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CAROLINA POWER & LIGHT COMPANY

SHEARON HARRIS NUCLEAR POWER PLANT

PLANT OPERATING MANUAL

VOLUME 6

PART 7

PROCEDURE TYPE: Inservice Inspection Program (ISI)

NUMBER: ISI-203

TITLE: ASME Section XI Pump and Valve Program Plan

REVISION 6

EFFECTIVE APR 05 1989

APPROVED: ______________________ 3/27/89
Signature Date

TITLE: MANAGER - TECH SUPPORT

RECEIVED
MAR 29 1989
HNP
DOCUMENT SERVICES

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1.0 PURPOSE

1.1 Introduction

This document presents the Program Plan for Inservice Testing (IST) of pumps and valves at the Shearon Harris Nuclear Power Plant (SHNPP) in compliance with the requirements of 10CFR50.55a. 10CFR50.55a(g) specified that the Section XI Pump and Valve Inservice Testing Program shall be initiated at the start of commercial operation of the facility. Further, the Program Plan must conform to the requirements of the Code edition and addenda in effect no more than twelve months prior to the date of issuance of the operating license. This program plan has been prepared to the requirements of the ASME Boiler and Pressure Vessel Code, Section XI, Subsections IWP and IWV, 1983 Edition through the Summer 1983 Addenda.

This plan will then be in effect for the first 120 month interval. It will be updated for each subsequent 120 month interval to conform to the Code Edition and Addenda in effect no more than twelve months prior to the start of the interval.

1.2 Basis

In addition to the reference Code edition and addenda, these Program Plans have been prepared in compliance with the NRC guidance contained in "Guidance for Preparing Pump and Valve Testing Program Descriptions and Associated Relief Requests Pursuant to 10CFR50.55a(g)" and the November 1981 Draft Regulatory Guide "Identification of Valves for Inclusion in Inservice Testing Programs." These three documents provide the basis for selection of components, test requirements, relief requests, and format.

All information except individual valve maximum stroke times, requested by the reference documents has been included in this Program Plan. Maximum stroke times for valves have been determined from the pre-operational test program, Technical Specifications, system operational considerations and manufacturers information. Since individual valve maximum stroke times may require revision after modification, repair or maintenance, SHNPP has elected to exclude them from the Program Plan submittal. Maximum stroke times will be established prior to the end of the first refueling outage and will be maintained in the appropriate test procedures.

1.3 General Program Plan Concept

The Program Plan specifies Section XI testing requirements for components providing, either by action or position, a safety-related function. By definition, a safety-related function is one that is needed to:

1.3 General Program Plan Concept (Continued)

1. Mitigate the consequences of an accident
2. Shut down the reactor to the cold shutdown condition
3. Maintain the reactor in a safe shutdown condition

Plant Technical Specifications, special manufacturer's tests, system operating conditions, etc., may dictate additional components which should be included in the overall plant testing program, but whose functions fall outside the criteria above, and are not addressed by this Program Plan.

Section XI requires quarterly testing of all components unless it is impractical to do so. This program specifies quarterly testing of pumps and valves unless it has been determined that such testing would:

1. Be impractical due to system or component design
2. Render a safety-related system inoperable
3. Cause a reactor scram or turbine trip
4. Require significant deviations from normal operations
5. Require entry into inaccessible plant areas
6. Increase the possibility of an inter-system LOCA

Excluded from exercising during normal operations are all valves which, if exercised, could place the plant in an unsafe condition. Cases where valve exercising could compromise plant safety include:

1. All valves whose failure in a non-conservative position during the cycling test would cause a loss of system function will not be exercised. Valves in this category would typically include all non-redundant valves in lines such as single discharge line from the refueling water storage tank, or accumulator discharge lines. Other valves may fall into this category under certain system configurations or plant operating modes. For example, when one train of a redundant system such as ECCS is inoperable, non-redundant valves in the remaining train should not be cycled since their failure would cause a loss of total system function.

2. All valves, whose failure to close during a cycling test would result in a loss of containment integrity will not be tested. Valves in this category would typically include all valves in containment penetrations where the redundant valve is open and inoperable.

1.3 General Program Plan Concept (Continued)

3. All valves, which when cycled, could subject a system to pressures in excess of their design pressures. It is assumed for purpose of a cycling test, that one or more of the upstream check valves has failed unless positive methods are available for determining the pressure or lack thereof on the high pressure side of the valve to be cycled. Valves in this category would typically include the isolation valves of the residual heat removal/shutdown cooling system and, in some cases certian ECCS valves.

Each component excluded from quarterly testing has been analyzed to determine when appropriate testing may be performed. If exercising of a valve is not practical during plant operation, the Code allows part-stroke exercising during normal plant operation, and full-stroke exercising at cold shutdown.

Since the Code allows testing at cold shutdown, this program does not request relief for those valves for which testing is delayed until cold shutdown.

The Valve IST Program Plan does provide a justification for the delay of testing until cold shutdown. These justifications are prepared in a format similar to relief requests, and are included following the Valve Test Tables for each system.

Where it has been determined that testing is not practical during plant operation, or at cold shutdown, a specific relief request has been prepared. Each specific relief request provides justification for not performing the Code required testing, and provides appropriate alternative testing.

In addition to specific relief requests, general relief requests which address specific Code requirements found to be impractical for this site have been prepared. Because of the general nature of these relief requests, and the number of components involved, they are presented in separate sections and are not repeated in the individual system sections.

