ATTACHMENT 1

SUMMARY OF CHANGES
TO THE SURRY POWER STATION IST PROGRAM

The following summary describes the changes from Revision 4 to Revision 5 of the Surry Power Station Unit 1 Inservice Testing (IST) Program Plan. In addition to describing the changes to the program, the summary indicates the approval mechanism for each relief request given in Sections 3.6 and 4.6.

Revision 4 was submitted on September 30, 1988. Two letters dated February 22, 1989 and January 17, 1990 (Serial Numbers 89-084 and 89-860) proposing changes to the IST Program were subsequently submitted. Based on the September 30, 1988 submittal and the two letters, the NRC issued a Safety Evaluation Report (SER), which was received on August 31, 1990. The SER approved the requests for relief submitted to that date, with certain exceptions. Two letters dated November 28 and 30, 1990 (Serial Numbers 90-546 and 90-546A) were submitted to address these exceptions. More changes to the IST Program were submitted by letters dated January 24, 1991 (Serial Number 90-797) and July 12, 1991 (Serial Number 91-312B). The summary given below presents all changes to the IST Program from Revision 4, dated September 30, 1988, and identifies the corresponding letter if the change had been previously submitted.

The descriptions of changes apply to like components for the Surry Power Station Unit 2 Inservice Testing Program Plan, from Revision 2, dated September 30, 1988 to Revision 3. Additional changes which apply only to the Unit 2 program are provided at the end of the summary for each section. Revision changes are highlighted by a revision bar in the right hand margins of the IST Program Plans.

INSERVICE TESTING PROGRAM FOR PUMPS AND VALVES

1.0 INTRODUCTION

Reference to a meeting with the NRC on March 29 and 30, 1988 was deleted. Reference to the NRC Safety Evaluation Report received in August 1990, along with references to the letters described above were added.

3.0 PUMP INSERVICE TEST PROGRAM DESCRIPTION

3.2 PROGRAM IMPLEMENTATION

Under subsection 5), reference to procedure instructions concerning the removal from service or the return to service of a system was deleted. This information was redundant.

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3.4 PUMP REFERENCE LIST

The main control room air conditioning system pumps 1-VS-P-1A, B and C, and 1-VS-P-2A, B and C have been added to the program. Refer to the discussion in the following section concerning these pumps.

3.5 PUMP INSERVICE TEST TABLE

A discussion and definition of non-Code pumps were added.

A column identifying fixed resistance and variable resistance systems was added.

The abbreviation '2Y' for 24 month test frequency was added.

Pumps that were added to the program are identified by an asterisk *.

Unit 1

Pumps	Comments
1-CH-P-1A,B,C	With the installation of inlet pressure and flow instrumentation, inlet and differential pressure and flow can be measured every quarter. Interim Relief Request P-2, which was submitted by letter dated November 28, 1990, is being withdrawn.
1-SI-P-1A,B	With the installation of inlet pressure instrumentation, inlet and differential pressure can be measured every quarter. Relief Request P-3 is being withdrawn.
1-RS-P-2A,B	The frequency of testing has been changed from quarterly to once every two years per the revised Relief Request P-4. The revised relief request was submitted to the NRC by letter dated November 30, 1990 and resubmitted by letter dated January 24, 1991. The November 30, 1990 letter stated that inlet pressure would be calculated from the pump pit water level. It was approved by the NRC by letter dated March 15, 1991.

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	The January 24, 1991 letter added a request to reduce the frequency of testing from quarterly to once every two years and to reduce the pump run time from five minutes to two minutes. The January 24 relief request has been incorporated into Revision 5 of this program. Relief Request P-4 was approved by the NRC per their letter dated July 31, 1991.
1-RS-P-1A,B	Inlet pressure will be calculated from reservoir level as explained in Relief Request P-5. Interim Relief Request P-18, which was submitted to the NRC by letter dated July 12, 1991, is no longer necessary and is being withdrawn.
1-FW-P-2 1-FW-P-3A,B	With the installation of fully instrumented test loops, these pumps can be tested every quarter. Relief Request P-6 is being withdrawn.
1-RH-P-1A,B	Interim Relief Request P-18, which was submitted to the NRC by letter dated July 12, 1991, is no longer necessary and is being withdrawn. Reference to installing differential pressure gauges was added to Relief Request P-7.
1-CC-P-1A,B	Interim Relief Request P-18, which was submitted to the NRC by letter dated July 12, 1991, is no longer necessary and is being withdrawn. Relief Request P-19 is being submitted to address the problem of adjusting the flow rate to match the reference flow rate. 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 level of control 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-19 describes a method for comparing

test results to a small portion of the pump curve.

1-CH-P-2A,B

With the installation of inlet pressure and flow instrumentation, inlet and differential pressure and flow can be measured every quarter. Interim Relief Request P-9, which was submitted by letter dated November 28, 1990, is being withdrawn.

Relief Request P-21 was added to Revision 5 for these pumps and addresses the requirement for the inlet pressure gauge full scale range be less than three times the reference value. The next section describes the basis and alternate testing given in Relief Request P-21.

1-SW-P-1A,B,C

Relief Request P-11 was revised to delete reference to installing instrumentation and to place the contents of the note regarding inlet pressure into the body of the relief request. Flow and discharge instrumentation was installed in 1991.

According to the SER, calculating inlet pressure from the river level meets the intent of the Code requirements provided the accuracy of this technique is within the limitations of Section XI, Table IWP-4110-1. Therefore, this portion of Relief Request P-11 has been approved by the NRC.

The use of a reference pump curve instead of using reference points on the curve has been added to the request in Revision 5.

1-EE-P-1A,D,F

With the installation of inlet pressure and flow instrumentation, inlet and differential pressure and flow can be measured every quarter. Relief Request P-12 is being withdrawn.

These pumps are non-Code pumps and do not require submittal of a request for relief if certain provisions of the Code cannot be met. This position is given by the NRC in the minutes of public meeting on Generic Letter 89-04. Section 3.7 provides a detailed

explanation on the NRC position and how Surry Power Station will deal with non-Code components.

Instead of a relief request, Non-Code Alternative Testing PNC-1 is presented to explain why certain provisions of the Code cannot be met.

1-VS-P-1A*
1-VS-P-1B*
1-VS-P-1C*

These pumps provide service water to the main control room air conditioning system chillers. This set of pumps services both Units 1 and 2. They have been reclassified from non-class to Section XI Class 3 based upon a review of Regulatory Guide 1.26 criteria and the safety function of the system. These pumps are being added to the IST Program. However, inlet pressure and flow instruments are currently not installed. Until this instrumentation is installed, interim relief from measuring inlet pressure, differential pressure and flow is requested. Refer to the proposed alternate testing in Interim Relief Request P-16.

This relief request was sent to the NRC by letter dated March 22, 1991. On November 5, 1991, the NRC staff requested additional information. Interim Relief Request P-16 was resubmitted on February 26, 1992 and approved by NRC letter dated June 26, 1992.

1-VS-P-2A*
1-VS-P-2B*
1-VS-P-2C*

These pumps circulated chilled water to the main control room and emergency switchgear room air handling units. This set of pumps services both Units 1 and 2. They have been reclassified from non-class to Section XI Class 3 based upon a review of Regulatory Guide 1.26 criteria and the safety function of the system. These pumps are being added to the IST Program.

Establishing a reference flow rate is not practical as explained in Relief Request P-17. This relief request was sent to the NRC

by letter dated March 22, 1991. On November 5, 1991, the NRC staff requested additional information. Relief Request P-17 was resubmitted on February 26, 1992 and approved by NRC letter dated June 26, 1992.

3.6 PUMP TEST PROGRAM RELIEF REQUEST

The following summarizes the changes to the relief requests since Revision 4. It also contains a description of the approval mechanism for each relief request. That is, the summary indicates whether the approval is:

1) through a position in Generic Letter 89-04,

2) through the Surry Safety Evaluation Report (SER) for the IST program received August 31, 1990 or

3) obtained using a relief request that will need approval by a specific date.

The relief requests marked with an asterisk * need approval by the NRC.

Unit 1 Relief Request	Comment
P-1	A minimum value of 0.05 in/sec for the vibration reference value was established for velocity measurements. This change to Relief Request P-1 was submitted by letter to the NRC dated February 22, 1989 (Serial Number 89-084). This change was approved by the NRC in the SER. A three year limit was placed on the use of this minimum limit.
P-2	With the installation of inlet pressure and flow instrumentation, inlet and differential pressure and flow can be measured every quarter. Interim Relief Request P-2, which was submitted by letter dated November 28, 1990, is being withdrawn.
P-3	With the installation of inlet pressure instrumentation for pumps 1-SI-P-1A and B, inlet and differential pressure can be measured every quarter. Relief Request P-3 is being withdrawn.

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P-4 Relief from measuring inlet pressure was submitted for pumps 1-RS-P-2A and B by letter to the NRC dated November 30, 1990. Inlet pressure will be calculated from the water level in the pump pit. Approval for this request for relief was granted by the NRC by letter dated March 15, 1991.

Relief Request P-4 was revised and resubmitted by letter to the NRC dated January 24, 1991. In addition to not measuring inlet pressure, the revised relief request changes the pump run time prior to taking measurements from five minutes to two minutes. This is justified by the limited inventory in the test loop.

Also, the frequency of testing was changed from quarterly to once every two years. For pumps lacking required fluid inventory, (e.g., pumps in dry sumps), a two year test interval is allowed by ANSI/ASME OM (Part 6), An American Standard In-Service Testing of Pumps. The outside recirculation spray pumps are maintained dry. Approval for the changes presented in the January 24, 1991 letter was granted by the NRC by letter dated July 31, 1991.

