OUTSIDE CONTAINMENT ISOLATION VALVE														
2-SS-TV-202A	11548-CBM-082A	2 OF 3	D-7	SO GATE	0.375	1	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				

SURRY UNIT 2
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
	REACTOR COOLANT COLD LEGS SAMPLE HEADER, INSIDE CONTAINMENT ISOLATION VALVE														
2-SS-TV-202B	11548-CBM-082A	2 OF 3	D-6	SO GATE	0.375	1	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				
	REACTOR COOLANT COLD LEGS SAMPLE HEADER, OUTSIDE CONTAINMENT ISOLATION VALVE														
2-SS-TV-203A	11548-CBM-082A	2 OF 3	F-7	SO GATE	0.375	2	AE	CIV	LT	C	OPB				
									VP	OC	24				
	RHR SAMPLE HEADER, INSIDE CONTAINMENT ISOLATION VALVE														
2-SS-TV-203B	11548-CBM-082A	2 OF 3	F-6	SO GATE	0.375	2	AE	CIV	LT	C	OPB				
									VP	OC	24				
	RHR SAMPLE HEADER, OUTSIDE CONTAINMENT ISOLATION VALVE														
2-SS-TV-204A	11548-CBM-082A	2 OF 3	C-7	SO GATE	0.375	2	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				
	PRESSURIZER RELIEF TANK GAS SPACE SAMPLE LINE, INSIDE CONTAINMENT ISOLATION VALVE														
2-SS-TV-204B	11548-CBM-082A	2 OF 3	C-6	AO GATE	0.375	2	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				
	PRESSURIZER RELIEF TANK GAS SPACE SAMPLE LINE, OUTSIDE CONTAINMENT ISOLATION VALVE														
2-SS-TV-206A	11548-CBM-082A	2 OF 3	E-7	SO GATE	0.375	1	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				

SURRY UNIT 2
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
2-SS-TV-206A	11548-CBM-082A	2 OF 3	E-7	SO GATE	0.375	1	A	CIV	ST	C	03				
									VP	OC	24				
	REACTOR COOLANT HOT LEGS SAMPLE HEADER, INSIDE CONTAINMENT ISOLATION VALVE														
2-SS-TV-206B	11548-CBM-082A	2 OF 3	E-6	SO GATE	0.375	1	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				
	REACTOR COOLANT HOT LEGS SAMPLE HEADER, OUTSIDE CONTAINMENT ISOLATION VALVE														

SURRY UNIT 2
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
2-SV-TV-202A	11548-CBM-066A	2 OF 3	E-4	AO GATE	6	2	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				
	CONDENSER AIR REMOVAL DISCHARGE TO CONTAINMENT, OUTSIDE CONTAINMENT ISOLATION VALVE														

SURRY UNIT 2
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
2-SW-043	11548-CBM-071A	3 OF 3	C-3	BUTTERFLY	30	NC	B		EV	C	24				
	SERVICE WATER OUTLET LINE FROM BC WATER HX MANUAL ISOLATION VALVE														
2-SW-048	11548-CBM-071A	3 OF 3	D-3	BUTTERFLY	30	NC	B		EV	C	24				
	SERVICE WATER OUTLET LINE FROM BC WATER HX MANUAL ISOLATION VALVE														
2-SW-052	11548-CBM-071A	3 OF 3	E-3	BUTTERFLY	30	NC	B		EV	C	24				
	SERVICE WATER OUTLET LINE FROM BC WATER HX MANUAL ISOLATION VALVE														
2-SW-108	11548-CBM-071B	1 OF 2	B-4	CHECK VALVE	2	3	C		CV	C	CM				
										O	CM				
	CHARGING PUMP SERVICE WATER PUMP CHECK VALVE														
2-SW-113	11548-CBM-071B	1 OF 2	B-7	CHECK VALVE	2	3	C		CV	C	CM				
										O	CM				
	CHARGING PUMP SERVICE WATER PUMP CHECK VALVE														
2-SW-206	11548-CBM-071A	3 OF 3	E-8	MAN GATE	2	2	AE	CIV	LT	C	OPB				
	CONTAINMENT ISOLATION VALVE FOR SERVICE WATER DRAINS TO HEAT EXCHANGER														
2-SW-208	11548-CBM-071A	3 OF 3	E-8	MAN GATE	2	2	AE	CIV	LT	C	OPB				
	CONTAINMENT ISOLATION VALVE FOR SERVICE WATER DRAINS TO HEAT EXCHANGER														
2-SW-246	11548-CBM-071A	3 OF 3	C-8	CHECK VALVE	3	3	C		CV	C	CM				
										O	CM				
	RECIRCULATION SPRAY HEAT EXCHANGER SERVICE WATER RETURN VENT VALVE														
2-SW-247	11548-CBM-071A	3 OF 3	D-7	CHECK VALVE	3	3	C		CV	C	CM				
										O	CM				
	RECIRCULATION SPRAY HEAT EXCHANGER SERVICE WATER SUPPLY VENT VALVE														

SURRY UNIT 2
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
2-SW-248	11548-CBM-071A	3 OF 3	C-7	CHECK VALVE	3	3	C		CV	C O	CM CM				
	RECIRCULATION SPRAY HEAT EXCHANGER SERVICE WATER RETURN VENT VALVE														
2-SW-249	11548-CBM-071A	3 OF 3	D-6	CHECK VALVE	3	3	C		CV	C O	CM CM				
	RECIRCULATION SPRAY HEAT EXCHANGER SERVICE WATER SUPPLY VENT VALVE														
2-SW-250	11548-CBM-071A	3 OF 3	C-6	CHECK VALVE	3	3	C		CV	C O	CM CM				
	RECIRCULATION SPRAY HEAT EXCHANGER SERVICE WATER RETURN VENT VALVE														
2-SW-251	11548-CBM-071A	3 OF 3	D-6	CHECK VALVE	3	3	C		CV	C O	CM CM				
	RECIRCULATION SPRAY HEAT EXCHANGER SERVICE WATER SUPPLY VENT VALVE														
2-SW-252	11548-CBM-071A	3 OF 3	C-5	CHECK VALVE	3	3	C		CV	C O	CM CM				
	RECIRCULATION SPRAY HEAT EXCHANGER SERVICE WATER RETURN VENT VALVE														
2-SW-253	11548-CBM-071A	3 OF 3	D-5	CHECK VALVE	3	3	C		CV	C O	CM CM				
	RECIRCULATION SPRAY HEAT EXCHANGER SERVICE WATER SUPPLY VENT VALVE														
2-SW-442	11548-CBM-071B	1 OF 2	B-4	CHECK VALVE	2	3	C		CV	C O	CM CM				
	CHARGING PUMP SERVICE WATER PUMP DISCHARGE CHECK VALVE														
2-SW-445	11548-CBM-071B	1 OF 2	B-6	CHECK VALVE	2	3	C		CV	C O	CM CM				
	CHARGING PUMP SERVICE WATER PUMP DISCHARGE CHECK VALVE														