Cold Shutdown and Refueling as used in this test program includes mode changes going into and coming out of plant Technical Specification defined modes 5 and 6. Because of unique system operating conditions, it will be necessary to perform some tests during mode change. For example, a steam driven turbine scheduled for testing at cold shutdown can not be tested during mode 5 when there is no steam available. In this case, testing will be performed during a mode change when sufficient steam is available.

1.4 Organization

The Pump and Valve Inservice Testing Program Plan is organized into three independent sections, each of which can be removed from the Program Plan for review. Sections 5.1 - 5.3 present the general program commitment basis, the conceptual framework used in developing the Program Plans, and general relief requests for Code requirements found to be impractical for this site. Section 5.4 deals specifically with the Pump Test Program, and Sections 5.5 - 5.6 deal specifically with the Valve Test Program.

Sections 5.4 - 5.6 are formatted in a manner to aid review. Each section summarizes the basis and concepts used to formulate the Pump and Valve Testing Program. Pump testing requirements are summarized in a single Pump Test Table attached to Section 5.4. Valve test requirements are summarized in Valve Test Tables attached to Section 5.6. The Valve Test Tables are arranged into separate attachments for each system. Where quarterly testing has been found to be impractical, either a justification for delay of test to cold shutdown, or a relief request, is provided following the appropriate Pump or Valve Test Tables. In those cases where additional discussion of the test requirements for a component is needed, the remarks column of the Test Table contains a Note Number. These Notes may be found following the Valve Test Tables for each system.

2.0 REFERENCES

1. ASME Boiler and Pressure Vessel Code, Section XI, 1983 Edition through Summer 1983 addenda.

2. Code of Federal Regulations, Title 10, Part 50.55a(g).

3. SHNPP Technical Specifications, Section 4.0.5.

3.0 RESPONSIBILITIES

3.1 Technical Support Unit

The Technical Support Unit is responsible for overall administration of the program including:

1. Determination of the program plan scope.

2. Revision of the program plan as necessary based on plant design changes.

3. Preparation of reports as necessary.

4. Requesting relief from testing for components that cannot be tested during plant operation.

3.1 Technical Support Unit (Continued)

5. Determining acceptance criteria.

6. Trending and review of test results.

3.2 Operations Unit

1. Preparation and performance of surveillance test procedures that implement the program requirements.

2. Evaluation of test results based on acceptance criteria determined by the Technical Support Unit.

3.3 Administrative Section

1. Maintaining test records consistent with the requirements of reference 2.1.

4.0 DEFINITIONS/ABBREVIATIONS

1. ASME - American Society of Mechnical Engineers.

2. CFR - Code of Federal Regulations.

5.0 PROCEDURE

The following is a detailed description of the ASME Section XI pump and valve program as implemented at SHNPP. The format is consistent with NRC recommendations.

5.1 Definitions

The terms below, when used in the Inservice Testing Program Plan, are defined as follows:

Quarterly: An interval of 92 days for testing components which can be tested during normal plant operation.

Cold Shutdown: Testing delayed until cold shutdown will commence as soon as cold shutdown condition is achieved, but no later than 48 hours after achieving cold shutdown. Testing will continue until all tests are complete, or the plant is ready to return to power. Completion of testing is not a prerequisite to return to power, and any testing not completed at one cold shutdown will be performed during subsequent cold shutdowns before the refueling outage. No cold shutdown testing will be performed on any components tested less than 92 days prior

5.1 Definitions (Continued)

	to achieving cold shutdown. The 48 hour interval will not hold for planned cold shutdowns where all required testing will be completed.
Refueling:	Testing delayed to refueling will be performed during the normal scheduled refueling shutdown before returning to power operation.
Period:	Category C safety and relief valves (IWV-3511), Category D explosive actuated valves (IWV-3610) and Category D rupture disks (IWV-3620) are periodically tested as defined in the appropriate Code Sections.
Pressure Isolation:	Any valve which acts as an isolation boundary between the high pressure Reactor Coolant System and a system having a lower operating or design pressure.
Containment Isolation:	Any valve which performs a containment isolation function and is included in the Appendix J, Type C, Local leak Rate Test program.
Active:	Any valve which is required to change position to accomplish its safety-related function.
Passive:	Any valve which is not required to change position to accomplish a specific function and for which the Code does not require operability testing.

5.2 General Relief Requests for Pumps

This section requests relief from specific requirements of Section XI found to be impractical for this site. Since they are general in nature, and pertain to a number of components, this section requests general relief as presented below.

General Relief Request:	PG-1
Pumps:	All centrifugal pumps
Test Requirements:	Differential pressure alert and required action ranges (Table IWP-3100-2).
Basis for Relief:	Pump overpressure is an indicator of pump clogging or improper maintenance and as such is an important test parameter to measure. However, small positive increases in measured differential pressure across a centrifugal pump are most likely not a significant indicator of pump degradation. Adherence to the Code specified alert and required action ranges could result in unnecessary pump testing and repair. In order to preclude unnecessary testing and repair, pump differential pressure will be measured and expanded alert and required action ranges used.
Alternate Testing:	In lieu of the Code specified values, the high side acceptance range will be 1.05 times the reference pump differential pressure. The high side alert and required action ranges will be 1.05 to 1.07 and > 1.07 times the reference pump differential pressure respectively.

5.3 General Relief Requests for Valves

This section requests relief from specific requirements of Section XI found to be impractical for this site. Since they are general in nature, and pertain to a number of components, this section requests general relief as presented below.