In Revision 5, reference to maintaining the pumps dry was replaced by a more exact description of the state of the system during normal operation. The outside recirculation spray system lacks fluid inventory during normal operation except for some primary grade water trapped in the bottom of pump pit. The portions of the pump exposed to this standing water are made of stainless steel and are not subject to corrosion.

P-5* Revision 4 of Relief Request P-5 was approved in the NRC's SER. In Revision 5, the request for relief was changed to state that inlet pressure will be calculated from the sump level. The inside recirculation pumps are designed to take suction from a sump. Therefore, measurement of inlet pressure is not practical. Calculating inlet pressure based on reservoir level for deep draft pumps is an acceptable method according to the NRC as evidenced by the approval in the SER of this method for the emergency service water pumps. Refer to Relief Request P-11. However, specific

approval for the revised Relief Request P-5 is still needed.

Also, reference to the high vibration detector and observing the vibration detector in the control room during the quarterly dry bump testing was deleted from the alternative testing section. This removes any concern that reference to observing this detector could be construed to mean that the vibration detector is subject to the instrumentation requirements of Subsection IWP. This vibration detector is part of the system design and was never intended to satisfy Subsection IWP requirements. There is no reduction in safety by eliminating this reference from the relief request.

In addition, the phrase "run dry" was replaced by "bump tested." There is no need to run the pump longer than the time it takes to verify that the pump shaft rotates. This change clarifies the type of test being performed.

P-6 With the installation of fully instrumented test loops, pumps 1-FW-P-2, 3A and B can be tested every quarter. Relief Request P-6 is being withdrawn.

P-7* Revision 4 of Relief Request P-7 for pumps 1-RH-P-1A and B was approved in the NRC's SER. In Revision 5, reference to installing differential pressure gauges was added to the relief request. With the differential pressure gauge installation, inlet pressure will no longer be measured. The change in Revision 5 needs approval from the NRC.

P-9 With the installation of inlet pressure and flow instrumentation, inlet and differential pressure, and flow can be measured every quarter. Interim Relief Request P-9, which was submitted by letter dated November 28, 1990, is being withdrawn.

P-11* The relief request for the emergency service water pumps 1-SW-P-1A, B and C was revised to delete reference to installing instrumentation and to place the contents of the note regarding the calculation of inlet pressure into the body of the relief request.

According to the NRC's SER, calculating inlet pressure from the river level meets the intent of the Code requirements provided the accuracy of this technique is within the limitations of Section XI, Table IWP-4110-1. Therefore, this portion of Relief Request P-11 has been approved by the NRC.

The emergency service water pumps take suction from the James river and discharge into the intake cannel. 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 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 IWP-3100-2. The use of a reference pump curve instead of using reference points on the curve needs to be approved by the NRC.

P-12 With the installation of fully instrumented test loops, pumps 1-EE-P-1A, D and F can be tested every quarter. Relief Request P-12 is being withdrawn.

P-16* No flow or inlet pressure instrumentation is installed for the main control room and emergency switchgear room air condition system pumps 1-VS-P-1A, B or C. Until instrumentation is installed, the alternative testing described in Interim Relief Request P-16 will be performed.

Interim Relief Request P-16 was submitted to the NRC by letter dated March 22, 1991. On November 5, 1991, the NRC staff requested additional

information. Interim Relief Request P-16 was resubmitted on February 26, 1992 and approved by NRC letter dated June 26, 1992.

P-17 Total pump flow for pumps 1-VS-P-2A, B and C is determined by summing the recorded flows from four instruments placed in a parallel configuration. Also, test flow is controlled by throttling with a gate valve, which has proven to be a crude flow control device. 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 practical.

A straight line approximation of the pump curve will be prepared based on two reference test points. Subsequent tests will be conducted within the flow range of the points, and results will be compared to acceptance criteria based on the reference curve and the ranges given in Table IWP-3100-2.

Relief Request P-17 was submitted to the NRC by letter dated March 22, 1991 needs approval by the NRC. On November 5, 1991, the NRC staff requested more information. Interim Relief Request P-16 was resubmitted on February 26, 1992 and approved by NRC letter dated June 26, 1992.

P-18 This interim relief request was submitted to the NRC by letter dated July 12, 1991 and it dealt with flow instrumentation that exceeded the Code required accuracy of ± 2%. This relief request is no longer necessary and is being withdrawn.

P-19* During testing of the component cooling water pumps 1-CC-P-1A and B, 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 level of control 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.

As an alternate test method, two reference points of flow versus differential pressure will be established from the reference test for each pump. A straight line approximation will be used to

determine differential pressure reference points as a function of flow between the two test points.

During the subsequent tests, test flow will be throttled as close as practical to the reference flow value. The test flow must fall between the two reference points used to establish the straight line approximation. The test flow and the corresponding differential pressure will be compared to either graphical and/or tabular acceptance criteria based on the straight line approximation of the reference pump curve.

P-20* If the pump being tested is in operation as a result of plant or system needs, it is unreasonable to reconfigure system lineups just to provide for the measurement of static inlet pressure. Inlet pressure prior to pump startup is not a significant parameter needed for evaluating pump performance or condition.

When performing a test on a pump that is already in operation, inlet pressure will only be measured during pump operation.

P-21* The inlet pressure gauges for the boric acid transfer pumps have a full scale range of 0 to 15 psig. The full scale range was determined by evaluating the static pressure reference values present at the suction side of the pumps and applying the three times the reference value requirement of IWP-4120. 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 requirement for dynamic inlet pressure.

Using a lower range pressure gauge (i.e. 0 to 5 psig) would meet the three times requirement for dynamic inlet pressure. However, the lower range gauge could not measure static inlet pressure and the lower range gauges would be repeatedly exposed to an overrange 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, a differential pressure can be determined that exceeds the accuracy requirements for differential pressure. Each boric acid transfer pump inlet pressure gauge (0 to 15 psig range) and 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 yields an error of 2.6 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 pressure instrument could be as high as 1.8%, which equates to a 2.97 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 pressure instrument loop accuracies remain at or below 1.8%.

The inlet pressure gauges with a full scale range of 0 to 15 psig will be used to measure both static and dynamic inlet pressures. Also, the loop accuracies for the inlet and discharge pressure gauges will be maintained at or below an accuracy of 1.8% to ensure that the differential pressure error is below that the differential pressure error allowed by the Code.

Unit 2 Relief Request	Comment
P-2	With the installation of inlet pressure and flow instrumentation for pumps 2-CH-P-1A, B and C,

inlet pressure, differential pressure and flow can be measured every quarter. Relief Request P-2 is being withdrawn.

P-9 With the installation of inlet pressure and flow instrumentation for pumps 1-CH-P-2C and D, inlet pressure, differential pressure and flow can be measured every quarter. Relief Request P-9 is being withdrawn.

3.7 ALTERNATIVE TESTING FOR NON-CODE PUMPS

This section is being added to deal with non-Code pumps which are in the IST program but cannot be tested to the provisions of the Code. As indicated in the minutes of public meeting on Generic Letter 89-04, a 'request for relief' need not be submitted for these non-Code pumps. Therefore, the alternative tests described in this section are not 'requests for relief' but are provided for information.

The procedure of providing alternative testing descriptions instead of requests for relief for non-Code components begins with Revision 5. Requests for relief that were approved by the NRC in Revision 4 for non-Code components will remain in place.

Non-Code Alternative Testing	Comments
PNC-1	The diesel fuel oil transfer 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 five 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 Section XI test data. The measurement of Section XI quantities will begin when the pump automatically starts on a low

tank level signal.

The alternative testing for vibration and temperature remains unchanged from Revision 4 and is described in Relief Request P-1.

The diesel fuel oil transfer pumps are positive displacement pumps. One characteristic of positive displacement pumps is that the discharge pressure is independent of inlet pressure. Therefore, to determine pump degradation, only discharge pressure need be measured and compared to the acceptance criteria. The ASME OM Code-1990, Subsection ISTB, Table ISTB 5.2-1, which is replacing Section XI, Subsection IWP, requires that only discharge pressure need be measured for positive displacement pumps.

4.0 VALVE INSERVICE TEST PROGRAM DESCRIPTION

4.1 PROGRAM DEVELOPMENT PHILOSOPHY

The statement, "The requirements of Section XI are not interpreted as superseding or adding to any limiting condition for operation" was deleted.

This program change was submitted by letter to the NRC dated November 28, 1990

4.2 PROGRAM IMPLEMENTATION

The word "operability" was replaced by "performance." The new statement reads, "If maintenance cannot be deferred to cold shutdown, then an engineering evaluation must be performed prior to the maintenance being performed to determine the effect on valve performance. If the evaluation shows that the performance of the valve will not be affected, then no post maintenance testing will be required."

The intent of this paragraph is to describe the process for determining the applicability of Section XI, Paragraph IWV-3200 in cases where post maintenance testing cannot be performed before returning a component to service. The burden is on the engineer preparing the evaluation to determine that performance is not affected.

Also, reference to testing safety and relief valves in accordance with ASME PTC-25.3-1976 was deleted.

The above program changes were submitted by letter to the NRC dated November 28, 1990.

A discussion of check valve disassembly and inspection as an alternative testing method was added to this section in Revision 5.

4.4 VALVE INSERVICE TEST TABLES

A discussion and definition of non-Code valves were added.

Reference to Technical Specification Section 3.1.C, Reactor Coolant System Leakage, was added.

Reference to reactor coolant leakage (RCL) valve was deleted.

Valves that were added to the program are identified by an asterisk *. Valves are listed in alphanumeric order for Revision 5. In Revision 4, some valves were not listed in alphanumeric order, either they were grouped by system function or the valve numbers did not have the leading zeros necessary for a proper computerized sort.