SURRY UNIT 2
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
2-SW-MOV-201A	11548-CBM-071A	3 OF 3	B-4	MO BFLY	36	3	B		EV ST VP	C C OC	03 03 24				
	BEARING COOLING WATER HEAT EXCHANGER ISOLATION VALVE														
2-SW-MOV-201B	11548-CBM-071A	3 OF 3	B-4	MO BFLY	36	3	B		EV ST VP	C C OC	03 03 24				
	BEARING COOLING WATER HEAT EXCHANGER ISOLATION VALVE														
2-SW-MOV-202A	11548-CBM-071A	2 OF 3	D-6	MO BFLY	42	3	B		EV ST VP	C C OC	03 03 24				
	SERVICE WATER HEADER SUPPLY ISOLATION TO COMPONENT COOLING HEAT EXCHANGERS														
2-SW-MOV-202B	11548-CBM-071A	2 OF 3	D-5	MO BFLY	42	3	B		EV ST VP	C C OC	03 03 24				
	SERVICE WATER HEADER SUPPLY ISOLATION TO COMPONENT COOLING HEAT EXCHANGERS														
2-SW-MOV-203A	11548-CBM-071A	3 OF 3	B-8	MO BFLY	30	3	B		EV ST VP	O O OC	RR RR 24			2 2	
	SERVICE WATER HEADER SUPPLY ISOLATION TO RECIRC SPRAY HEAT EXCHANGERS														
2-SW-MOV-203B	11548-CBM-071A	3 OF 3	B-8	MO BFLY	30	3	B		EV ST VP	O O OC	RR RR 24			2 2	
	SERVICE WATER HEADER SUPPLY ISOLATION TO RECIRC SPRAY HEAT EXCHANGERS														
2-SW-MOV-203C	11548-CBM-071A	3 OF 3	B-3	MO BFLY	30	3	B		EV ST VP	O O OC	RR RR 24			2 2	
	SERVICE WATER HEADER SUPPLY ISOLATION TO RECIRC SPRAY HEAT EXCHANGERS														

SURRY UNIT 2
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
2-SW-MOV-203D	11548-CBM-071A	3 OF 3	B-3	MO BFLY	30	3	B		EV	O	RR			2	
									ST	O	RR			2	
									VP	OC	24				
	SERVICE WATER HEADER SUPPLY ISOLATION TO RECIRC SPRAY HEAT EXCHANGERS														
2-SW-MOV-204A	11548-CBM-071A	3 OF 3	D-7	MO BFLY	24	3	B		EV	C	RR			2	
										O	RR			2	
									ST	C	RR			2	
										O	RR			2	
									VP	OC	24				
	SERVICE WATER SUPPLY TO "A" RECIRC SPRAY HEAT EXCHANGER, OUTSIDE CONT ISOLATION VALVE														
2-SW-MOV-204B	11548-CBM-071A	3 OF 3	D-6	MO BFLY	24	3	B		EV	C	RR			2	
										O	RR			2	
									ST	C	RR			2	
										O	RR			2	
									VP	OC	24				
	SERVICE WATER SUPPLY TO "B" RECIRC SPRAY HEAT EXCHANGER, OUTSIDE CONT ISOLATION VALVE														
2-SW-MOV-204C	11548-CBM-071A	3 OF 3	D-5	MO BFLY	24	3	B		EV	C	RR			2	
										O	RR			2	
									ST	C	RR			2	
										O	RR			2	
									VP	OC	24				
	SERVICE WATER SUPPLY TO "C" RECIRC SPRAY HEAT EXCHANGER, OUTSIDE CONT ISOLATION VALVE														
2-SW-MOV-204D	11548-CBM-071A	3 OF 3	D-4	MO BFLY	24	3	B		EV	C	RR			2	
										O	RR			2	
									ST	C	RR			2	
										O	RR			2	
									VP	OC	24				
	SERVICE WATER SUPPLY TO "D" RECIRC SPRAY HEAT EXCHANGER, OUTSIDE CONT ISOLATION VALVE														

SURRY UNIT 2
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
2-SW-MOV-205A	11548-CBM-071A	3 OF 3	D-8	MO BFLY	24	3	B		EV	C	RR			2	
										O	RR			2	
									ST	C	RR			2	
										O	RR			2	
									VP	OC	24				
	SERVICE WATER RETURN FROM "A" RECIRC SPRAY HEAT EXCHANGER, OUTSIDE CONT ISOLATION VALVE														
2-SW-MOV-205B	11548-CBM-071A	3 OF 3	D-7	MO BFLY	24	3	B		EV	C	RR			2	
										O	RR			2	
									ST	C	RR			2	
										O	RR			2	
									VP	OC	24				
	SERVICE WATER RETURN FROM "B" RECIRC SPRAY HEAT EXCHANGER, OUTSIDE CONT ISOLATION VALVE														
2-SW-MOV-205C	11548-CBM-071A	3 OF 3	D-6	MO BFLY	24	3	B		EV	C	RR			2	
										O	RR			2	
									ST	C	RR			2	
										O	RR			2	
									VP	OC	24				
	SERVICE WATER RETURN FROM "C" RECIRC SPRAY HEAT EXCHANGER, OUTSIDE CONT ISOLATION VALVE														
2-SW-MOV-205D	11548-CBM-071A	3 OF 3	D-5	MO BFLY	24	3	B		EV	C	RR			2	
										O	RR			2	
									ST	C	RR			2	
										O	RR			2	
									VP	OC	24				
	SERVICE WATER RETURN FROM "D" RECIRC SPRAY HEAT EXCHANGER, OUTSIDE CONT ISOLATION VALVE														
2-SW-TCV-208A	11548-CBM-071B	1 OF 2	E-7	AO GATE	1.5	3	B		EV	O	03				
									FS	O	03				
									ST	O	NA	NOTE 1			
	SERVICE WATER TO CHARGING PUMP LUBE OIL COOLER TEMPERATURE CONTROL VALVE														

SURRY UNIT 2
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
2-SW-TCV-208B	11548-CBM-071B	1 OF 2	E-5	AO GATE	1.5	3	B		EV	O	03				
									FS	O	03				
									ST	O	NA	NOTE 1			
	SERVICE WATER TO CHARGING PUMP LUBE OIL COOLER TEMPERATURE CONTROL VALVE														
2-SW-TCV-208C	11548-CBM-071B	1 OF 2	E-4	AO GATE	1.5	3	B		EV	O	03				
									FS	O	03				
									ST	O	NA	NOTE 1			
	SERVICE WATER TO CHARGING PUMP LUBE OIL COOLER TEMPERATURE CONTROL VALVE														

SURRY UNIT 2
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
2-VA-001	11548-CBM-083B	3 OF 3	F-3	MAN GATE	2	2	AE	CIV	LT	C	OPB				
	VENT LINE FROM PRIMARY VENT POT, OUTSIDE CONTAINMENT ISOLATION VALVE														
2-VA-009	11548-CBM-083B	3 OF 3	F-4	MAN GATE	2	2	AE	CIV	LT	C	OPB				
	VENT LINE FROM PRIMARY VENT POT, INSIDE CONTAINMENT ISOLATION VALVE														

SURRY UNIT 2
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT.	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
2-VG-TV-209A	11548-CBM-083B	1 OF 3	E-3	AO GATE	2	2	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				
	VENT LINE ISOL FROM PRIMARY DRAINS TRANSFER TANK TO GAS STRIPPERS, INSIDE CONT ISOL VLV														
2-VG-TV-209B	11548-CBM-083A	2 OF 2	F-3	AO GATE	2	2	A	CIV	EV	C	03				
									FS	C	03				
									LT	C	OPB				
									ST	C	03				
									VP	OC	24				
	VENT LINE ISOL FROM PRIMARY DRAINS TRANSFER TANK TO GAS STRIPPERS, OUTSIDE CONT ISOL VLV														

SURRY UNIT 2
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
2-VP-12	11548-CBM-066A	2 OF 3	F-4	CHECK VALVE	6	2	AC	CIV	CV	C	CM				
										O	CM				
									LT	C	OPB				
	CONDENSER AIR REMOVAL DISCHARG TO CONTAINMENT INSIDE CONTAIN ISOLATION CHECK VALVE														