General Relief Request:	VG-1
Component:	Rapid actuating power operated valves with stroke times of 2 seconds or less.
Category:	A, B
Code Requirements:	IWV-3417 requires corrective action if the measured stroke time for a valve which normally strokes in ten seconds or less increases by fifty percent from the last measured stroke time. IWV-3413 allows measurement to the nearest second for stroke times of ten seconds or less.
Basis for Relief:	For rapid actuating power operated valves the application of the above criteria could result in requiring corrective action when the valves are functioning normally. These valves are generally small air and solenoid operated valves which because of their size and actuator types stroke very quickly. Operating history on this type of valve indicates that they generally either operate immediately or fail to operate in a reasonable length of time. The intent of the referenced Code sections is to track valve stroke time as a means of detecting valve degradation. This type of valve does not lend itself to this tracking technique.
Alternate Testing:	A maximum stroke time of two seconds will be specified for each rapid actuating valve. If the measured valve stroke time is two seconds or less it will be considered as acceptable and no corrective action will be required. If the measured

5.3 General Relief Requests for Valves (continued)

valve stroke time exceeds two seconds it will be considered inoperable and appropriate corrective action will be taken.

5.4 Inservice Pump Test Program

5.4.1 Introduction

This section presents the Program Plan for Inservice Testing of safety-related Pumps at Unit 1 of the Shearon Harris Nuclear Power Plant, in compliance with the requirements of 10CFR50.55a. This Program Plan has been prepared to the requirements of the ASME Boiler and Pressure Vessel Code, Section XI, Subsection IWP, 1983 Edition through the Summer 1983 Addenda.

5.4.2 Pump IST Program Plan Concept

The Pump Program Plan specifies Section XI testing requirements for all ASME Class 1, 2 and 3 pumps provided with an emergency power source, and which are required for safety-related system operation. Test requirements determined to be impractical for a large number of pumps have been addressed in Section I under General Relief Requests for Pumps. In addition to those General Relief Requests, this section includes requests for relief from Code requirements found to be impractical for specific pumps. Each relief request provides justification for deviation from the Section XI specified test, and proposes appropriate alternate testing.

5.4.3 Code Interpretation

A number of items in Subsection IWP of the Code are subject to interpretation. The interpretations of a number of general items encountered in preparing the Pump Test Program Plan are provided below.

Pump Test Data within the Required Action Range (Table IWP-3100-2)

When test results show deviations greater than allowed by Table IWP-3100-2, the instruments involved may be checked for accuracy and the test rerun. If the second test provides results falling within the required action range, appropriate corrective action must be initiated. This corrective action may be either replacement, repair, or analysis to demonstrate that the condition does not impair pump operability, and that the pump will still fulfill its safety-related function. If the analysis verifies that the pump is operable, a new set of reference values will be established. If the instrumentation is checked, and the test rerun with results in the acceptable range, the first set of test results will be discarded, and the second set retained.

5.4.3 Code Interpretation (Continued)

Analysis of Data within 96 Hours (IWP-3220)

All Code required test parameters will be reviewed within 96 hours after completion of test to verify that they do not fall within the required action range. Those that fall within the required action range will be processed as described above. Those that do not fall within the required action range will be analyzed within four working days after completion of test. This fulfills the intent of the Code to require immediate action on pumps falling within the required action range and allows orderly reduction of data taken on weekends or holidays, when sufficient staff may not be available to perform the Code required analysis.

Scope of Tests (IWP-3300)

Section IWP-3300 requires that each inservice test measure and observe all the quantities in Table IWP-3100-1 except bearing temperature, which shall be measured at least once a year. The Code assumes that each pump installation can be instrumented to obtain the specified quantities. In some installations it is not possible to provide instrumentation to obtain Code specified quantities. For example, submerged pumps cannot be instrumented to measure inlet pressure and observation of proper lubricant level or pressure is not possible for a greased bearing pump. In some cases it is possible to substitute an alternate method. For example, inlet pressure for a submerged pump can be calculated by measuring the head of water relative to the pump suction. This program does not request relief from Section XI testing for those quantities which cannot be obtained due to pump design or installation. Explanatory notes have been used in the Pump Test Table when Section XI testing is not possible due to pump design or installation.

5.4.4 Pump List

Pumps required for safety-related operation for this site are as follows:

SYSTEM	DWG. NO.	REV.NO.	NO. of PUMPS
Auxiliary Feedwater	S-0545	16	3
Emergency Service Water	S-0547	14	2
S. W. Booster	S-0547	14	2
Containment Spray	S-0550	9	2
D.G. Fuel Oil Transfer	S-0563	5	2
Emerg. S.W. Intake Screen Wash	S-0808	6	2
Chilled Condenser Water	S-0998 S02 S-0999 S02	6 6	2
S.I. Charging	S-1305	9	3
Boric Acid Transfer	S-1307	4	2
Component Cooling Water	S-1319	7	3
Residual Heat Removal	S-1324	7	2
Spent Fuel Pool Cooling	S-0805	5	2

5.4.5 Pump Table Nomenclature

The following abbreviations have been used in the Pump Test Table:

N = Rotative Speed

Pi = Inlet Pressure (Before and after pump start)

DP = Differential Pressure Across Pump

Qf = Flow Rate

V = Vibration Amplitude

Tb = Bearing Temperature

1 = Quarterly

5.4.5 Pump Table Nomenclature (Continued)

2 = Cold Shutdown

3 = Refueling

X = Measurement/Observation per IWP

L = Lubricant Level or Pressure

PR = Relief Request

5.4.6 Pump Test Table Notes

In the Pump Test Table, the test parameters to be measured or observed, and the test frequency are identified. Footnotes 1 through 9 refer to amplifications, deviations, and exceptions to the Code requirements and are further discussed below:

1. Pump with constant speed drive, speed is not measured since test will be performed at nominal motor nameplate speed as required by Section XI, IWP-3100.