Unit 1 Valve Number	Comment
1-AS-RV-1322	This valve provides over-pressure protection for the CVCS batching tanks in the event that the respective steam pressure regulator fails open. This is not a safety-related function. Program Change: The valve was deleted from the program.
1-CC-181*,185*	These manual RHR heat exchanger isolation valves are normally lined up with one closed and the other throttled. In the event plant conditions require

	cooldown, it is desirable to maintain the inherent system redundancy by having the capability of using either RHR heat exchanger for shutdown cooling. Program Change: The valves were added to the program to be tested open and closed every cold shutdown. Refer to Cold Shutdown Justification CSV-26.
1-CC-805*	This valve opens to provide a flow path from the component cooling system to the charging pump seal water surge tank as required to maintain the level in the surge tank. Program Change: The valve was added to the program to be tested open every cold shutdown. Refer to Cold Shutdown Justification CSV-30.
1-CC-1105*,1106* 1-CC-1107*,1188* 1-CC-1189*,1190*	These check valves were added to the component cooling water supply line to the reactor coolant pump thermal barriers to prevent gross leakage in the event of a leak in the thermal barrier. The only way to verify closure is to perform a local back pressure test. They are located inside containment. Therefore, they cannot be tested every quarter. The small increase in safety gained by testing these valves closed every cold shutdown does not justify the burden of performing a local leak rate/back pressure test on the more frequent interval. Program Change: The valves were added to the program to be tested to the closed position every reactor refueling. Refer to Relief Request V-45.
1-CC-HCV-100	This valve closes to prevent radioactive release outside containment in the event that component cooling piping inside containment is damaged. Since component cooling is a closed system, this would

	constitute a passive failure situation. Therefore, this valve is not required to be tested per the Section XI program. Program Change: The valve was deleted from the program.
1-CC-LCV-101*	This valve opens to maintain the level in the charging pump seal cooling water surge tank. It must close to prevent overflowing the surge tank and possibly draining the surge tank through the overflow line. Program Change: The valve was added to the program to be tested open and closed every cold shutdown. Refer to Cold Shutdown Justification CSV-31. Also, establishing alert limits for valve stroke times is not practical for this valve as discussed in Relief Request V-47.
1-CC-RV-111A,B 1-CC-RV-116A,B,C 1-CC-RV-118	These relief valves provide thermal relief for various heat exchangers and components and do not perform specific safety functions. Program Change: The valves were deleted from the program.
1-CC-RV-112A* 1-CC-RV-112B* 1-CC-RV-112C*	These relief valves protect the CC piping associated with containment penetrations 12, 13 and 14. Program Change: The valves were added to the program to be setpoint tested.
1-CC-RV-138A* 1-CC-RV-138B* 1-CC-RV-138C*	These relief valves protect the CC piping and shroud cooling coils from overpressure in the event of thermal heating when the component cooling lines are isolated.

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	Program Change: The valves were added to the program to be setpoint tested.
1-CC-RV-150*	This relief valve protects the CC piping associated with containment penetration 28.
	Program Change: The valve was added to the program to be setpoint tested.
1-CC-TV-107	This valve isolates the RCP thermal barriers and the RCP seals if closed.
	Program Change: The valve was deleted from Cold Shutdown Justification CSV-6 and added to CSV-27.
1-CC-TV-109A,B	These containment isolation valves trip closed on a Phase I containment isolation signal. The valves must open to establish RHR heat exchanger cooling.
	Program Change: Open test was added to the program.
1-CC-TV-120A* 1-CC-TV-120B* 1-CC-TV-120C*	In the event of a thermal barrier heat exchanger tube rupture, these valves close when excessive flow is sensed to protect the downstream piping and containment penetration 8 from overpressure.
	Program Change: The valves were added to the program to be tested closed every cold shutdown. Refer to Cold Shutdown Justification CSV-27.
1-CH-76,92	The boric acid transfer pumps are lined up to dedicated and mutually isolated paths. There is no reliance on the pump discharge check valves to close in order to conserve inventory if one of the pumps does not operate.
	Also, with the installation of flow instrumentation, these valves can be full flow tested every three months.

They were deleted from Cold Shutdown Justification CSV-19.

Program Change: The closure test was deleted. These valves will be full flow tested every three months.

1-CH-225*
1-CH-228*
1-CH-229*

These valves are in the manual emergency boration path. Credit is taken for having this path available for boron injection when other paths are not available.

Program Change: These valves were added to the program to be tested to the open position every cold shutdown. Refer to Cold Shutdown Justification CSV-19.

1-CH-230*

Under accident conditions when the upstream motor operated valves are closed, the check valve in the charging pump supply line from the volume control tank must open to provide a recirculation pathway for the charging pump minimum flow lines.

Program Change: The valve was added to the program to be tested open every three months.

1-CH-256
1-CH-265
1-CH-274

With the installation of flow instrumentation, these valves can be full flow tested every three months. Relief Request V-40 is being withdrawn.

Program Change: These valves will be full flow tested every three months.

1-CH-FCV-1113A*,B*
1-CH-FCV-1114A*,B*

These valves are in the manual emergency boration path. Credit is taken for having this path available for boron injection when other paths are not available.

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	Program Change: Valve 1-CH-FCV-1113A was added to the program to be tested to the open position every three months, and valves 1-CH-FCV-1113B and 1114A and B were added to the program to be tested to the closed position every three months.
1-CH-HCV-1200A,B,C	These letdown orifice isolation valves no longer provide a containment isolation function. Containment isolation is provided by a new valve, 1-CH-TV-1204A. Program Change: These valves were deleted from the program.
1-CH-LCV-1115B,D	These valves open upon receipt of a SI signal. The cold leg recirculation flow path is initiated when RWST level decreases to less than 18%. The valves are then required to close to provide RWST isolation from charging pump suction. Program Change: Close test was added to the program.
1-CH-LCV-1460A*,B*	These normally open letdown isolation valves are closed in the event of an accident where continued letdown flow is undesirable and automatically close on low pressurizer level to retain reactor water inventory. Program Change: The valves were added to the program to be tested closed every cold shutdown. Refer to Cold Shutdown Justification CSV-15.
1-CH-MOV-1267A* 1-CH-MOV-1269A* 1-CH-MOV-1270A*	These normally open charging pump suction isolation valves remain open following an accident to provide flow paths from the RWST and LHSI pumps to each of the charging pumps during an accident and for post-accident recirculation. Also, to effect the

	transfer to the recirculation mode, they are cycled closed then open. Program Change: The valves were added to the program to be tested open and closed every three months.
1-CH-MOV-1267B* 1-CH-MOV-1269B* 1-CH-MOV-1270B*	These normally open charging pump suction isolation valves remain open following an accident to provide flow paths from the LHSI pumps to each of the charging pumps during post-accident recirculation. They are passive, however, the valve open position is verified by remote indication. Program Change: The valves were added to the program to be tested for verification of remote position indication.
1-CH-MOV-1275A,B,C	The charging pump recirculation valves must open if RCS pressure increases to greater than 2000 psig and must close if RCS pressure decreases to less than 1275 psig with the reactor coolant pumps stopped. Program Change: Open test was added to the program.
1-CH-MOV-1286A* 1-CH-MOV-1286B* 1-CH-MOV-1286C* 1-CH-MOV-1287A* 1-CH-MOV-1287B* 1-CH-MOV-1287C*	These valves are normally open during power operation to provide safety injection flow paths. The valves must be closed for non-running charging pumps when establishing redundant cold leg injection flow paths. Program Change: The valves were added to the program to be tested to the open and closed positions every three months.

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1-CH-MOV-1373	This valve is the charging pump recirculation header isolation valve. It is normally open and is required to remain open during normal and accident operation. The valve does not have to be repositioned during an accident. Therefore, it is passive and no exercise test is required. Program Change: The exercise test was deleted.
1-CH-RV-1209	This relief valve provides overpressure protection for the low pressure letdown piping and components downstream of the non-regenerative heat exchangers but does not have any specific function with respect to plant shutdown or accident mitigation. Program Change: The valve was deleted from the program.
1-CH-RV-1257	This relief valve protects the volume control tank and associated components from overpressure. It performs no specific safety function related to accident mitigation because the VCT is typically isolated from the charging pump suction headers during an accident. Program Change: The valve was deleted from the program.
1-CH-TV-1204A* 1-CH-TV-1204B*	Valve number 1-CH-TV-1204 was changed to 1-CH-TV-1204B. 1-CH-TV-1204A was added upstream (inside containment) of 1-CH-TV-1204B. These valves now provide containment isolation for the letdown control lines from the regenerative heat exchanger. Program Change: The valves were added to the program as containment isolation valves to be tested to the closed position. They can only be tested during cold shutdown as explained in the revised Cold Shutdown Justification

CSV-15.