SURRY UNIT 2
FIFTH INSERVICE TESTING INTERVAL
VALVE INSERVICE TEST TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISTC CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	TEST FREQ	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VNC-
2-VS-MOV-200A	11548-CBB-006A	1 OF 2	C-7	MO BFLY	36	2	AE	CIV	LT VP	C OC	OPB 24				
	CONTAINMENT PURGE SUPPLY, INSIDE CONTAINMENT ISOLATION VALVE														
2-VS-MOV-200B	11548-CBB-006A	1 OF 2	C-8	MO BFLY	36	2	AE	CIV	LT VP	C OC	OPB 24				
	CONTAINMENT PURGE SUPPLY, OUTSIDE CONTAINMENT ISOLATION														
2-VS-MOV-200C	11548-CBB-006A	1 OF 2	D-7	MO BFLY	36	2	AE	CIV	LT VP	C OC	OPB 24				
	CONTAINMENT PURGE EXHAUST, INSIDE CONTAINMENT ISOLATION VALVE														
2-VS-MOV-200D	11548-CBB-006A	1 OF 2	D-8	MO BFLY	36	2	AE	CIV	LT VP	C OC	OPB 24				
	CONTAINMENT PURGE EXHAUST, OUTSIDE CONTAINMENT ISOLATION														
2-VS-MOV-201	11548-CBB-006A	1 OF 2	D-7	MO BFLY	8	2	AE	CIV	LT VP	C OC	OPB 24				
	CONTAINMENT PURGE BYPASS, OUTSIDE CONTAINMENT ISOLATION														
2-VS-MOV-202	11548-CBB-006A	1 OF 2	C-7	MO BFLY	18	2	AE	CIV	LT VP	C OC	OPB 24				
	CONTAINMENT VACUUM BREAKER														

VALVE INSERVICE TEST TABLE NOTES

NOTE 1

The ASME OM Code, ISTC 5100, describes the exemption of stroke-time testing for power operated control valves whose only safety function is to fail in the safety direction. ISTC 5100 states:

> "All valves shall be tested in accordance with the applicable requirements of ISTC-3000, and as identified below, except for power-operated control valves that only have a fail-safe safety function.
>
> For power-operated control valves that only have a fail-safe safety function, the requirements for valve stroke-time measurement testing, the associated stroke-time test acceptance criteria, and any corrective actions that would result from stroke-time testing need not be met. For these valves, all other applicable requirements of ISTC-3000, and as identified below, shall be met".

The power-operated control valves listed in Table 1 have only a failsafe function. The ASME OM Code as described in ISTC 5100 will be applied to the control valves listed in Table 1. ISTC 5100 has replaced Code Case OMN-8 in the 2004 Edition, 2006 Addenda.

NOTE 1 (Cont.)

Table 1

Valve Number	System	OM Category	ASME Class	Function
2-CC-LCV-201	Component Cooling	B	3	Charging Pump Seal Cooling Surge Tank Level Control Valve
2-CH-FCV-2113A	Chemical and Volume Control	B	2	Alternate Emergency Boration Line Flow Control Valve
2-CH-FCV-2114A	Chemical and Volume Control	B	2	Primary Grade Water Flow Control Valve
2-MS-RV-201A 2-MS-RV-201B 2-MS-RV-201C	Main Steam	B	2	Main Steam Header Discharge to Atmosphere Pressure Control Valves
2-SW-TCV-208A 2-SW-TCV-208B 2-SW-TCV-208C	Service Water	B	3	Service Water to Charging Pump Lube Oil Cooler Temperature Control Valves

NOTE 2

The ASME OM Code, Appendix I, I-1200, Definitions, defines a thermal relief application as:

> "a relief device whose only overpressure protection function is to protect isolated components, systems, or portions of systems from fluid expansion caused by changes in fluid temperature."

According to Appendix I, I-1390, Test Frequency, Classes 2 and 3 Pressure Relief Devices That Are Used for Thermal Relief Application:

> "Tests shall be performed on all Class 2 and 3 relief devices used in thermal relief application every 10 years, unless performance data indicate more frequent testing is necessary. In lieu of tests the Owner may replace the relief devices at a frequency of every 10 years, unless performance data indicate more frequent replacements are necessary."

The valves listed in Table 2 serve a thermal relief application and will be tested in accordance with I-1390.

NOTE 2 (Cont.)

Table 2

Thermal Relief Valve Number	ASME Code Class	Function
2-CC-RV-212A 2-CC-RV-212B 2-CC-RV-212C	3	These relief valves protect the CC piping and components related to the recirculation air cooler from over-pressure in the event of an accident requiring isolation of this line (non-safety function). They also protect the piping associated with containment penetrations 9 through 14.
2-CC-RV-216A 2-CC-RV-216B 2-CC-RV-216C	3	These relief valves protect the CC piping that supplies cooling water to the RCP thermal barrier heat exchangers from over-pressure in the event of an inadvertent actuation of the downstream trip valve. Thermal loads could cause the pressure in the isolated CC piping to increase past the design limit of the pressure boundary.
2-CC-RV-219A 2-CC-RV-219B	3	These relief valves open to protect the RHR heat exchangers from over-pressurization while the heat exchangers are isolated within the containment structure. During an accident, the temperature increase in containment could cause the water in the heat exchanger to expand resulting in a significant increase in pressure with the potential for damage.
2-CC-RV-224	3	The primary function of this relief valve is to protect the piping and cooling coils related to cooling of the pedestals and primary shield from over-pressure in the event they are isolated and subjected to thermal expansion. During a LOCA this section of CC piping is isolated and will be subjected to heating. If such an event should occur, the piping associated with penetrations Nos. 1 & 5 could be subjected to an overpressure condition thus jeopardizing containment integrity.
2-CC-RV-238A 2-CC-RV-238B 2-CC-RV-238C	3	These relief valves open to protect the CC piping and shroud cooling coils from over-pressure in the event of thermal heating when the CC lines are isolated (TV-105 (205) closed).

NOTE 2 (Cont.)

Table 2

Thermal Relief Valve Number	ASME Code Class	Function
2-SI-RV-2859	2	This relief valve is on the SI accumulator test line and protects penetration 106.

4.5 VALVE TEST PROGRAM RELIEF REQUEST

Relief Requests identify code requirements that are impractical for Surry Unit 2 and provide justification for the requested exception. Where appropriate, alternate testing to be performed in lieu of code requirements is proposed.

RELIEF REQUEST V-1

Proposed alternative in accordance with 10CFR50.55a(a)(3)(i)
Alternative provides acceptable level of quality and safety.

1.0 ASME Code Components Affected

Valve(s):

2-CH-MOV-2115B	2-SI-MOV-2885A
2-CH-MOV-2115D	2-SI-MOV-2885B
2-SI-25	2-SI-MOV-2885C
	2-SI-MOV-2885D

System: Chemical and Volume Control and Safety Injection

Category: A for 2-CH-MOV-2115B and D, and 2-SI-MOV-2885A-D
AC for 1-SI-25

Class: 2

Function: RWST Isolation Valves

2.0 Applicable Code Edition and Addenda

ASME OM Code, 2004 Edition, 2005 and 2006 Addenda

3.0 Applicable Code Requirements

ISTC-3630(f) - Valves or valve combinations with leakage rates exceeding the values specified by the Owner in ISTC-3630(e) above shall be declared inoperable and be either repaired or replaced.

4.0 Reason for Request

Valves 2-CH-MOV-2115B and D, and 2-SI-25 are in the supply line to the charging pumps from the RWST. Valves 2-SI-MOV-2885A, B, C and D are on test lines that run from the discharge of the low head SI pumps to the RWST. During recirculation mode transfer, the RWST is isolated and the low head SI pumps recirculate highly contaminated water from the containment sump to the reactor vessel.