2. Inlet pressure to be calculated from the inlet liquid level. The liquid level will be measured while establishing and verifying Reference Data sets, and used as information during subsequent test analysis.

3. Bearing temperature measurement not required (IWP-4310) since bearings are in the pumped fluid flow path.

4. Bearing temperatures to be measured once a year as stipulated by Section XI, IWP-3300.

5. Lubricant level or pressure not observed because of bearing lubrication design.

6. Any one of three component cooling or three charging pumps is an installed spare. One pump is normally running, the second is aligned as an automatic backup to the operating pump and the third pump is electrically disconnected. In the event of failure of the operating pump, the second pump automatically starts and the installed spare is electrically connected and valved in as the reserve pump. The normally operating and reserve pump will be tested. The installed spare is required to be tested only when it is connected to the system.

7. Quarterly testing of the motor driven pumps is performed using pump recirculation flow through a small diameter recirculation line. A full flow test will be performed on the way to cold shutdown.

5.4.6 Pump Test Table Notes (Continued)

8. Quarterly testing of the steam driven pump is performed using pump recirculation flow through a small diameter recirculation line. A full flow test will be performed on the way to cold shutdown.

9. Pump and motor are an integral unit with no bearings in the pump. Motor upper bearing will be treated as if it were a pump bearing. Motor bearing has installed vibration monitoring, temperature measurment and are water lubricated.

5.4.7 PUMP TEST TABLE

PUMP LIST					MEASURED PARAMETERS							
System	Pump I.D.	P & I.D.	Coord.	Class	Test Freq.	N	PI	DP	Qf	V	Tb (4)	L
AUXILIARY FEEDWATER	1A-SA	S-0545	J-7	3	1,2 (7)	(1)	X	X	X	X	PR-1	X
	1B-SB		J-8	3	1,2 (7)	(1)	X	X	X	X	PR-1	X
	1X-SAB		J-9	3	1,2 (8)	X	X	X	X	X	PR-1	X
EMERGENCY SERVICE WATER	1A-SA	S-0547	C-3	3	1	(1)	(2)	X PR-8	X PR-8	X	(3)	(5)
	1B-SB		C-3	3	1	(1)	X	X PR-8	X PR-8	X	(3)	(5)
D.G. FUEL OIL TRANSFER	1A-SA	S-0563	F-2	3	1	(1)	X	X	PR-2	X	PR-3	X
	1B-SB		F-7	3	1	(1)	X	X	PR-2	X	PR-3	X
EMERG. S.W. INTAKE SCREEN WASH	1A-SA	S-0808	C-12	3	1	(1)	X	X	X	X	PR-7	X
	1B-SB		C-15	3	1	(1)	X	X	X	X	PR-7	X
CHILLED CONDENSER WATER	1A-SA	S-0998 SO	C-9	3	1	(1)	X	X	X	X	PR-7	X
	1B-SB	S-0999 SO	C-9	3	1	(1)	X	X	X	X	PR-7	X
S.I. CHARGING	1A-SA	S-1305	H-9	2	1 (6)	(1)	X	X	X	X	PR-7	X
	1B-SB		J-9	2	1 (6)	(1)	X	X	X	X	PR-7	X
	1C-SAB		K-9	2	1 (6)	(1)	X	X	X	X	PR-7	X
BORIC ACID TRANSFER	1A-SA	S-1307	D-8	2	1,2 PR-7	(1)	X	X	PR-5	X	PR-6	PR-6
	1B-SB		G-8	2	1,2 PR-7	(1)	X	X	PR-5	X	PR-6	PR-6
COMPONENT COOLING WATER	1A-SA	S-1319	F-7	3	1 (6)	(1)	X	X PR-8	X PR-8	X	PR-7	X
	1B-SB		L-7	3	1 (6)	(1)	X	X PR-8	X PR-8	X	PR-7	X
	1C-SAB		I-7	3	1 (6)	(1)	X	X PR-8	X PR-8	X	PR-7	X
RESIDUAL HEAT REMOVAL	1A-SA	S-1324	L-11	2	1	(1)	X	X	X	(9)	(9)	(9)
	1B-SB		I-11	2	1	(1)	X	X	X	(9)	(9)	(9)
SPENT FUEL POOL COOLING	1A-SA	S-0805	H-10	3	1	(1)	X	X	X	X	PR-7	(5)
	1B-SB		K-10	3	1	(1)	X	X	X	X	PR-7	(5)
CONTAINMENT SPRAY	1A-SA	S-550	F-8	2	1	(1)	X	X	X	(9)	(9)	(9)
	1B-SB		K-8	2	1	(1)	X	X	X	(9)	(9)	(9)
S.W. BOOSTER	1A-SA	S-0547	H-6	3	1	(1)	X	X	X	X	(3)	(5)
	1B-SB		H-15	3	1	(1)	X	X	X	X	(3)	(5)

5.4.8 Pump Relief Request

PUMP RELIEF REQUEST

PR-1

System:	Auxiliary Feedwater
Pump:	1A-SA, 1B-SB, 1X-SAB
Class:	3
Function:	Provide Auxiliary Feedwater to the Steam Generators on loss of Main Feedwater.
Test Requirements:	Measure Bearing Temperature (IWP-4300).
Basis for Relief:	Quarterly pump testing is performed using a pump recirculation line back to the CST. In this mode of operation the temperature of the pumped fluid is constantly increasing and operation is limited to a maximum of one hour. IWP-3500(b) requires the pumps be operated until bearing temperature stability is achieved, but for no less than thirty minutes. Since the pumped fluid temperature is constantly increasing, bearing temperature will not reach stability in one hour. In addition, good operating procedure will limit operation of the pumps in this mode to as short a time as possible to preclude pump degradation. When the pumps are full flow tested at cold shutdown or refueling the length of operation is dictated by plant operating conditions and it can not be guaranteed that plant conditions will allow operation of each pump until bearing temperature stabilizes without significant impact on normal plant operations.
Alternate Testing:	Pump differential pressure, flow and vibration measurments will be used to evaluate pump performance.