1-CS-13,24 1-CS-105,127	These check valves cannot be tested to the open position by using flow. 1-CS-13 and 24 do have external weight-loaded lever arms. However, the weight position and lever arm angle are subject to adjustment to ensure that the valves open when a pressure differential using air is applied once every refueling cycle as required by T.S. 4.5.C. Therefore, torque measurements would not be repeatable. Valves 1-CS-105 and 127 do not have lever arms and cannot be externally stroked. These four valves will be disassembled as allowed by Generic Letter 89-04. Also, valves 1-CS-105 and 127 must close in the event that one of the containment spray pumps fails to start. In that instance, these valves prevent the running pump from feeding the three spray headers - only its dedicated header and the common header are served. Program Change: These valves were deleted from Cold Shutdown Justification CSV-23 and added to Relief Request V-43. Also, a closure test was added for 1-CS-105 and 127.
1-CS-MOV-100A*,B*	These containment spray pump suction isolation valves are normally open and receive an open signal on a hi-hi signal (initiated as containment pressure increases) from the Consequence Limiting Safeguards (CLS) system. During quarterly testing of the CS system, these valves are closed. The CS system is assumed to be inservice during the test. Therefore, these valves would have to open if they received a hi-hi CLS. The valve open position is verified by remote indication. Program Change: The valves were added to the program to be tested to the open

	position every three months and for verification of remote position indication every 24 months.
1-CS-MOV-103A,B 1-CS-MOV-103C,D	The motor operators for these valves were de-energized and the valves locked in the open position. They no longer serve a safety function. Therefore, they were removed from the IST Program. Program Change: These valves were deleted from the IST Program.
1-CW-117*	This valve is located on a line that runs from the discharge tunnel to the discharge canal. The valve is opened following the initiation of an event to reduce the vacuum in the discharge tunnel which reduces the flow rate through the essential heat exchangers. Therefore, cooling water inventory is conserved in the intake canal. Program Change: The valve was added to the program to be tested to the open position every reactor refueling. Refer to non-Code alternative test description VNC-2.
1-EE-15,28,35	Flow instrumentation has been installed. Therefore, these valves can be full flow tested. Program Change: Relief Request V-38 is being withdrawn.
1-EE-RV-103*,106* 1-EE-RV-108*	These valves open to provide overpressure protection for the diesel fuel oil transfer pumps if a discharge solenoid valve fails to open. Program Change: The valves were added to the program to be setpoint tested.
1-EG-40,42 3-EG-40,42	These valves must be leak tight to prevent depressurization of the diesel generator air start accumulators.

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	Program Change: These valves were changed to ASME Category AC and a leakage test was added. A piping modification will be necessary to allow for leak testing.
1-EG-43*,44* 3-EG-43*,44*	These air pilot valves open to supply drive air to the emergency diesel generators. Program Change: The valves were added to the program to be tested open. These valves are adequately tested during diesel testing as described in non-Code alternative test description VNC-3.
1-EG-45*,46* 3-EG-45*,46*	These check valves close to prevent opening the air start valves before the starting air motor pinion gears are fully engaged. They open to ensure that the air motor pinions remain engaged when the air motors are operating. Program Change: The valves were added to the program to be tested open and closed. These valves are adequately tested during diesel testing as described in non-Code alternative test description VNC-3.
1-EG-SOV-100A,B 3-EG-SOV-300A,B	These valves have no remote position indicators as noted in the valve table of Revision 4. Therefore, a valve position indication verification (VP) is not applicable. Also, these valves must close and vent to realign the air start valves and air starting motor pinions for restart. Program Change: The valve position indication verification (VP) was deleted and a closure test added.
1-FW-144,159,174	These check valves open to ensure minimum recirculation flow through the

	auxiliary feedwater pumps. Since flow through these lines is limited by in line orifices and the head on these lines is merely that of the emergency condensate tank, there is no adverse operational consequence to performance if these valves fail to prevent reverse flow. Program Change: The closure test was deleted.
1-FW-309,310	The upstream motor operated cross connect valves are normally closed. Therefore, these check valves have no safety function to close. Program Change: The closure test was deleted.
1-FW-FCV-1478* 1-FW-FCV-1488* 1-FW-FCV-1498* 1-FW-HCV-155A* 1-FW-HCV-155B* 1-FW-HCV-155C*	The main feedwater regulating valves and regulating bypass valves must close in an accident to prevent overfeeding the steam generators. Program Change: The valves were added to the program to be full stroked tested closed every cold shutdown and part stroke tested every three months. Refer to Cold Shutdown Justification CSV-28.
1-FW-MOV-160A,B	The valve numbers were changed from 1-FW-MOV-260A,B to 1-FW-MOV-160A,B and the drawing reference was changed from 11448-CBM-068A to 11548-CBM-068A. Program Change: The valve and drawing numbers were changed as noted above.
1-GW-RV-107	This valve opens to protect the gaseous waste system from a pressure transient. However, this function is not considered a reactor safety-related function and does not come under the scope of the

	program. Program Change: The valve was deleted from the program.
1-GW-TV-100 to 107 1-GW-TV-111A,B	These valves are verified to the full closed position during the Appendix J, Type C leak tests. The Appendix J test procedure has been modified to verify the open position by opening the valve after the test volume has been pressurized and then observing the pressure decrease. Based on the use of this test method as a positive means for verifying valve position, Relief Request V-33 was no longer necessary and was withdrawn. This change was transmitted to the NRC by letter dated January 17, 1990. Program Change: Relief Request V-33 was withdrawn.
1-IA-704	Program Change: This valve was moved from the Unit 2 IST Program to the Unit 1 IST Program.
1-IA-928*,947* 1-IA-948*,949* 1-IA-952*,953*	Valves 1-IA-928, 947 and 952 must close and 1-IA-948, 949 and 953 must open to ensure that an adequate supply of bottled air is directed to the air operated valves (1-RC-PCV-1455C and 1456, and 1-MS-SOV-102A and B). These valves cannot be tested every three months but will be tested every reactor refueling as explained in Non-Code Alternative Testing VNC-1. Also, valves 1-IA-928, 947 and 952 must be leak tight to protect the air bottle supply. Therefore, they must be leak tested. Program Change: These non-Code valves were added to the program to be tested to the positions described above every reactor refueling. Refer to Non-Code Alternative Testing VNC-1.

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1-IA-938,939	These containment isolation valves are leak tested every reactor refueling. The small increase in safety gained by testing these valves closed every cold shutdown does not justify the burden of performing a local leak rate/back pressure test on the more frequent interval. Program Change: These valves were deleted from Cold Shutdown Justification CSV-20 and added to Relief Request V-44.
2-IA-446	Program Change: This valve was moved to the Unit 2 program.
1-IA-RV-114*,115*	These valves protect the PORV air supply piping should a pressure control valve fail to open or if there is a temperature transient in containment. Program Change: The valves were added to the program to be setpoint tested.
1-MS-87*,120*,158*	These manual valves must be closed in the event of a steam generator tube rupture to provide isolation of the steam supply from the affected steam generator to the turbine driven auxiliary feedwater pump. Program Change: These valves were added to the program to be tested to the closed position every three months.
1-MS-HCV-104	The main steam decay heat release control valve opens to provide a path for steam from each steam generator in the event that the main steam dumps to the condensers cannot be used. They fail closed on loss of air. No credit is taken for the operation of these valves in an accident, thus testing is not required. Program Change: The valve was deleted from the IST Program.

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1-MS-NRV-101A,B,C	These mainsteam non-return stop check valves are currently tested closed by running the stem down onto the disk. The NRC letter dated September 26, 1991 entitled, "Supplement to Minutes of the Public Meetings on Generic Letter 89-04," indicates that if the stop check valve must close upon cessation of flow, running the stem down onto the disk is not an adequate test. Alternative test methods are being reviewed by Virginia Electric and Power Company. Also, these valves have remote position indication. Program Change: Cold Shutdown Justification CSV-2 was replaced by Interim Relief Request V-48 and valve position indication verification was added. Interim Relief Request V-48 was sent to the NRC by letter dated February 21, 1992. Note that the Relief Request number was changed from V-50 in the letter to V-48 in this program.
1-MS-NRV-102A,B,C	These manual stop check valves are on the main steam decay heat release lines are normally closed with the valve stem down on the disk. No credit is taken for the operation of these valves in an accident. Therefore, they are passive and testing is not required. Program Change: The valves were deleted from the IST Program.
1-MS-RV-101A,B,C	These mainsteam header discharge to atmosphere power operated relief valves fail to the closed position. Also, these valves can be tested during normal operation by isolating the upstream manual isolation valves. Program Change: A fail safe test was added. Cold Shutdown Justification CSV-3 was withdrawn and these valves will be tested to the open and closed positions every three months. Also, establishing alert limits for valve stroke times is not practical for these valves as

	discussed in Relief Request V-47.
1-MS-PCV-102A,B	These valves are the isolation valves from main steam to the turbine driven auxiliary feedwater pump. They must close to isolate the steam generators during an uncontrolled depressurization of all steam generators. Also, the valve numbers were changed from 1-MS-SOV-102A and B to 1-MS-PCV-102A and B. Program Change: Closure test was added to the program.
1-MS-TV-120*	This main steam supply trip valve to the turbine driven auxiliary feedwater pump opens to provide a flow path for steam from the steam generators to the AFW pump turbine. Program Change: The valve was added to the program to be tested to the open position every three months.
1-RC-160	This containment isolation valve is leak tested every reactor refueling. The small increase in safety gained by testing this valve closed every cold shutdown does not justify the burden of performing a local leak rate/back pressure test on the more frequent interval. Program Change: This valve was deleted from Cold Shutdown Justification CSV-20 and added to Relief Request V-44.
1-RC-HCV-1556A,B,C	The leakage from the RCS through the valve seats of these valves is inconsequential to the fulfillment of the function of these valves. These valves provide an alternate charging path to the RCS during reactor operations. The upstream pressure is provided by the charging pump and is normally in excess of reactor coolant pressure. Therefore, any seat leakage of these valves would result in leakage into the RCS. For these reasons,

	leakage through these valves is not critical to the RCS integrity and these valves should be Category B. Program Change: The ASME category was changed from A to B, the leakage test requirement was deleted and Relief Request V-30 was withdrawn.
1-RC-MOV-1535 1-RC-MOV-1536	These valves are gate type valves instead of butterfly types as given in the valve table for Revision 4. Program Change: Valve type was changed from BFLY to GATE.
1-RC-SOV-101A1,2 1-RC-SOV-101B1,2	The pressurizer vent valves are opened as necessary to vent non-condensable gases. This function is a backup to that of the PORV's and thus is not relied upon in an accident. Program Change: The valves were deleted from the program.
1-RH-FCV-1605 1-RH-HCV-1758	These valves have no remote position indicators as shown in the valve table for Revision 4. Therefore, a valve position indication verification (VP) is not applicable. Program Change: The valve position indication verification (VP) was deleted. Also, establishing alert limits for valve stroke times is not practical for these valves as discussed in Relief Request V-47.
1-RH-MOV-100	The operator for this valve is disconnected from its power source and not capable of manipulating the valve or providing remote position indication. Program Change: The valve position indication verification (VP) was deleted.