RELIEF REQUEST V-1 (Cont.)

The RWST isolation valves work as a system of valves to protect the RWST from the contaminated sump water. Permissible valve leakage rates are based on each valve's possible contribution to the total allowable leakage rate to the RWST. When the leakages from each valve have been measured and summed, an individual valve's permissible leakage rate may have been exceeded but the overall allowable leakage to the RWST may not have been exceeded. In these cases, a repair or replacement may not be necessary because the system of isolation valves has been verified to be performing adequately.

In addition to repair or replacement as corrective actions, an evaluation can be performed which demonstrates that even if a valve has exceeded its permissible leakage rate, the overall leakage rate to the RWST will be maintained below the overall allowable RWST leakage rate and hence the system function is satisfied. This evaluation should provide a high level of assurance that delaying the repair or replacement will not result in exceeding the overall limit before the next leak rate test. The evaluation should include a determination of the cause for the individual valve leakage. The evaluation should also address the effect of the degradation mechanism for the valve on the ability of the valve group to maintain overall leakage to the RWST below the overall allowable leakage rate during the subsequent 24 month interval. Evaluations will be documented and retained in plant records, and are available for subsequent review. This alternative to the requirements ISTC-3630(f) provides an acceptable level of quality and safety.

5.0 Proposed Alternatives and Bases for Use

In addition to repair or replacement as corrective actions, an evaluation can be performed which demonstrates that even if a valve has exceeded its permissible leakage rate, the overall leakage rate to the RWST will be maintained below the overall allowable RWST leakage rate. No repair or replacement is necessary if the evaluation is performed and system leakage is projected to be maintained below the overall permissible leakage rate throughout the subsequent 24 month interval.

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

RELIEF REQUEST V-1 (Cont.)

6.0 Duration of the Proposed Alternative

The proposed alternatives described in Relief Request V-1 will be used for the Surry Power Station Unit 2 Fifth Ten Year Inservice Testing Interval.

7.0 Precedents

A similar relief request for the Surry Unit 2 Fourth Ten Year Inservice Testing Interval was approved by the NRC in their safety evaluation entitled "Surry Power Station, Units 1 and 2 – American Society of Mechanical Engineers Inservice Testing Program (TAC NOS. MC0120 through MC0146)" dated July 2, 2004.

The following relief request for another plant that is similar to V-1 was approved by the NRC.

Pump Relief Request V-1 for North Anna 1 was approved by the NRC by letter dated 9/30/2010 (TAC NOS. ME2748, ME2749, ME2753 to ME2760, ME2763 to ME2772, ME2778 to ME2789).

8.0 References

1. ASME OM Code, 2004 Edition, 2005 and 2006 Addenda

4.6 VALVE TEST PROGRAM COLD SHUTDOWN JUSTIFICATIONS

ISTC-3521 and ISTC-3522 allow for the full stroke exercising of valves during Cold Shutdown (but not more frequently than every three months) if it is impractical to exercise the valves during normal operation. Therefore, no request for relief from testing every three months is necessary.

ISTC-9200 does require that these valves be specifically identified by the owner. The cold shutdown justifications identify and provide the technical basis for valves exercised during cold shutdown but not during normal operation.

COLD SHUTDOWN JUSTIFICATION CSV-1

System: Main Steam

Valve(s): 2-MS-TV-201A
2-MS-TV-201B
2-MS-TV-201C

Category: B

Class: 2

Function: Main Steam Line Trip Valves

Cold Shutdown Justification

Full stroke or part stroke exercising of these valves during power operation could result in a turbine and reactor trip.

Testing Frequency

These valves will be full stroke exercised every cold shutdown but not more frequently than once every three months.

> Note: The technical specification acceptance criteria are more limiting than the standard Code test criteria because the technical specification requires the measurement of elapsed time from the manual initiation of steam line isolation to initiation of main trip valve motion (must be less than or equal to 4.0 seconds) and the measurement of elapsed time from full open to full close (must be less than or equal to 5.0 seconds). If either of the limiting times is exceeded, the valve fails the test.
>
> The Code requires the measurement of elapsed time from initiation of steam line isolation to full valve closure, which is a less conservative test.

COLD SHUTDOWN JUSTIFICATION CSV-2

System: Component Cooling

Valve(s): 2-CC-TV-205A
2-CC-TV-205B
2-CC-TV-205C

Category: B

Class: 3

Function: Component Cooling Water Return from Reactor Coolant Pump Isolation Valves

Cold Shutdown Justification

Exercising valves 2-CC-TV-205A, B and C during normal operation would isolate the reactor coolant pump (RCP) component cooling water return headers. These headers collect cooling water from the RCP upper and lower bearing lube oil coolers, the shroud cooling coils and the stator coolers. Loss of cooling water to these pumps can be damaging, even for short periods of time. Therefore, the corresponding RCP must be secured before the header isolation trip valve is exercised. The valve controllers do not allow for a part-stroke exercise test.

Testing Frequency

These valves will be full-stroke exercised to the close position every cold shutdown when the corresponding RCP is secured but not more frequently than once every three months.

COLD SHUTDOWN JUSTIFICATION CSV-3

System: Reactor Coolant

Valve(s): 2-RC-PCV-2455C
2-RC-PCV-2456

Category: BC

Class: 1

Function: Pressurizer Power Operated Relief Valves

Cold Shutdown Justification

These pressurizer power operated relief valves have shown a high probability of sticking open while being exercised during power operation. Also, these valves are not required for overpressure protection unless the primary system temperature is under 350 °F per Technical Specification Paragraph 3.1.G.1.c(4).

Testing Frequency

These valves will be tested on approach to Cold Shutdown.

COLD SHUTDOWN JUSTIFICATION CSV-4

System: Chemical and Volume Control

Valve(s): 2-CH-MOV-2115C
2-CH-MOV-2115E

Category: B

Class: 2

Function: Charging Pump Suction from Volume Control Tanks

Cold Shutdown Justification

Partial or full stroke exercising these valves during power operation would require the charging pump suctions to be aligned with the refueling water storage tank. This would cause a sudden increase in Reactor Coolant System boron inventory, which would cause a plant transient.

Testing Frequency

These valves will be tested to the close position every cold shutdown but not more frequently than once every three months.

COLD SHUTDOWN JUSTIFICATION CSV-5

System: Chemical and Volume Control

Valve(s): 2-CH-MOV-2381

Category: A

Class: 2

Function: Reactor Coolant Pump Seal Water Return

Cold Shutdown Justification:

Closure of this valve with Reactor Coolant Pumps in operation will cause a loss of seal flow resulting in possible pump seal damage.

Testing Frequency

This valve will be tested to the close position every cold shutdown when the reactor coolant pumps are secured but not more frequently than once every three months.

COLD SHUTDOWN JUSTIFICATION CSV-6

System: Chemical and Volume Control

Valve(s): 2-CH-TV-2204A 2-CH-LCV-2460A
2-CH-TV-2204B 2-CH-LCV-2460B

Category: A (2-CH-TV-2204A, B) and B (2-CH-LCV-2460A, B)

Class: 1 (2-CH-LCV-2460A, B) and 2 (2-CH-TV-2204A, B)

Function: Reactor Coolant System Letdown Isolation Trip and Level Control Valves

Cold Shutdown Justification

Exercising these valves during power operation interrupts letdown flow from the reactor coolant system (RCS) to the volume control tank. If the valves should fail closed, reactor coolant inventory control would be lost.