PUMP RELIEF REQUEST

PR-2

System:	Diesel Generator Fuel Oil Transfer
Pump:	1A-SA, 1B-SA
Class:	3
Function:	Transfer Diesel Fuel Oil from the Storage tanks to the Day Tanks.
Test Requirements:	Measure pump flow rates to the requirements of Table IWP-3100-2.
Basis for Relief:	There are no system design provisions for direct flow measurements. Flow rate will be calculated from measured change in Day Tank level during pump operation. This method is not accurate enough to comply with the allowable ranges of test quantities of Table IWP-3100-2.
Alternate Testing:	Flow rate will be calculated from observed change in Day Tank level during pump operation.

PUMP RELIEF REQUEST

PR-3

System:	Diesel Fuel Oil Transfer
Pump:	1A-SA, 1B-SB
Class:	3
Function:	Transfer diesel fuel oil from the storage tank to the day tank.
Test Requirements:	Per IWP-3500(b), when the measurement of bearing temperature is required, each pump shall be run for a minimum of thirty minutes until bearing temperature stabalizes.
Basis for Relief:	Diesel Fuel Oil Pump running time is dictated by interlock circuitry and administrative limits corresponding to allowable Day Tank levels. The interlocks, which control automatic transfer pump operation, limit operation of the pumps below minimun allowable or above maximum allowable tank levels. Operation of the pumps with tank levels above maximum allowable is precluded by administrative controls and alarms. The time required to fill the tank from minimum level to maximum level is less than thirty minutes.
Alternative Testing:	Bearing condition will be evaluated by pump bearing vibration measurments.

PUMP RELIEF REQUEST

PR-5

System:	Boric Acid Transfer
Pump:	1A-SA, 1B-SB
Class:	2
Function:	Transfer of concentrated Boric Acid from the Boric Acid Tank to the CVCS.
Test Requirements:	Quarterly measurement of pump flow rate.
Basis for Relief:	There are no system design provisions for measurement of flow rate in the flow path used for quarterly pump testing. To utilize the system flow meter would require a test flow path which would transfer highly concentrated Boric Acid form the Boric Acid Tank to the CVCS. The addition of large amounts of concentrated Boric Acid during cold shutdown would have a significant adverse effect on CVCS operation. And would require the removel and processing of the added Boron prior to returning the plant to operation. This procedure would have a significant impact on systems operation and could cause delay in returning the plant to operation.
Alternate Testing:	The pumps will be run quarterly using the pump minimum flow line. During quarterly testing both inlet and differential pressure will be measured. Flow will be measured through the emergency boration path when borating on the way to cold shutdown.

PUMP RELIEF REQUEST

PR-6

System:	Boric Acid Transfer
Pump:	1A-SA, 1B-SB
Class:	2
Function:	Transfer of concentrated Boric Acid from the Boric Acid Tank to the CVCS.
Test Requirements:	Measure pump bearing temperature and observe lubrication level.
Basis for Relief:	These pumps are Model GVHS-10K Pumps made by Chempump Division of the Crane Co. This type of pump has no bearings in the pump and is a integral unit with the motor. The pump bolts directly onto the integral motor end housing flange, such that the motor bearings are completely inclosed. Motor bearings are lubricated and cooled by diverting a portion of pump flow through the motor and back to the pump suction. All cooling and lubrication are associated with the motor would not provide any information about the pump.
Alternate Testing:	None

RELIEF REQUEST

PR-7

System:	Chilled Condenser Water, S.I. Charging, Component Cooling Water and Spent Fuel Pool Cooling, ESW Intake Screen Wash.
Pump:	1A-SA, 1B-SB (Chilled Cond. Water); 1A-SA, 1B-SB, 1C-SAB (S.I. Charging); 1A-SA, 1B-SB, 1C-SAB (C.C.W.); 1A-SA, 1B- SB (SFPC); 1A-SA, 1B-SB (ESW Intake Screen Wash)
Class:	2,3
Function:	HVAC Chilled Water, Safety Injection and Cooling Water for safety-related equipment.
Test Requirements:	Measure bearing temperature (IWP-4300).
Basis for Relief:	These pumps have no installed instrumentation to measure bearing temperature. Measurement of temperature of the pump bearing housing would not be indicative of actual bearing temperature because of temperature gradients caused by operation of space coolers, pump location, pumped fluid, etc. The once a year measurement will not provide significant information about pump condition. The long pump running time required to achieve temperature stability could result in unnecessary wear on the pumps and result in increased pump maintenance and repair. Deletion of this measurement will not have significant affect on the pump monitoring program, since other required test parameters are being measured.
Alternate Testing:	Pump differential pressure, flow and vibration will be used to monitor pump performance.