1-RH-MOV-1700 1-RH-MOV-1701 1-RH-MOV-1720A 1-RH-MOV-1720B	These valves are normally closed during plant operation. There is no requirement for the valves to change position to perform their closed function, thus they are passive in the closed position. Also, leakage from the RCS through the valve seats of these valves is inconsequential to the fulfillment of the function of these valves. Any leakage from the RCS will be captured by the letdown system if the path from RHR to normal letdown is open (i.e., 1-RH-HCV-1142 is open during normal operation), or by the PRT if the path is closed and the RHR system relief valve (1-RH-RV-1721) lifts. In either case, the amount of leakage will be contained. For these reasons, leakage through these valves is not critical to the RCS integrity and these valves should be Category B. Program Change: The closed test was deleted from the program. Also, the ASME category was changed from A to B, the leakage test requirement was deleted and Relief Request V-30 was withdrawn.
1-RM-3	This containment isolation valve is leak tested every reactor refueling. The small increase in safety gained by testing this valve closed every cold shutdown does not justify the burden of performing a local leak rate/back pressure test on the more frequent interval. Program Change: This valve was deleted from Cold Shutdown Justification CSV-20 and added to Relief Request V-44.
1-RS-11,17	These valves cannot be tested to the open position by using flow. They do have external weight-loaded lever arms. However, the weight position and lever

	arm angle are subject to adjustment to ensure that the valves open when a pressure differential using air is applied once every refueling cycle as required by T.S. 4.5.C. Therefore, torque measurements would not be repeatable. Program Change: These valves were deleted from Cold Shutdown Justification CSV-23 and added to Relief Request V-43.
1-RS-46*,52*	These normally locked closed manual valves are containment isolation valves and are designated for leak testing per 10CFR50, Appendix J. Program Change: These valves were added to the program to be leak tested and were added to Relief Request V-39.
1-RT-2*,6*,21* 1-RT-25*,40*,44*	These normally locked closed manual valves are containment isolation valves and are designated for leak testing per 10CFR50, Appendix J. Program Change: These valves were added to the program to be leak tested.
1-SI-79,82,85 1-SI-241,242,243	The alternate testing in Relief Request V-27 was changed from disassembly to acoustic monitoring. Using low head pump flow, the cold leg injection check valves will be acoustically monitored for the disk striking the back seat every reactor refueling. The data will be analyzed to show that the disk struck the back seat, thus verifying that the disk stroked to the full open position. Program Change: The alternate testing in Relief Request V-27 was changed from disassembly to acoustic monitoring and the frequency of closure testing for these valves was clarified by stating that they would be tested to the closed position every reactor refueling per

	Technical Specification Table 4.1-2A.
1-SI-88,91,94 1-SI-238,239,240	These check valves provide double isolation between the RCS and the high head safety injection lines. Leakage from the RCS through the valve seats of these valves is inconsequential to the fulfillment of the safety function of these valves. The piping upstream of these valves is capable of retaining RCS pressure and contains an additional check valve and normally closed MOV. The MOV is Type C tested for leakage in accordance with 10 CFR 50, Appendix J. Leakage through this series of check valves would find its way to the MOV. Leakage through the MOV would eventually end up in the charging pump discharge header. For these reasons, leakage through these valves is not critical to the RCS integrity and these valves should be Category C. Also, the alternate testing described in Relief Request V-27 was changed from disassembly to full flow testing using clamp on ultrasonic flow instrumentation every reactor refueling. Program Change: The ASME category was changed from AC to C, the leakage test requirement was deleted and Relief Request V-30 was withdrawn. Also, reference to full stroke testing every reactor refueling was added to Relief Request V-27.
1-SI-128	Program Change: The ASME Class was changed from 2 to 1.
1-SI-107,109 1-SI-128,130 1-SI-145,147	These check valves provide isolation between the RCS and the SI accumulators. Leakage through these valves will result in increased pressure in the piping upstream where the piping class is acceptable to retain RCS pressure. Further leakage would result in a

detectable increase in accumulator level or leakage to the RHR system. For these reasons, leakage through these valves is not critical to the RCS integrity and these valves should be Category C.

Also, because there are two valves in series, credit for closure need only be taken for the downstream check valves 1-SI-109, 130 and 147.

Program Change: The ASME category was changed from AC to C, the leakage test requirement was deleted and Relief Request V-30 was withdrawn. Also, the closure test requirements were deleted for the upstream check valves 1-SI-107, 128 and 145. Reference to closure testing for valves 1-SI-109, 130 and 147 was removed from Relief Request V-26 and placed in Cold Shutdown Justification CSV-29 and the test frequency was changed from once every three months to cold shutdown.

Testing experience has shown that the flow from both RHR pumps can drive the disk of valves 1-SI-130 and 147 to the back seat. This impact event will be recorded using acoustic monitoring instrumentation for both valves each reactor refueling. The data will be analyzed to show that the disk struck the back seat, thus verifying that the disk stroked to the full open position. Relief Request V-26 was revised to describe this alternate testing.

1-SI-201*,207*

These LHSI seal injection line check valves must close to prevent recirculation of contaminated water to the RWST during LHSI pump post-accident operation.

Program Change: The valves were added to the program to be tested to the closed position every three months.

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1-SI-234	This containment isolation valve is leak tested every reactor refueling. The small increase in safety gained by testing this valve closed every cold shutdown does not justify the burden of performing a local leak rate/back pressure test on the more frequent interval. Program Change: This valve was deleted from Cold Shutdown Justification CSV-20 and added to Relief Request V-44.
1-SI-235,236,237	These check valves open to provide flow paths for safety injection and recirculation from the high head safety injection pumps to the reactor coolant system cold legs. The high head safety injection pumps remain running during small and large break events. Therefore, flow will continue through these lines during cold leg injection. During the change over from cold leg injection to hot leg injection, which occurs several hours into the accident, the upstream cold leg injection path motor operated valves are closed and the hot leg motor operated valve is opened. The check valves 1-SI-235, 236 and 237 have no function to close during the change over sequence. These check valves are one of four valves in series that provide isolation between the RCS and the high head safety injection discharge header. A pressure isolation valve (1-SI-79, 82 and 85) is located between these valves and the RCS and is tested for leakage in accordance with Technical Specifications. The piping upstream of these valves is capable of retaining RCS pressure and contains an additional check valve and a normally closed MOV. The MOV is Type C tested for leakage in accordance with 10 CFR 50, Appendix J. Leakage through these valves in series would find its way to the MOV. Leakage

	through the MOV would eventually end up in the charging pump discharge header. For these reasons, leakage through valves 1-SI-235, 236 and 237 is not critical to the RCS integrity and these valves should be Category C. Program Change: The ASME category was changed from AC to C, the leakage test requirement was deleted and Relief Request V-30 was withdrawn. Also, the closure test was deleted.
1-SI-301*,311*	These normally locked closed manual valves are containment isolation valves and are designated for leak testing per 10CFR50, Appendix J. Program Change: These valves were added to the program to be leak tested and were added to Relief Request V-39.
1-SI-HCV-1853A 1-SI-HCV-1853B 1-SI-HCV-1853C 1-SI-HCV-1936	These valves are normally closed and are only required to open from time to time to adjust the pressure within the respective SI accumulators. Following an accident the accumulator discharge valves (1-SI-MOV-1865A, B and C) will be closed prior to depressurization to preclude injecting large quantities of nitrogen into the RCS. The alternate method of preventing nitrogen injection requires using these valves to vent the accumulators. However, since these valves require instrument air to open, it is assumed that this option is not available. Therefore, no credit is taken for venting the accumulators with these valves. Program Change: These valves were deleted from the program.
1-SI-MOV-1842 1-SI-MOV-1869A,B	T. S. 3.2.B.1 states that one charging pump from the plant in cold shutdown

	must be available for operation if the other plant is operating. Further review of the system revealed that the valves could be stroked during cold shutdown. Therefore, Relief Request V-23 was withdrawn and replaced by Cold Shutdown Justification CSV-25. This change was transmitted to the NRC by letter dated January 17, 1990. Program Change: Relief Request V-23 was withdrawn and replaced by Cold Shutdown Justification CSV-25.
1-SI-MOV-1860A,B	These valves are normally closed valves and remained closed when required to provide containment isolation. Therefore, these valves are considered passive in the closed position. Program Change: The closure test was deleted.
1-SI-MOV-1863A,B	These valves may be closed to direct low head SI pump recirculation flow directly to the RCS instead of to the high head SI pumps. Program Change: Close test was added to the program.
1-SI-MOV-1865A,B,C	These SI accumulator isolation valves remain open with power to their motor controllers removed during plant operation in accordance with Technical Specification 3.3.A.10. Following an accident where gross blowdown of the RCS does not occur and there is insufficient inventory of water in the containment sump for recirculation, these valves would be closed prior to de-pressurization to preclude injecting large quantities of nitrogen into the RCS. Program Change: Close test was added to the program.