The pressurizer level control program controls reactor coolant inventory by regulating the operation of the charging flow control valve so that the charging input flow to the RCS and reactor coolant pump seal injection flow into the RCS matches letdown flow.

Also, exercising these valves during normal operation will interrupt letdown flow through the regenerative heat exchanger. This flow interruption would allow a slug of relatively cool charging water to thermal shock the nozzle connecting the 3" charging line to the 27" loop 2 cold leg injection line.

The valve controllers do not allow for a part stroke exercise test.

Testing Frequency

These valves will be tested to the close position every cold shutdown but not more frequently than once every three months.

COLD SHUTDOWN JUSTIFICATION CSV-7

System: Chemical and Volume Control

Valve(s): 2-CH-MOV-2289A
2-CH-MOV-2289B

Category: B

Class: 2

Function: Normal Charging Header Isolation

Cold Shutdown Justification

Failure of these valves in the close position during exercising would cause a loss of charging flow and could result in an inability to maintain reactor coolant inventory.

Testing Frequency

These valves will be tested to the close position every cold shutdown but not more frequently than once every three months.

COLD SHUTDOWN JUSTIFICATION CSV-8

System: Safety Injection

Valve(s): 2-SI-MOV-2890C

Category: B

Class: 2

Function: Low Head Safety Injection to Reactor Coolant System Cold Legs

Cold Shutdown Justification

In accordance with Technical Specification 3.3.A.3, two safety injection subsystems, which include one operable low head safety injection pump, must be operable when the reactor is critical. If this valve was stroked during power operation and failed in the close position, the Low Head Safety Injection System would be rendered inoperable.

Testing Frequency

This valve will be tested to the full open and close positions every cold shutdown but not more frequently than once every three months.

COLD SHUTDOWN JUSTIFICATION CSV-9

System: Safety Injection

Valve(s): 2-SI-MOV-2867C
2-SI-MOV-2867D

Category: B

Class: 2

Function: High Head Safety Injection Isolation

Cold Shutdown Justification

These valves cannot be partial or full stroke exercised during power operation. Opening these valves would allow excess charging flow into the Reactor Coolant System causing a reactivity transient.

Testing Frequency

These valves will be tested to the full open and close positions every cold shutdown but not more frequently than once every three months.

COLD SHUTDOWN JUSTIFICATION CSV-10

System: Chemical and Volume Control

Valve(s): 2-CH-MOV-2350

Category: B

Class: 2

Function: Emergency and Manual Emergency Boration Line Isolation Valve

Cold Shutdown Justification

Valve 2-CH-MOV-2350 can be full stroke exercised during normal operation when the boric acid concentration in the reactor coolant system is above 100 ppm. During power operation when the concentration of boric acid is low, the addition of boric acid will produce an undesirable transient in reactor power. Low concentrations of boric acid occur near the end of the fuel cycle. The valve controller does not allow for part stroke exercising.

Testing Frequency

Valve 2-CH-MOV-2350 will be full stroke exercised during normal operation when the reactor coolant boric acid concentration is above 100 ppm.

COLD SHUTDOWN JUSTIFICATION CSV-11

System: Steam Generator Blowdown

Valve(s): 2-BD-TV-200A	2-BD-TV-200D
2-BD-TV-200B	2-BD-TV-200E
2-BD-TV-200C	2-BD-TV-200F

Category: B

Class: 2

Function: Steam Generator Blowdown Isolation

Cold Shutdown Justification

Closing these valves during power operation causes the downstream piping to become empty due to drainage and water flashing to steam. When the valves reopen, a flow surge could occur which automatically isolates the inner valves due to high flow. Then a containment entry is necessary to reset these valves and upon reopening the process may occur again.

Testing Frequency

These valves will be tested to the close position every cold shutdown but not more frequently than once every three months.

COLD SHUTDOWN JUSTIFICATION CSV-12

System: Safety Injection

Valve(s): 2-SI-MOV-2842
2-SI-MOV-2869A
2-SI-MOV-2869B

Category: B

Class: 2

Function: High Head Safety Injection to reactor Coolant System

Cold Shutdown Justification

These valves cannot be partial or full stroke exercised during power operation. Opening these valves would allow excess charging flow into the Reactor Coolant System causing a reactivity transient and possible thermal shock to the High Head Safety Injection System.

Testing Frequency

These valves will be tested to the full open and close positions every cold shutdown but not more frequently than once every three months.

COLD SHUTDOWN JUSTIFICATION CSV-13

System: Component Cooling

Valve(s): 2-CC-TV-220A 2-CC-TV-240A
2-CC-TV-220B 2-CC-TV-240B
2-CC-TV-220C

Category: B

Class: 3

Function: Component Cooling Return from Reactor Coolant Pump Thermal Barrier Isolation Valves

Cold Shutdown Justification

Exercising these valves during normal operation would isolate component cooling water to the reactor coolant pump thermal barriers. Cooling water must be available to the reactor coolant pump thermal barriers when the reactor coolant system temperature is above 200°F. Cold shutdown is entered when the reactor coolant system temperature drops below 200°F. The valve controllers do not allow for a part stroke exercise test.

Testing Frequency

These valves will be tested to the close position every cold shutdown but not more frequently than once every three months.

COLD SHUTDOWN JUSTIFICATION CSV-14

System: Feedwater

Valve(s):	2-FW-FCV-2478	2-FW-HCV-255A
	2-FW-FCV-2488	2-FW-HCV-255B
	2-FW-FCV-2498	2-FW-HCV-255C

Category: B

Class: NC

Function: Main Feedwater Regulating and Regulating Bypass Isolation Valves

Cold Shutdown Justification

These valves are in positions required to sustain power operation. Full stroke exercising the valves would result in a reactor trip. The main feedwater regulating valves 2-FW-FCV-2478, 2488 and 2498 move during normal operation as they perform their regulating function. In order to perform a partial stroke test during normal operation, the plant would have to reduce power to cause the valve disks to move. Reducing power for the purpose of performing an exercise test is considered impractical according to the NRC response to Comment 2.4.5-1 in NUREG-1482, Revision 0, Appendix G. Appendix G was omitted from NUREG-1482, Revision 1, along with Comment 2.4.5-1. However, IST Engineering still considers reducing power for the purpose of performing an exercise test as being impractical.

The bypass valves 2-FW-HCV-255A, B and C are used only during plant startup. During this startup period, their safety function is to close. During normal operation, these valves remain closed and are passive in the close position. Therefore, the bypass valves do not need to be partial stroke tested every three months.

Testing Frequency

These valves will be full stroke exercised every cold shutdown but not more frequently than once every three months.

COLD SHUTDOWN JUSTIFICATION CSV-15

System: Component Cooling

Valve(s): 2-CC-LCV-201

Category: B

Class: 3

Function: Charging Pump Seal Cooling Surge Tank Level Control Valve

Cold Shutdown Justification

This valve must open to maintain the level in the charging pump seal water surge tank and must close to prevent overflowing the surge tank and potentially draining the surge tank through the over flow line. The valve fails close on lose of operating air.

Valve position is determined solely from tank level. In order to manipulate the valve for testing, the surge tank must be isolated. However, the surge tank provides the NPSH for the charging pump cooling water pumps and it should not be isolated from the system during normal operation when component cooling water for the charging pumps is required.

Testing Frequency

This valve will be exercised to the open and close positions every cold shutdown but not more frequently than once every three months.