PUMP RELIEF REQUEST

PR-8

System:	Emergency Service Water; Component Cooling Water
Pump:	1A-SA, 1B-SB (E.S.W.); 1A-SA, 1B-SB, 1C-SAB (C.C.W.)
Class:	3
Function:	Provide cooling water to safety-related equipment.
Test Requirements:	Article IWP-3100 requires that pumps be tested in a fixed resistance system or that the resistance of the system varied until either the measured differential pressure or flow rate equals the corresponding value.
Basis for Relief:	These systems do not have an installed pump test line and system operating conditions will not allow adjusting system resistance without significant impact on plant operations. These are variable resistance systems that experience a wide swing in loads and configuration. Depending on plant operating conditions and climatic conditions the cooling requirements can range from minimum cooling loads to 100 percent and many of the loads are automatically placed in operation in response to local temperature requirements. Because of these normal operating requirements it is not possible to specify a particular flow path that can be repeated for each pump test.
Alternate Testing:	Pump testing will be performed with the system in the as-found operating configuration and the test results compared with a curve of reference values which establishes the relationship between flow and differential pressure in a band around the design point.

5.5 Inservice Valve Test Program

5.5.1 Introduction

This section presents the Program Plan for Inservice Testing of Valves at the Shearon Harris Nuclear Power Plant, in compliance with the requirement of 10CFR50.55a. This Program Plan has been prepared to the requirements of the ASME Boiler and Pressure Vessel Code, Section XI, Subsection IWV, 1983 Edition through the Summer 1983 Addenda.

5.5.2 Valve IST Program Plan Concept

The Valve Test Program Plan was developed to verify the operability of safety-related systems. The valves addressed are those whose operability is essential to safety-related system operation. Section XI valve testing is then specified for each of these valves to verify individual valve operability. The Program Plan specifies either Section XI or alternate testing, as appropriate, for all valves which perform a safety-related function.

Valves are selected for inclusion in the test program based on a review of all plant systems. This review identifies those systems performing safety-related functions. Each safety-related system is then analyzed to determine which valves are essential to the safety-related operation of the system. These valves are investigated to determine whether Section XI testing can be performed during normal operation. Those valves for which quarterly testing is determined to be inappropriate are analyzed further to determine if Code allowed testing at cold shutdown is possible. If so, a justification for delay of test to cold shutdown is provided following the appropriate Valve Test Tables. Relief requests describing appropriate alternative testing, and justifying exclusion from Section XI testing, have been prepared for valves which cannot be tested quarterly or during cold shutdown, and are provided following the appropriate Valve Test Tables.

5.5.3 Code Interpretation

A number of items in Subsection IWV of the Code are subject to interpretation. The interpretations of a number of general items encountered in preparing the Valve Test Program Plan are provided below.

5.5.3 Code Interpretation (Continued)

Relief Valves:

The Code requires testing of pressure relief valves in accordance with ASME/ANSI OM-1 1981. The relief valves designated for test are only those which perform a system pressure relief function. Thermal relief valves, whose only function is to protect components or piping from thermal expansion are not included in the IST program. Where a relief valve performs both a system and a thermal relief function it has been included as testable. A number of thermal relief valves have been included in the valve test tables to comply with a North Carolina State Requirement for testing of relief valves which protect pressure vessels. SHNPP has elected to include these thermal relief valves in their Section XI test program. All relief valves included to comply with North Carolina State Regulations are so noted in the valve test tables.

Passive Valves:

The reference Code excludes valves used only for operating convenience and/or maintenance from testing. Also, the Code defines passive valves but specifies no operability test requirements. This program defines as passive power operated valves which do not have to change position, but whose position has a direct bearing on safety-related system operation. Manual flow path maintenance and system alignment valves are excluded. Manual passive Containment Isolation and pressure isolation valves have been included for leak testing only.

System Test Valves:

Power operated valves included in a system to align the system for testing are included for Section XI testing if their position is critical to safety-related system operation. The system analysis postulates that the system is in a test mode when the initiation signal occurs. All valves, including those used only for testing, which must respond to the initiation signal, are included in the test program.

Pressure and Flow Control Valves:

The reference Code excludes valves which perform pressure or flow control functions. This program excludes them unless they also perform a system safety-related response function such as automatic closure on system initiation. The program addresses these valves by specifying testing of the safety-related function, and excluding the normal pressure or flow control functions. These valves will be stroke timed if they are equipped with valve test provisions or if a repeatable exercising method is possible.

5.5.3 Code Interpretation (Continued)

Automatic Power Operated Valves:

Power operated valves which receive an automatic signal on system initiation are included in the program.

Remote Power Operated Valves:

The program includes power operated valves activated by remote switches if they are required to change position to align a system for safety-related operation, terminate safety-related system operation, or provide containment isolation capability during the long term post-LOCA operating mode.

Normal vs. Safety-Related System Operation:

Valves in systems which have both normal and safety-related operating modes are included in the program only if they perform a safety-related function. Valves which provide normal system operation control and whose position has no effect on safety-related operation are excluded from the program.

Dual Function Valves:

Valves which provide more than one function are tested for their safety-related function only. Valves with multiple safety-related functions are tested for each function.

Simple Check Valves:

This Program Plan considers any check valve to be a simple check valve if it has no means of changing position other than by reversal of fluid flow direction. Simple check valves are tested to verify operability in the safety-related flow direction. Normally closed simple check valves which must open are tested to verify full opening with forward flow. Normally open simple checks which must close on cessation of flow are tested to verify closure on cessation of forward flow. Normally closed simple check valves which remain closed on system initiation are tested to verify absence of reverse flow. Normally open simple check valves which are required to remain open, are tested to verify full flow in the forward direction. Simple check valves which are required to cycle open and closed are tested to verify full opening with forward flow and closure on loss of forward flow.