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1-SI-MOV-1885A,B 1-SI-MOV-1885C,D	These valves are normally open. They automatically close during recirculation mode transfer to prevent flow to the RWST. It is unlikely that these valves would be re-opened. Therefore, they are passive in the open position. Program Change: Open test was deleted from the program.
1-SI-MOV-1890C	The low head safety injection pump to cold leg discharge isolation valve must open to allow change over from hot leg to cold leg injection after an accident. Program Change: Open test was added to the program.
1-SI-RV-1858A 1-SI-RV-1858B 1-SI-RV-1858C	These valves protect the SI accumulators from overpressure. The accumulator system is a passive system and not subject to operational pressure transients. Specifically, inleakage from the RCS does not present a significant potential for overpressurization since the volume in the tanks allows sufficient time for operator action to prevent exceeding design limits. If inleakage were so great as to preclude operator action, then the plant would be shutdown as required by Technical Specification 3.1.C. Therefore, these relief valves need not be tested per the Section XI program. Program Change: These valves were deleted from the program.
1-SI-RV-1859	This relief valve protects the check valve test line from overpressurization in the event of a gross failure of a SI check valve experienced during testing. Failure of this line would not result in a significant accident nor would it prohibit emergency response to other

	subsequent accidents. Therefore, this valve need not be tested per the Section XI program. Program Change: This valve was deleted from the program.
1-SS-TV-100A,B 1-SS-TV-101A,B 1-SS-TV-102A,B 1-SS-TV-103A,B 1-SS-TV-104A,B 1-SS-TV-106A,B	Program Change: Relief Request V-33 was withdrawn. See the explanation for valves 1-GW-TV-100 to 107, 111A and B.
1-SS-TV-103A,B	These containment isolation valves are opened from time to time to draw samples from the RHR system when in operation. Since the RHR system would only be operating at or near cold shutdown and access to the containment is required to initiate RHR, it is not likely that they would be opened during an accident resulting in containment isolation. Therefore, they are considered passive in the closed position. Program Change: Close test was deleted from the program.
1-SW-246*,247* 1-SW-248*,249* 1-SW-250*,251* 1-SW-252*,253*	These valves open to provide a vent path to ensure that service water flow through the recirculation spray heat exchangers is rapidly established. Program Change: The valves were added to the program to be tested open every three months.
1-SW-263*,264* 1-SW-265*,313* 1-SW-323* 2-SW-333*	These valves are on lines that provide service water to the main control room air conditioning system chillers. They

have been reclassified from non-class to Section XI Class 3 based upon a review of Regulatory Guide 1.26 and the safety function of the system. These valves are being added to the IST Program.

Program Change: The valves were added to the program. Valve 1-SW-263 is a normally open passive air operated valve. The remote position will be verified every 24 months. Valves 1-SW-264 and 265 are manual butterfly valves and will be stroked open once every three months. Valves 1-SW-313, 323 and 2-SW-333 are check valves that must open. They cannot be full flow tested because there is no flow instrumentation. Therefore, they will be partial flow tested open once every three months, and disassembled and inspected to the requirements of Generic Letter 89-04. Refer to Relief Request V-46.

1-SW-MOV-102A,B

These service water supply isolation to component cooling water heat exchanger valves must open to supply component cooling system cooling during RHR operation.

Program Change: Open test was added to the program. Because of piping configuration differences, this change only applies to Unit 1.

1-SW-MOV-104A,B
1-SW-MOV-104C,D
1-SW-MOV-105A,B
1-SW-MOV-105C,D

The normal position of these valves was changed from open to close to keep the recirculation spray heat exchangers dry. Therefore, they must open to allow operation of the heat exchangers and close for isolation.

Program Change: Open test was added to the program.

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1-SW-MOV-106A 1-SW-MOV-106B	These valves have been physically removed from the system. Program Change: These valves were deleted from the program.
1-SW-PCV-100A* 1-SW-PCV-100B* 1-SW-PCV-100C* 1-SW-PCV-101A* 1-SW-PCV-101B* 1-SW-PCV-101C*	These valves are on lines that provide service water to the main control room air conditioning system chillers. They have been reclassified from non-class to Section XI Class 3 based upon a review of Regulatory Guide 1.26 and the safety function of the system. These valves are being added to the IST Program. Program Change: The valves were added to the program. Valves 1-SW-PCV-100A, B and C will be tested to the open position every three months, and valves 1-SW-PCV-101A, B and C will be tested to the closed position every three months. Also, establishing alert limits for valve stroke times is not practical for these valves as discussed in Relief Request V-47.
1-SW-TCV-108A* 1-SW-TCV-108B* 1-SW-TCV-108C*	These service water to charging pump lube oil cooler temperature control valves fail to the open position upon loss of power. Program Change: Valves were added to the program to be tested to the open position every three months. Also, establishing alert limits for valve stroke times is not practical for these valves as discussed in Relief Request V-47.
1-VP-12	This condenser air removal discharge to containment isolation check valve may be

opened when the main condenser air ejectors are lined up to discharge into containment. Therefore, this valve must be considered active.

Program Change: An exercise test to the closed position to be performed every reactor refueling was added. Refer to Relief Request V-44.

1-VS-285*,286*
1-VS-288*,292*
1-VS-296*

These valves are in the chilled water portion of the main control room air conditioning system. They have been reclassified from non-class to Section XI Class 3 based upon a review of Regulatory Guide 1.26 and the safety function of the system. These valves are being added to the IST Program.

Program Change: The valves were added to the program. Valves 1-VS-285 and 286 are manual valves and will be tested open and closed every three months. Valves 1-VS-288, 292 and 296 are check valves and will be full flow tested open and tested closed every three months.

Unit 2 Valve Number	Comment
1-CH-109,116	Flow instrumentation has been installed for the boric acid transfer pumps. Therefore, the discharge check valves 1-CH-109 and 116 can be full flow tested every three months. These valves were deleted from CSV-19. Program Change: Full flow test frequency was changed from a cold shutdown frequency to once every three months.
2-CH-256,265,274	With the installation of flow instrumentation on the suction side of the charging pumps, the charging pump

	recirculation line check valves can be full flow tested. Program Change: Relief Request V-40 is being withdrawn. These valves will be full flow tested every three months.
2-SI-304	Program Change: Valve number 2-SI-234 in Revision 4 was changed to 2-SI-304 in Revision 5.
2-SW-247*,249* 2-SW-251*,253*	These recirculation spray heat exchanger service water supply vent valves are inaccessible for exercise testing and cannot be manually manipulated without disassembly. Program change: These valves were added to the program. One valve will be disassembled and inspected every reactor refueling per Relief Request V-46.

4.5 VALVE TEST PROGRAM RELIEF REQUEST

The following summary contains the changes to the valve relief requests since Revision 4. It also contains a description of the approval mechanism for each relief request. That is, the summary indicates whether the approval is:

1) through a position in Generic Letter 89-04,

2) through the Surry Safety Evaluation Report (SER) for the IST program received August 31, 1990 or

3) obtained using a relief request that will need approval by a specific date.

The relief requests marked with an asterisk * need approval by the NRC.

ATTACHMENT 1

SUMMARY OF CHANGES
TO THE SURRY POWER STATION IST PROGRAM

Unit 1 Relief Request	Comment
V-1	Relief Request V-1 was resubmitted to the NRC by letter dated November 28, 1990 to state that relief valve testing will meet the requirements of ANSI/ASME OM-1 - 1981, instead of PTC-25.3-1976. Reference to PTC-25.3-1976 was also deleted from Section 4.2. ANSI/ASME OM-1 has been approved for use by the NRC. It is referenced in ASME Section XI, the 1986 Edition, which is the most recently approved edition of Section XI in the Federal Register.
V-2 to 4	These relief request numbers are no longer active. They were replaced by cold shutdown justifications in Revision 4.
V-5	The basis section for valves 1-FW-10, 41 and 72 was expanded to provide more detail concerning the inability to establish a sufficient differential pressure across the valve disk due to test volume limitations. The response presented in a letter to the NRC dated January 17, 1990 on this subject was placed in the basis. The relief was granted in the NRC's SER.
V-6 to 9	These relief request numbers are no longer active. They were either withdrawn or replaced by cold shutdown justifications in Revision 4.
V-10	Relief Request V-10 was replaced by Cold Shutdown CSV-23 and not 24 as indicated in Revision 4.
V-11 to 13	These relief request numbers are no longer active. They were replaced by cold shutdown justifications in Revision 4.
V-14	Relief was granted in the NRC's SER.
V-15 to 19	These relief request numbers are no longer active. They were replaced by cold shutdown justifications in Revision 4.
V-20	Relief was granted in the NRC's SER.

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V-21 Relief was granted in the NRC's SER. In addition to the request for relief from full stroke testing valves 1-SI-46A, B, and 1-SI-50 and 58 every three months, reference to testing valves 1-SI-50 and 58 to the closed position every cold shutdown was included in Revision 4. The explanation given for the cold shutdown frequency was not accepted in the SER. In response to the SER, the basis was expanded to provide more detail on why valves 1-SI-50 and 58 should be tested every cold shutdown instead of every three months. This version of the relief request was submitted by letter to the NRC dated November 28, 1990.

V-22 This relief request number is no longer active. It was replaced by a cold shutdown justification in Revision 4.

V-23 Valves 1-SI-MOV-1842, 1869A and 1869B can be stroked on a cold shutdown interval. Therefore, Relief Request V-23 is being replaced by Cold Shutdown Justification CSV-25 in Revision 5. This change was submitted by letter to the NRC dated January 17, 1990.