COLD SHUTDOWN JUSTIFICATION CSV-16

System: Reactor Coolant

Valve(s): 2-RC-SOV-200A-1
2-RC-SOV-200A-2
2-RC-SOV-200B-1
2-RC-SOV-200B-2

Category: B

Class: 1

Function: Head Vent for Reactor Vessel

Cold Shutdown Justification

These valves isolate the reactor vessel from containment atmosphere. Partial or full stroke exercising the valves during normal operation or during cold shutdowns where the reactor coolant system is pressurized could result in the release of uncontrolled contamination to containment.

Testing Frequency

These valves will be exercise to the open and close positions during cold shutdowns when the reactor coolant system is not pressurized but not more frequently than once every three months.

COLD SHUTDOWN JUSTIFICATION CSV-17

System: Safety Injection

Valve(s): 2-SI-MOV-2865A
2-SI-MOV-2865B
2-SI-MOV-2865C

Category: B

Class: 2

Function: Accumulator Discharge Isolation Valves to RCS Cold Leg

Cold Shutdown Justification

In accordance with Technical Specification 3.3.A.2.d, the accumulator discharge isolation valves 1-SI-MOV-1865A, B and C shall be blocked open by de-energizing the valve motor operators when the reactor coolant system pressure is greater than 1000 psig. These valves could be called upon to close when the reactor coolant system pressure is less than 1000 psig. If these valves were stroked during power operation and failed in the close position, the corresponding accumulator would be rendered inoperable and thus decrease plant safety. Also, the valve controllers do not allow for a part-stroke exercise test.

Testing Frequency

These valves will be full stroke exercised to the open and close positions every cold shutdown but not more frequently than once every three months.

COLD SHUTDOWN JUSTIFICATION CSV-18

System: Safety Injection

Valve(s): 2-SI-MOV-2890A
2-SI-MOV-2890B

Category: B

Class: 2

Function: Low Head Safety Injection Pump to Hot Leg Discharge Stop Valves

Cold Shutdown Justification

These stop valves have a double disk design and are closed during normal plant operation. They can be opened during the recirculation mode following an accident to periodically align the low head safety injection pump discharge with the reactor coolant system (RCS) hot legs. Therefore, they are called upon to open after the RCS is depressurized. During normal operation, downstream check valves in series separate the stop valves from the normal RCS pressure of 2235 psig.

According to AEOD Report T95-02, "Potential Damage to Low-Pressure Injection Valves During Surveillance Testing," valves with the same operating conditions, system configuration and disk design as the stop valves may be subject to loads that exceed the maximum design load of the valve if the valve is exercised at normal power. The maximum design load for the stop valves was determined for a depressurized RCS. However, if there is any leakage past the check valves during normal operation, the stop valves will experience the RCS pressure of 2235 psig on the downstream disk.

Full or partial-stroke exercising the stop valves at power and with RCS leakage to the downstream disk will produce a load that greatly exceeds the design load. Degradation from repeated surveillance testing could result in a situation where the valve may operate during testing, but could fail on a subsequent demand during an accident. To eliminate the concern of overloading the stop valves during surveillance testing, AEOD Report T95-02 recommends testing these valves "during refueling outages or other outages when the RCS pressure is low."

COLD SHUTDOWN JUSTIFICATION CSV-18 (Cont.)

Testing Frequency

Because these stop valves fit the profile of valves subject to degradation as described above and in AEOD Report T95-02, the valves will be full stroke exercised to the open and close positions every cold shutdown but not more frequently than once every three months.

COLD SHUTDOWN JUSTIFICATION CSV-19

System : Circulating Water

Valve(s):		
	2-CW-MOV-200A	2-CW-MOV-206A
	2-CW-MOV-200B	2-CW-MOV-206B
	2-CW-MOV-200C	2-CW-MOV-206C
	2-CW-MOV-200D	2-CW-MOV-206D

Category: B

Class: 3 (2-CW-MOV-206A to 206D) and NC (2-CW-MOV-200A to 200D)

Function: Main condenser outlet/inlet isolation valves

Cold Shutdown Justification

During plant operation these valves are open to provide for the circulation of cooling water (river water) through the main condenser. These valves can be full stroke exercised during normal operation. However, when the circulating water is above 80 F, exercising the valves to the closed position will result in a reduction of condenser vacuum and loss of MWe, and may cause the operators to ramp the unit down during the test.

Due to the recent turbine upgrade, there is reduced margin with condenser vacuum. Therefore, there is a possibility that the unit must ramp down to test these valves when the circulating water temperature is above 80 F. Prior to the turbine upgrade, the unit lost about 10 MWe when testing these valves at elevated circulating water temperatures during the summer time. With the turbine upgrade, the unit will lose greater than 20 MWe. Additionally, the loss of vacuum may cause the operators to ramp the unit down during the test.

The valve controllers on the inlet isolation valves (2-CW-MOV-206A, B, C and D) do not allow for part-stroke exercising. The outlet isolation valves (2-CW-MOV-200A, B, C and D) can be throttled and will be part-stroke exercised every quarter as required by ISTC-3521(b).

Testing Frequency

These valves will be full stroke exercised every quarter except when the circulating water temperature is greater than 80 °F. In this case, the valves will be full stroke exercised every cold shutdown but not more frequently than once every three months. The outlet isolation valves (2-CW-MOV-200A, B, C and D) will be part-stroke exercised every quarter.

4.7 VALVE TEST PROGRAM REACTOR REFUELING JUSTIFICATIONS

ISTC-3521 and ISTC-3522 allow for the full stroke exercising of valves during reactor refueling (but not more frequently than every three months) if the valves cannot be exercised during normal operation or cold shutdown. Therefore, no request for relief from testing every three months is necessary.

However, ISTC-9200 does require that these valves be specifically identified by the owner. The reactor refueling justifications identify and provide the technical basis for valves exercised during reactor refueling outages.

REACTOR REFUELING JUSTIFICATION RRV-1

System: Residual Heat Removal

Valve(s): 2-RH-MOV-2700
2-RH-MOV-2701
2-RH-MOV-2720A
2-RH-MOV-2720B

Category: B

Class: 1 (2-RH-MOV-2700, 2702 and 2720B) and 2 (2-RH-MOV-2720A)

Function: RHR Supply and Return Isolation Valves

Reactor Refueling Justification

These valves are interlocked with Reactor Coolant System pressure such that the valves cannot be opened at elevated reactor coolant system pressure. Overpressurization of the suction line may cause a LOCA. The interlocks cannot be bypassed with normal control circuits. Therefore, the valves cannot be full or part-stroke exercised during power operation. Also, the valve controllers do not allow for a part-stroke exercise test.

The RHR suction valves 2-RH-MOV-2700 and 2701 are located in series. To cycle these valves for testing, the RHR pumps must be secured. The RHR system is required to be operable during cold shutdown and reactor refueling while fuel is in the reactor vessel. Also, failure of the valves to stroke open during testing will cause a loss of RHR system function. According to NUREG-1482, Revision 1, Section 3.1.1(1), loss of system function if a valve fails in a non-conservative position during cycling is adequate justification to defer testing. Therefore, these valves should only be cycled when the reactor vessel is defueled.

The RHR return isolation valves 2-RH-MOV-2720A and B are arranged in parallel. Therefore, the failure of one valve to cycle properly will not disable RHR. However, the discharge valves will be tested at the same interval as the suction valves because the small increase in safety gained by testing them during cold shutdown does not justify the burden of testing and tracking the RHR isolation valves on different test intervals.

Testing Frequency

These valves will be full stroke exercised every reactor refueling.