Manual Stop Check Valves:

Manual stop check valves are tested to verify operability in the safety-related flow direction. If the manual operator is withdrawn, the valve operates as a simple check in the forward flow direction and is tested as a simple check. Reverse flow closure is verified as a simple check, if possible, or by use of the manual operator.

5.5.3 Code Interpretation (Continued)

Testable Check Valves:

Check valves equipped with manual exercisers will be tested as a simple check, or by exercising using the manual exercising device. Check valves equipped with a power operator installed for the sole purpose of exercising the valve for operability will be tested as a simple check, or by use of the power operator.

Power Operated Stop Check Valves:

Testing of power operated stop check valves is based on the function of the operator. If the valve operator is always withdrawn, and the valve operates as a simple check valve except during maintenance, the valve is tested as a simple check. If the operator is normally withdrawn, such that the valve operates as a simple check in the forward direction, and the operator provides positive closure, it is tested as a simple check in the forward direction, and exercised closed using the operator. In addition to exercising, the operator will be timed and fail safe actuation tested as appropriate.

Pump Discharge Check Valves:

As a minimum, pump discharge check valves in safety-related systems will be forward flow exercised. In addition, reverse flow closure will be verified when failure of the valve to close could result in a substantial reduction of system performance. Such a potential exists with parallel pumps connected to common suction and discharge headers. If the check valve on the idle pump fails to close, a significant amount of system flow could be diverted back through the idle pump to the suction header.

System Piping Keep Fill Check Valves:

Keep fill lines are those lines attached to ECCS system piping whose function is maintenance of system water inventory to preclude water hammer. Forward flow operability is verified by a system check of water inventory performed at least quarterly. Reverse flow closure verification is performed only if failure of the valve to close could result in a significant reduction of ECCS system operation.

Check Valve Full/Partial Stroke:

In most cases full design flow through a check valve requires less than full mechanical valve movement. As used in this program, the term full stroke refers to the ability of the valve to pass design flow, and not the full mechanical stroking. Forward flow full stroke operability testing will be by any method that verifies the valve capable of passing design flow. Any test that verifies less than full design flow capability is considered as a partial stroke test.

5.5.3 Code Interpretation (Continued)

Category A (Containment Isolation Valve) Leak Testing:

All valves specified for Appendix J, Type C, Local Leak Rate testing are included in the Valve IST Program as Category A valves. Appendix J, Type C, valve local leak rate testing fulfills the intent of Articles IWV-3420 through IWV-3425 and will be performed in lieu of Section XI testing. Analysis of leakage rates and corrective actions requirements of IWV-3426 and IWV-3427 will be performed. The Program plan reflects the current list of valves receiving Appendix J, Type C testing. Any future change to that list will be incorporated into the valve test program.

Category A (Pressure Isolation Valve) Leak Testing:

All valves designated as pressure isolation valves in Table 3.4-1 of plant Technical Specifications are considered to perform a pressure isolation function between the Reactor Coolant System and a low pressure system and are included in the Valve IST Program as Category A valves. These valves will be tested to the requirements specified in IWV-3420. Any change to the list of pressure isolation valves in Technical Specifications will automatically be incorporated into the Valve Test Program.

Category A (Containment and Pressure Isolation Valve) Leak Testing:

Valves which perform both a containment isolation and a pressure isolation function are included in the Valve IST Program Plan as Category A Valves. These valves will be tested to requirements of both Appendix J and Section XI.

Category A (Pressure Isolation) Valve Operability Testing:

Reactor Coolant System pressure isolation valves will be demonstrated operable in accordance with plant Technical Specification 4.4.6.2.2 by verifying leakage to be within specified limits:

1. At least once per 18 months,

2. Prior to entering Mode 2 whenever the plant has been in Cold Shutdown for 72 hours or more and if leakage testing has not been performed in the previous 9 months,

3. Prior to returning the valve to service following maintenance, repair or replacement work on the valve, and

4. Within 24 hours following valve actuation due to automatic or manuel action or flow through the valve.

5.5.3 Code Interpretation (Continued)

Locked Valves:

This program plan classifies as locked valves only those which are physically restrained from movement (i.e., chain and padlock), or sealed (i.e., wire and seal) in position. Keylocked valves are not considered to be physically locked. This program plan makes no distinction between locked and non-locked manual valves and considers both to be passive.

Maximum Stroke Times:

Maximum stroke times have been developed based on actual observed times obtained during on-going pre-operational testing and operational test data for valves which can not be timed under repeatable test conditions during the pre-operational testing. These times along with manufactures data and Technical Specifications have been used to specify maximum stroke times for each valve prior to the end of the first refueling outage. Where actual stroke times are much less than Technical Specification values the limiting value of maximum stroke time will be determined from actual observed values, but at no time will maximum stroke time exceed Technical Specification values. A plant criteria has been developed for determining values of maximum stroke times from measured values as follows:

1. Stroke time greater than 10 Seconds - 2 X baseline

2. Stroke time greater than 2 seconds - 3 X baseline but equal to or less than 10 seconds

3. Stroke time equal to or less than 2 seconds - 2 seconds

Values of maximum stroke times will be maintained separate from this document. This will allow for changes in maximum stroke times necessitated by changing test conditions, repairs, maintenance, modifications, etc., without requiring revision of the approved Valve Test Program Plan.