V-24 to 25 These relief request numbers are no longer active. They were either replaced by a cold shutdown justification or withdrawn in Revision 4.

V-26 The NRC's SER requested more information on flow testing the SI accumulator discharge check valves. In response to the SER request, the basis was expanded to provide more detail concerning the hazards involve when discharging a SI accumulator. Also, in the alternative testing section, references to discharging the SI accumulators and flow testing the SI accumulator discharge check valves were deleted and replaced by disassembly as the alternate test method.

This version of the relief request was submitted by letter to the NRC dated November 28, 1990. Using disassembly as an alternative testing method conforms to Generic Letter 89-04, Attachment 1, Position 2.

The alternative testing for valves 1-SI-130 and

147 was changed from disassembly to acoustic monitoring in Revision 5. Testing experience has shown that the flow from both RHR pumps can drive the disk of valves 1-SI-130 and 147 to the back seat. This impact event will be recorded using acoustic monitoring instrumentation for both valves each reactor refueling. The data will be analyzed to show that the disk struck the back seat, thus verifying that the disk stroked to the full open position.

Also, reference to closure testing the discharge check valves was deleted. Valves 1-SI-107, 128 and 145 do not have a safety function to close as explained in the previous section. Reference to closure testing for valves 1-SI-109, 130 and 147 was removed from Relief Request V-26 and placed in Cold Shutdown Justification CSV-29 and the test frequency was changed from once every three months to cold shutdown.

V-27 Relief as presented in Revision 4 was granted in the NRC's SER. Subsequent to receiving the SER, the alternate testing was revised to indicate that valves 1-SI-79, 82, 85, 88, 91, 94, 238, 239, 240, 241, 242 and 243 would be disassembled and inspected and partial stroke tested every reactor refueling to verify full stroke capability.

This version of the relief request was submitted by letter to the NRC dated November 28, 1990. Using disassembly as an alternative testing method conforms to Generic Letter 89-04, Attachment 1, Position 2.

In Revision 5, the alternate testing for valves 1-88, 91, 94, 238, 239 and 240 was changed from disassembly to full flow testing using clamp on ultrasonic flow instrumentation. Also, the alternate testing for cold leg injection valves 1-SI-79, 82, 85, 241, 242 and 243 was changed from disassembly to acoustic monitoring. Using low head pump flow, the cold leg injection valves will be acoustically monitored for the disk striking the back seat every reactor refueling. The data will be analyzed to show that the disk struck the back seat, thus verifying that the disk stroked to the full open position.

The frequency of closure testing for valves 1-SI-79, 82, 85, 241, 242 and 243 was clarified by stating that they would be tested to the closed position every reactor refueling per Technical Specification Table 4.1-2A. Also, reference to closure testing valves 1-SI-235, 236 and 237 was deleted because these valves need not close during an accident as explained in the previous section.

V-28* Relief was granted from exercising valves 1-SI-25 and 410 to the open position every three months in the NRC's SER. Relief was not granted from exercising valve 1-SI-25 closed. In response to the SER, reference to draining a RWST while testing check valve 1-SI-25 was deleted from the basis and reference to the line configuration not allowing for a back seat test was added. The alternate testing was expanded to include disassembly and inspection for valve 1-SI-25 once every other outage.

This version of the relief request was submitted by letter to the NRC dated November 28, 1990. Although disassembly to verify valve closure conforms to Generic Letter 89-04, Attachment 1, Position 2, prior NRC approval is necessary to use disassembly to verify closure according to the Minutes of the Public Meetings on Generic Letter 89-04.

V-29 This relief request number is no longer active. It was replaced by a cold shutdown justification in Revision 4.

V-30 This relief request is being withdrawn. The ASME categories for valves in the relief request (1-RC-HCV-1556A - C, 1-RH-MOV-1700, 1701, 1720A and B, 1-SI-88, 91, 94, 107, 109, 128, 130, 145, 147, 235, 236, 237, 238, 239 and 240) were changed from A and AC to B and C. The explanations for the change in categories are given in the previous section for each group of valves. Because of the change in category, V-30 is no longer applicable.

V-31 Relief was granted in the NRC's SER. Valves 1-RC-SOV-101A-1, 101A-2, 101B-1 and 101B-2 were deleted from the relief request because they were deleted from the program.

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V-32 This relief request number is no longer active. It was replaced by a cold shutdown justification in Revision 4.

V-33 Relief Request V-33 was withdrawn as stated in a letter to the NRC dated January 17, 1990. See the explanation for valves 1-GW-100 to 107, 111A and B.

V-34 Relief was granted in the NRC's SER for Revision 4. A note was added in Revision 5 explaining that the list of rapid acting valves may change due to maintenance activities and that an updated list will be maintained by the site ISI engineer. Also, valves 1-CC-TV-107, 1-CH-TV-1204A, 1-SS-TV-103A and B, 1-CV-TV-150A, C and D, 1-RC-SOV-101A-1, 101A-2, 101B-1, and 101B-2 were deleted, and 1-DG-TV-108A and B, 1-IA-TV-100 and 1-SI-TV-101B were added. Also, the verbiage in the basis was changed from, "These valves have a normal stroke time of 2 seconds or less, they are rapid acting valves" to "These valves have a normal stroke time of 2 seconds or less. Therefore, they could be considered rapid acting valves."

V-35 This relief request number is no longer active. It was replaced by a cold shutdown justification in Revision 4.

V-36 According to the NRC's SER, relief is granted provided that flow instrumentation is installed. Flow instrumentation has been installed in the diesel fuel oil transfer system. In Revision 5, reference to monthly stroke testing was replaced by quarterly stroke testing. Because Section XI requires only quarterly testing, this change conforms with the Code.

V-37 According to the NRC's SER, relief is granted provided that acceptance criteria are expanded to include maximum diesel start time. In response to the SER, references to recording the time it takes for the diesel engines to reach a predetermined RPM and comparing the time to an acceptance criteria were added. Reference to monthly stroke testing was replaced by quarterly stroke testing. This version of the relief request was submitted by letter to the NRC dated November 28, 1990. Also, reference to closure was added.

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V-38 Relief request V-38 is being withdrawn. The addition of flow instrumentation makes this request unnecessary. The diesel fuel oil pump discharge check valves 1-EE-15, 28 and 35 will be full flow tested every three months.

V-39 According to the NRC's SER, relief is granted provided that the group leakage limits are reevaluated. Based on recent test results, new and more stringent leakage limits were determined to ensure significant degradation of the smallest valve in the group would not go undetected. The response to the SER was included in a letter to the NRC dated November 28, 1990.

Valves 1-CH-HCV-1200A, B and C were removed from this request in Revision 5 because they are no longer containment isolation valves and are not subject to leak testing. Valves 1-RS-46, 52 and 1-SI-301, 311 were added.

V-40 With the installation of flow instrumentation, the charging pump discharge recirculation line check valves (1-CH-256, 265 and 274) can be full flow tested every three months. Relief Request V-40 is being withdrawn. This relief request was submitted by letter to the NRC dated November 28, 1990.

V-41 Relief was granted in the NRC's SER for Revision 4. In Revision 5, reference to closure testing was deleted because these valves do not have to close to fulfill their safety functions.

V-42 Relief was granted in the NRC's SER for Revision 4. In Revision 5, reference in the alternative testing section to partial flow testing every three months was replaced by full flow testing every three months. Therefore, the main steam header supply to the turbine driven auxiliary feedwater check valves 1-MS-176, 178 and 182 will be full flow tested once every three months.

V-43* This relief request replaces Cold Shutdown Justification CSV-23. None of the check valves on the discharge side of the containment spray and recirculation spray pumps can be flow tested. The only means to exercise valves 1-CS-105 and 127 is

by disassembly. Valves 1-CS-13 and 24, and 1-RS-11 and 17 do have weight-loaded lever arms. However, the weight position and lever arm angle are subject to adjustment to ensure that the valves open when a pressure differential using air is applied every refueling cycle as required by T. S. 4.5.C. Therefore, torque measurements would not be repeatable. Also, reference to closure testing for valves 1-CS-105 and 127 was added.

These valves will be divided into three groups and one valve from each group will be disassembled and inspected every refueling outage. The alternative testing conforms to Generic Letter 89-04, Attachment 1, Position 2. However, using disassembly to verify closure for valves 1-CS-105 and 127 requires prior NRC approval according tc the Minutes of the Public Meetings on Generic Letter 89-04.

V-44* Valves 1-IA-938, 939, 1-RC-160, 1-RM-3 and 1-SI-234 were removed from Cold Shutdown Justification CSV-20 and placed into this relief request. Valve 1-VP-12 was added to the relief request. These containment isolation valves are leak tested every reactor refueling.

The small increase in safety gained by testing these valves closed every cold shutdown does not justify the burden of performing a local leak rate/back pressure test on the more frequent interval. This request for relief needs approval from the NRC.

V-45* Valves 1-CC-1105, 1106, 1107, 1188, 1189 and 1190 were added to the component cooling water supply line to the reactor coolant pump thermal barriers to prevent gross leakage in the event of a leak in the thermal barrier. The only way to verify closure is to perform a local back pressure test. They are located inside containment. Therefore, they cannot be tested every quarter.

The small increase in safety gained by testing these valves closed every cold shutdown does not justify the burden of performing a local leak rate/back pressure test on the more frequent interval. This request for relief needs approval from the NRC.

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V-46 There is no instrumentation installed to measure flow for check valves 1-SW-313, 323 and 1-SW-333. These valves will be grouped together and one valve from this group will be disassembled and inspected every reactor refueling. A different valve will be disassembled every reactor refueling. They will be partial stroked open once every three months with flow. The alternative testing conforms to Generic Letter 89-04, Attachment 1, Position 2. Relief Request V-46 was submitted to the NRC by letter dated March 22, 1991 and approved by NRC letter dated June 26, 1992.