REACTOR REFUELING JUSTIFICATION RRV-2

System: Service Water

Valve(s):		
	2-SW-MOV-203A	2-SW-MOV-204C
	2-SW-MOV-203B	2-SW-MOV-204D
	2-SW-MOV-203C	2-SW-MOV-205A
	2-SW-MOV-203D	2-SW-MOV-205B
	2-SW-MOV-204A	2-SW-MOV-205C
	2-SW-MOV-204B	2-SW-MOV-205D

Category: B

Class: 3

Function: Recirculation Spray Heat Exchanger Isolation Valves

Reactor Refueling Justification

The recirculation spray heat exchangers are designed to transfer heat from the containment recirculation spray system to the service water system. Four heat exchangers (2-RS-E-1A, B, C and D) are installed in the Unit 2 containment. Each heat exchanger has a service water supply line with a 24" motor operated isolation valve (2-SW-MOV-204A, B, C and D), and a service water return line with a 24" motor operated isolation valve (2-SW-MOV-205A, B, C and D). The supply lines are fed by two service water headers, each having two 30" motor operated isolation valves in parallel (2-SW-MOV-203A and B, and 2-SW-MOV-203C and D). One header feeds heat exchangers 2-RS-E-1A and 1D, and the other header feeds heat exchangers 2-RS-E-1B and 1C. All of the isolation valves are butterfly valves and are normally closed. Upon initiation of containment recirculation spray these, valves automatically open.

The service water supply and return line isolation valves provide the second containment isolation boundary for the recirculation spray heat exchangers. Each heat exchanger loop is considered a closed system within the containment. Therefore, although the isolation valves are designated as containment isolation valves in UFSAR Table 5.2-2, they are not subject to Appendix J leak testing. However, each heat exchanger train is subject to leak testing whenever the system membrane is breached, which normally occurs during maintenance on the system during refueling outages.

REACTOR REFUELING JUSTIFICATION RRV-2 (Cont.)

These large butterfly valves have rubber seats to ensure a leak tight seating surface. An investigation of valve leakage events related to this type of valve revealed that a leakage cause was degraded seats. Foreign material was found in the seats that could cause cutting of the soft seat surface when the valves are exercised. This foreign material is transported to the valve by the normal operation of the circulating water system and the service water system. Frequent exercising of the valves presents more opportunities for this type of seat damage to occur. To reduce damage to the valve seats, the exercise test will be deferred from every three months to every reactor refueling.

The 30" header isolation butterfly valves also have a boundary leakage function. The source of service water for Surry Power Station is the James River. The water in the James River is brackish, and is rich in sediments and marine organisms. This raw water must not leak by the header and supply line isolation valves because the sediment and marine growth would foul the heat exchangers. The 30" header isolation butterfly valves prevent the river water from filling the service water header and supply lines up to valves 2-SW-MOV-204A, B, C and D. The service water headers up to the 24" supply line branches are filled with chemically treated water and maintained in a wet layup condition during normal operation to reduce biological fouling, to reduce the initial flow through the heat exchangers and thus reduce the amount of marine growth torn off the pipe walls, and to reduce air entrapment in the heat exchangers.

There have been times when the 30" valves have leaked to the point that the headers had to be drained to prevent service water from reaching the 204 valves. The 30" valves have rubber seats to ensure a leak tight seating surface. As with the 24" butterfly valves, exercising the 30" valves presents more opportunities for seat damage to occur. To reduce damage to the valve seats, the exercise test will be deferred from every three months to every reactor refueling.

A review of stroke time data collected over a 10 year period revealed that there were no stroke time test failures for any of the twelve valves. Therefore, these valves have proven to be highly reliable, and based on good performance the test interval of every reactor refueling will be adequate to maintain this reliability.

Testing Frequency

These valves will be exercised every reactor refueling.

REACTOR REFUELING JUSTIFICATION RRV-3

System: Main Steam System

Valve(s): 2-MS-RV-201A
2-MS-RV-201B
2-MS-RV-201C

Category: B

Class: 2

Function: Main Steam Header Discharge to Atmosphere Pressure Control Valves

Reactor Refueling Justification

These valves are located above the main steam lines on the top floor of the main steam valve house. The top floor of the main steam valve house is exposed to heat loads from the main steam lines and is a high temperature environment, particularly in the summer time.

If the plant is at power, upstream isolation valves must be closed manually. Then the pressure control valves must be stroked and observed locally when performing the fail-safe test. Given that test personnel must stand near the high temperature main steam lines and valves when manipulating the upstream manual isolation valves, and the high temperatures in the main steam valve house, this test presents a hazardous situation for the test personnel when performed under high temperature conditions. To ensure the safety of test personnel, this test should be performed during reactor refueling outages when the main steam lines and the main steam valve house are cooler.

Testing Frequency

These valves will be exercised closed every reactor refueling.

REACTOR REFUELING JUSTIFICATION RRV-4

System: Chemical and Volume Control

Valve(s): 2-CH-MOV-2373

Category: B

Class: 2

Function: Charging Pump Common Recirculation Header Isolation Valve

Reactor Refueling Justification

This normally open motor operated valve is located on the common recirculation header downstream from the charging pumps. During a small break LOCA event, isolation of the recirculation line is required when the RCS pressure drops below 1000 psig. In this event, valve 2-CH-MOV-2373 would have to close if charging pump 2-CH-P-1B is the running pump and the "H" emergency bus were to fail. Pump 2-CH-P-1B is powered by the "J" emergency bus and the downstream dedicated recirculation line isolation valve 2-CH-MOV-2275B is powered by the "H" bus. With the "H" bus failed, emergency procedure 2-E-1 calls for 2-CH-MOV-2373 to be closed if a response is not obtained when closing 2-CH-MOV-2275B.

This valve should not be stroke time tested to the closed position during normal power operation because failure of the valve in the partially closed or full closed position during testing when the plant is at power would challenge the operability of all three charging (high head safety injection) pumps.

Also, the charging pumps must provide RCP seal injection while the plant is at cold shutdown and the RCS is pressurized. Failure of the valve in the partially closed or full closed position during testing when the plant is at cold shutdown would challenge the operability of all three charging pumps. Therefore, this valve should not be partially stroked or full stroked during power operation or during cold shutdown. Deferring stroke time testing for this valve to each reactor refueling shutdown is consistent with the guidance given in NUREG-1482, Revision 1, Section 3.1.1(1).

Testing Frequency

This valve will be full stroke exercised to the closed position every reactor refueling.

4.8 ALTERNATIVE TESTING FOR NON-CODE VALVES

According to the minutes of public meeting on Generic Letter 89-04, "Paragraph (g) of 10CFR 50.55a requires the use of Section XI of the ASME Code for inservice testing of components covered by the Code. For other components important to safety, the licensee also has the burden of demonstrating their continued operability." The minutes go on to state that, "The Code-required IST program is a reasonable vehicle to provide a periodic demonstration of the operability of pumps and valves not covered by the Code. If non-Code components are included in the ASME Code IST program (or some other licensee-developed inservice testing program) and certain Code provisions cannot be met, the Commission regulations (10 CFR 50.55a) do not require a 'request for relief' to be submitted to the staff. Nevertheless, documentation that provides assurance of the continued operability of the non-Code components through the performed tests should be available at the plant site." Non-Code components are components that are important to safety but are not in systems or portions of systems that are classified ASME Class 1, 2 or 3.

Surry Power Station has elected to include certain non-Code components in the ASME IST program. Where the Code provisions are not met for non-Code components, alternative testing is performed that is adequate to ensure continued operability. The alternate testing is described in this section. There may be other deviations from Code provisions that are not described in this section. For these cases, documentation is available at the plant site.

As indicated in the minutes of public meeting on Generic Letter 89-04, a 'request for relief' need not be submitted for non-Code components. Therefore, the alternative tests described in this section are not 'requests for relief' but are provided for information.