V-47* The valves listed in Table M of Relief Request V-47 are stroke timed by locally observing stem movement. These valves either have no remote indication and/or no remote control, or the test requires that the power source be interrupted at the valve and not at the switch.

Testing experience has shown that stroke time data gathered by observing stem movement contains a scatter from test to test that exceeds the 25% and 50% required by IWV-3417(a). Therefore, applying the requirements of IWV-3417(a) in these cases is not practical.

Maximum stroke times will be established in accordance with IWV-3417(b). However, the ranges described in IWV-3417(a) will not be applied. This issue is not addressed in Generic Letter 89-04. Therefore, this request for relief needs approval from the NRC.

V-48* The mainsteam non-return stop check valves 1-MS-NRV-101A, B and C are currently tested closed by running the stem down onto the disk. The NRC letter dated September 26, 1991 entitled, "Supplement to Minutes of the Public Meetings on Generic Letter 89-04," indicates that if the stop check valve must close upon cessation of flow, running the stem down onto the disk is not an adequate test.

Performing a reverse flow test with steam is not practical for these valves. Therefore, an alternative test method must be developed.

Virginia Electric and Power Company is reviewing in house capabilities and vendor capabilities to acoustically monitor the valves during shutdown. Until the new test method is developed and implemented, interim relief is necessary.

Interim Relief Request V-48 was sent to the NRC by letter dated February 21, 1992. Note that the Relief Request number was changed from V-50 in the letter to V-48 in this program. This interim relief request needs approval from the NRC.

V-49 IWV-3427(b) specifies corrective actions in addition to IWV-3427(a) for Appendix J Category A valves subject to leakage testing for valve sizes of six inches and larger.

Most valves that are leak rate tested are tested in the "as found" condition, subject to maintenance and retested in the "as left" condition. The valve maintenance is performed on a routine basis and it effectively resets the leakage to a small amount. Therefore, basing corrective actions on previous test results or projections serves no useful function.

Therefore, the requirements of IWV-3427(b) will not be implemented. The alternate testing presented in this Relief Request conforms to NRC Generic Letter 89-04, Attachment 1, Item 10.

Unit 2 Relief Request	Comment
V-40	With the installation of flow instrumentation, a full flow test can be performed on the charging pump discharge recirculation line check valves. Relief Request V-40 is being withdrawn.
V-46	Recirculation spray heat exchanger service water supply vent valves 2-SW-247, 249, 251 and 253 are not accessible for exercise testing and cannot be manually manipulated without disassembly. Also, there is no instrumentation for flow testing. These valves will be grouped together and one valve will be disassembled and inspected every refueling outage. The alternative testing

conforms to Generic Letter 89-04, Attachment 1, Position 2.

4.6 VALVE TEST PROGRAM COLD SHUTDOWN JUSTIFICATION

Unit 1 Cold Shutdown Just	Comment
CSV-2	Valves 1-MS-NRV-102A, B and C were deleted and CSV-2 was replaced by Interim Relief Request V-48.
CSV-3	This cold shutdown justification is being withdrawn because the mainsteam header discharge to atmosphere power operated relief valves can be tested during normal operation by isolating the upstream manual isolation valves.
CSV-4	Reference to flowing to a depressurized steam generator was deleted and the technical basis was expanded.
CSV-6	Valve 1-CC-TV-107 was moved from CSV-6 to CSV-27.
CSV-12	This cold shutdown justification was withdrawn because valve 1-CH-MOV-1373 does not require an exercise test.
CSV-15	Reference to valve 1-CH-TV-1204 was replaced by references to valves 1-CH-TV-1204A and B. Valve number 1-CH-TV-1204 was changed to 1-CH-TV-1204B. 1-CH-TV-1204A was added upstream of 1-CH-TV-1204B. Also, valves 1-CH-LCV-1460A and B were added. The valve controllers do not allow for a partial stroke test. This information was added to the justification section.
CSV-19	A more detailed technical basis for when these valves should not be exercised has been added. To achieve full flow through valves 1-CH-225, 227 and 229 the boric acid transfer pumps must be set at high speed, which could inject enough boric acid into the reactor coolant system to cause a reactor power transient. The motor operated valve 1-CH-MOV-1350 will be full stroke exercised, and the check valves 1-CH-225, 227 and 229 will be partial

stroke exercised every quarter with the pumps set on low speed when the boric acid concentration is above 100 ppm. The check valves will be full stroke exercised every reactor refueling.

During power operation and when the concentration of boric acid in the reactor coolant system 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. This version of the cold shutdown justification was submitted by letter to the NRC dated November 28, 1990.

In Revision 5, manual emergency boration path valves 1-CH-225, 228 and 229 were added to the cold shutdown justification. Also, boric acid transfer pump discharge check valves 1-CH-76 and 92 were deleted from CSV-19 because flow instrumentation was installed.

CSV-20 Valves 1-IA-938, 939, 1-RC-160, 1-RM-3 and 1-SI-234 were removed from this cold shutdown justification and placed into Relief Request V-44.

CSV-22 This cold shutdown justification was withdrawn because valve 1-MS-HCV-104 was deleted from the program.

CSV-23 This cold shutdown justification is being replaced by Relief Request V-43.

CSV-24 This cold shutdown justification was withdrawn because valves 1-SI-HCV-1853A, B and C, and 1936 were deleted from the program.

CSV-25 This cold shutdown justification replaces Relief Request V-23.

CSV-26 A containment entry is required to exercise manual butterfly valves 1-CC-181 and 185. Therefore, they will be exercised every cold shutdown.

CSV-27 Exercising valves 1-CC-TV-107,and 120A, B and C 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 ^{0}F. Cold shutdown is entered when the reactor coolant system temperature drops below 200 ^{0}F. The valve controllers do not allow for a part stroke exercise test.

These valves will be full stroke tested every cold shutdown. Note that 1-CC-TV-107 was moved from CSV-6 to CSV-27.

CSV-28 Valves 1-FW-FCV-1478, 1488, 1498,and 155A, B and C 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. The bypass valves 1-FW-FCV-155A, B and C remain closed during power operation.

These valves will be part stroke exercised every three months and full stroke exercised every cold shutdown.

CSV-29 The SI accumulator discharge check valves (1-SI-109, 1-SI-130 and 1-SI-147) are located inside containment and are back seat tested using the installed sampling system. To ensure that all of the leakage that could pass by the check valves is collected, the accumulator discharge motor operated valves (1-SI-MOV-1865A, B and C) must be closed. However, these motor operated valves must be open and de-energized when the reactor coolant system pressure is above 1000 psig according to Technical Specification Paragraph 3.3.A.10. Therefore, the accumulator check valves will be tested to the closed position every cold shutdown.

CSV-30 Valve 1-CC-805 must open to provide a flow path from the component cooling water system to the charging pump seal water surge tank as a supply of makeup water to the surge tank. There is no flow instrumentation to verify partial or full flow for the check valve.

There is level instrumentation on the surge tank. A test method to verify full flow through the check valve using the level instrumentation or some other means needs to be developed. 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.

CSV-31 Valve 1-CC-LCV-101 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 closed on lose of operating air.

Valve position is determine 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.

Unit 2 Cold Shutdown Just	Comment
CSV-19	Flow instrumentation has been installed for the boric acid transfer pumps. Therefore, the discharge check valves 1-CH-109 and 116 can be full flow tested every three months. These valves were deleted from CSV-19.

4.7 ALTERNATIVE TESTING FOR NON-CODE VALVES

This section is being added to deal with non-Code valves which are in the IST program but cannot be tested to the provisions of the Code. Refer to the description given for Section 3.7.

Non-Code Alternative Testing	Comments
VNC-1	Valves 1-IA-928, 947 and 952 must close to ensure that bottled air is available to actuate valves (1-RC-PCV-1455C, 1-RC-PCV-1456, and 1-MS-SOV-102A and B). Valves 1-IA-948, 949 and 953 must open to allow bottled air to reach the main valves. There is no direct means to measure the flow of air

through the check valves.

However, after the instrument air system is isolated and the lines vented, the stroke times of the main valves are measured and compared to acceptance criteria. Measuring the stroke times provides indirect evidence that valves 1-IA-948, 949 and 953 open properly and that valves 1-IA-928, 947 and 952 close properly.

The performance of this test renders the main valves inoperable. Therefore, the tests cannot be performed during normal operation. After stroking the main valves with the air bottles, the air bottles must be replaced. The safety gained in testing the valves every cold shutdown versus every reactor refueling does not justify the burden of replacing the air bottles on the more frequent basis.

VNC-2 Valve 1-CW-117 is located on a line from the discharge tunnel to the discharge canal. The valve is opened following the initiation of an event to reduce the vacuum in the discharge tunnel which reduces the flow rate through the essential heat exchangers. By reducing the flow rate, cooling water inventory is conserved in the intake canal. Full or partial opening of this valve during normal operation or during cold shutdown will reduce cooling to the component cooling system and the bearing cooling system which will disrupt plant operations.

This valve will be exercised every reactor refueling.

VNC-3 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 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.

Valves 1/3-EG-45 and 46 are check valves that close to prevent opening the air start valves before the air motor pinion gears are fully engaged. They open to ensure that the air motor pinions remain engaged (hold-in feature) when the air motors are operating. The only indication of

the proper operation of the check valves is the proper operation of the pinion gears. The air pilot valves and the check valves work in concert with the air start solenoid valves to start the emergency diesels upon demand within the required time.

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.