NON-CODE ALTERNATIVE TESTING VNC-1

System: Emergency Generator

Valve(s): 2-EG-43
2-EG-44
2-EG-SOV-200A
2-EG-SOV-200B

Category: B

Class: NC

Function: 2-EG-43, 44 EDG Starting Air/Drive Air Control/ Valves
2-EG-SOV-200A and B Air Start System Solenoid Valves

ISTC Code Requirements
<u>Which Will Not Be Met</u>

For valves 2-EG-43,44, and 12-EG-SOV-200A, B, measure stroke time.

<u>Basis for Alternate Testing</u>

Valves 2-EG-43 and 44 are air pilot valves that open to supply drive air to the EDG air starting motors. These valves along with the air start solenoid valves 2-EG-SOV-200A and B have actuation times considerably under a second and there is no visual reference on the valve to observe the stroke; therefore, the stroke time cannot be measured.

<u>Alternate Testing</u>

These valves will be stroke tested quarterly by observing that the valves perform their intended function, which is to start the diesel engines. Adequate performance of the valves will be verified by recording the time it takes for the diesel engines to reach a predetermined RPM and comparing the time to an acceptance criterion.

Also, the failure of these valves to perform will promptly give a diesel engine trouble alarm. Further investigation would identify problems with the operability of these valves.

NON-CODE ALTERNATIVE TESTING VNC-2

System: EE

Valve(s): 1-EE-SOV-102
1-EE-SOV-103

Category: B

Class: NC

Function: Diesel Fuel Oil Pump Discharge Valves

ISTC Code Requirements
Which Will Not Be Met

Measure stroke time.

Basis for Alternate Testing

These valves are small (1"), fast acting solenoid operated gate valves with no position indication lights and no local visual means of determining stroke time. Valve operability can only be indirectly observed by verifying system operability.

Also, these valves are interlocked with the pumps to open and close upon pump startup and shutdown.

Alternate Testing

These solenoid valves will be stroke tested quarterly by observing that the solenoid valves perform their intended function (fuel oil is flowing to the day tank after the solenoid valve has been opened).

NON-CODE ALTERNATIVE TESTING VNC-3

System: Refer to Table VNC-3

Valve(s): Refer to Table VNC-3

Category: Refer to Table VNC-3

Class: Refer to Table VNC-3

Function: Refer to Table VNC-3

ISTC Code Requirements
<u>Which Will Not Be Met</u>

Measure stroke time

<u>Basis for Alternate Testing</u>

The ASME OM Code, ISTC-5100, describes the exemption of stroke-time testing for power operated control valves whose only safety function is to fail in the safety direction. ISTC-5100 states:

> "All valves shall be tested in accordance with the applicable requirements of ISTC-3000, and as identified below, except for power-operated control valves that only have a fail-safe safety function.
>
> For power-operated control valves that only have a fail-safe safety function, the requirements for valve stroke-time measurement testing, the associated stroke-time test acceptance criteria, and any corrective actions that would result from stroke-time testing need not be met. For these valves, all other applicable requirements of ISTC-3000, and as identified below, shall be met."

The power-operated control valves listed in Table VNC-3 have only a failsafe function. We will be applying ISTC-5100 to the testing of the control valves listed in Table VNC-3.

<u>Alternate Testing</u>

The control valves listed in Table VNC-3 will be tested to the requirements of ISTC-5100.

NON-CODE ALTERNATIVE TESTING VNC-3 (Cont.)

Table VNC-3

Valve Number	System	OM Category	ASME Class	Function
2-FW-FCV-2478 2-FW-FCV-2488 2-FW-FCV-2498	Feedwater	B	NC	Main Feedwater Regulating Valves
2-FW-HCV-255A 2-FW-HCV-255B 2-FW-HCV-255C	Feedwater	B	NC	Main Feedwater Regulating Bypass Valves

NON-CODE ALTERNATIVE TESTING VNC-4

System: EE

Valve(s): 1-EE-RV-104
1-EE-RV-107

Category: C

Class: NC

Function: Diesel Fuel Oil Pump Discharge Relief Valves

ISTC, Appendix I Code Requirements
Which Will Not Be Met

According to ASME OM Appendix I, I-8130(a), "Test Media. Valves shall be tested with the normal system operating fluid and temperature for which they are designed. Alternative liquids and different temperatures may be used, provided the requirements of I-8300 are met." The normal system operating fluid for the diesel fuel oil pump discharge relief valves is diesel fuel oil. The valves are tested with water.

Basis for Alternate Testing

Safety and relief valves used in liquid service are certified by the manufacturers with water in accordance with the requirements of the National Board Inspection Code. This certification process applies to valves used in diesel fuel oil service. Also, there is no correlation from water to diesel fuel oil provided by the manufacturer.

To test the relief valves with diesel fuel oil would require a separate set of test equipment. The current test equipment would be contaminated if fuel oil was used and would not be suitable for use with relief valves that are used in water service.

Testing the set point pressure of the diesel fuel oil pump discharge relief valves with water instead of diesel fuel oil is an industry accepted practice and provides adequate assurance that the relief valves will function properly and protect the diesel fuel oil pump discharge piping.

Alternate Testing

The set pressure test for the diesel fuel oil pump discharge relief valves will be performed with water instead of diesel fuel oil.

5.0 REPORTING OF INSERVICE TEST RESULTS

5.1 PUMP INSERVICE TESTING PROGRAM

A record of each pump will be maintained in accordance with ISTB-9100 that includes the following:

1) the manufacturer and the manufacturer's model and serial or other identification number,

2) a copy or summary of the manufacturer's acceptance test report if available,

3) a copy of the pump manufacturer's operating limits.

A record of inservice test plans will be maintained in accordance with ISTB-9200 that includes the following:

1) category of each pump,

2) the hydraulic circuit to be used,

3) the location and type of measurement for the required test parameters and

4) the method of determining reference values which are not directly measured by instrumentation.

A record of test results will be maintained in accordance with ISTA-9230 that includes the following:

1) equipment identification,

2) date of test or examination,

3) reason for test or examination (e.g., post maintenance, routine inservice test or examination, establishing reference values, etc.),

4) test or examination procedure used;

5) identification of test equipment used;

6) calibration records;

7) values of measured parameters;

8) comparison with allowable ranges of test and examination values, and analysis of deviations;

9) requirement for corrective action; and

10) printed (or typed) name and signature of the person(s) responsible for conducting and analyzing the test and examination.

In accordance with ISTA-9240, the Owner shall maintain records of corrective action that shall include a summary of the corrective actions made, the subsequent inservice test or examination, confirmation of operational adequacy, and the printed (or typed) name and signature of the person(s) responsible for the corrective action and verification of results.

The Pump Inservice Test Program, associated surveillance test procedures and results will be kept at Surry Power Station. They will be available for audit by the NRC.

5.2 VALVE INSERVICE TESTING PROGRAM

A record of each valve will be maintained in accordance with ISTC-9110 that includes the following:

1) the manufacturer and the manufacturer's model and serial or other unique identification number,

2) a copy or summary of the manufacturer' acceptance test report if available,

3) preservice test results and

4) limiting value of full stroke time.

This IST Program Plan meets the requirements of ISTC-9200, Test Plans. A record of test results will be maintained in accordance with ISTA-9230. A record of corrective action will be maintained in accordance with ISTA-9240. The Valve Inservice Test Program, associated surveillance test procedures and results will be kept at Surry Power Station. They will be available for audit by the NRC.

6.0 QUALITY ASSURANCE PROGRAM

The Pump and Valve Inservice Test Program activities will be conducted in accordance with the Technical Specifications for Surry Power Station.