Valve Position Indicator Verification:

IWV-3300 requires that all valves with remote position indicators shall be observed at least once every two years to verify that valve operation is accurately indicated. It is the intent of this program that such verification will be performed on all valves included in this program which have remote position indicators.

5.5.3 Code Interpretation (Continued)

Valve Stroke Direction:

Valves will be stroked and timed in their safety-related direction(s). For example, a motor operated test valve whose safety-related operation is to close on system initiation will only be exercised and timed closed. If the valve must operate in both directions for safety-related system operation, it will be exercised and timed in both directions.

Valve Fail Safe Direction:

Valves will be tested to verify operability of the fail safe operator in the direction that the valve travels to perform its safety-related function. Valves equipped with fail safe operators for convenience only and which do not have to change position on loss of power for adequate safety-related operation will not be fail safe tested.

Temperature Inter-Locked Valves:

Valves which open and close in response to local temperature controls will not be tested unless they are inter-locked to system operation. For example, temperature inter-locked valves on local area heat exchangers will not be tested unless they are inter-locked to go open/closed on system initiation for safety-related operation.

Check Valve Disassembly:

Valve disassembly is utilized as an alternative for check valves where it has been determined that testing is impractical. A sampling plan is used for groups of check valves which are identical (ie. same manufacturer, type, size, etc.) in construction and for which the system operating environment is the same. The sampling plan selects one valve from each group for disassembly during each refueling outage. If the selected valve passes inspection a second valve is selected for disassembly at the next refueling, etc., until the group has been completed or until such time that sufficient inspections have been performed to justify an alternate sampling plan. For those cases where disassembly indicates that there are no valve problems, a new relief request may be prepared to perform less frequent inspections.

Failure of the selected valve to pass inspection will initiate additional valve disassembly as specified by the appropriate relief request.

5.5.3 Code Intepretation (Continued)

The visual inspection of disassembled valves includes verification that the valve is capable of full stroke operation. All valves specified for disassembly are of the bolted bonnet design. For valves with hinge pins in the valve body, full stroke operability will be verified by manually exercising the valve through a complete cycle. For valves with hinge pins in the removable bonnet such that the valve internals are removed from the valve body during disassembly direct verification of full stroke operability by manually exercising is not possible. For these valves, full stroke operability will be by verification of full stroke travel of valve internals for evidence of wear, binding, etc. and by stringent valve reassembly procedures.

Containment Entry:

Entry into the Containment structure during normal operation or cold shutdown is strictly regulated by plant operating procedures. Because of environmental and ALARA considerations, entry is made only for tasks that are absolutely necessary for plant operation and duration inside the Containment is limited to as-short-as-possible. Because of this, valve testing that would require entry into Containment to perfrom special testing is considered to be beyond the scope of Section XI and is delayed to refueling.

5.5.4 Valve Test Table Nomenclature

The following abbreviations have been used in the Valve Test Table.

Valve Type

BF - Butterfly Valve

BA - Ball Valve

CK - Check Valve

DA - Diaphragm Valve

GL - Globe Valve

GA - Gate Valve

ND - Needle Valve

RG - Regulator Valve

RL - Relief Valve

SK - Spring Check Valve

3W - Three Way Valve

PG - Plug Valve

Actuator Type

AO - Air

PO - Piston

EH - Electro-Hydraulic

MA - Manual

MO - Motor

NO - Nitrogen

SA - Self

SO - Solenoid

Normal Position

O - Open

C - Closed

LO - Locked Open

LC - Locked Closed

TH - Throttled

LT - Locked throttled

Stroke Direction

O - Open

C - Closed

Check Valve Test Direction

FF - Forward Flow

BS - Reverse Flow

5.5.4 Valve Test Table Nomenclature (Continued)

Test Requirements

FS - Full Stroke Exercise Valve for operability in accordance with Article IWV-3412.

FC - Exercise valve with a fail-safe actuator to the closed position in accordance with Article IWV-3415.

FO - Exercise valve with a Fail-safe actuator to the open position in accordance with Article IWV-3415.

LC - Leak Test per both Appendix J, Type C, and Section XI (both pressure and containment isolation function).

LJ - Leak Test per Appendix J, Type C, in Accordance with Appendix J of 10 CFR 50 (containment isolation function only).

LK - Leak Test per Section XI, in accordance with Article IWV-3420 (pressure isolation function only).

PE - Partial Stroke Exercise in accordance with Article IWV-3412.

PV - Passive Valve as defined by Article IWV-2100.

RD - Rupture Disk as defined by Article IWV-3620.

RL - Relief Valve in accordance with Article IWV-3512.

TS - Stroke Time valve in accordance with Article IWV-3413 for valves with maximum stroke times specified in Plant Technical Specifications.

TM - Stroke Time valve in accordance with Article IWV-3413 for valves other than those with maximum stroke times specified in Plant Technical Specifications.

PI - Valve with remote position indication verified in accordance with Article IWV-3300.

DS - Valve will be disassembled and visually inspected as described in the Relief Request.

SP - A special valve test procedure in lieu of Section XI testing, and described in the Relief Request.

5.5.4 Valve Test Table Nomenclature (Continued)

Test Frequency

1 - Once per 92 days

2 - Testing performed during cold shutdown (but no sooner than 92 days) in accordance with Article IWV-3412.

NOTE: Testing may be performed during plant operating modes between normal operation and Tech. Spec. defined cold shutdown conditions.

3 - Once per refueling outage

NOTE: Testing may be performed during plant operating modes between normal operation and Technical Specification defined refueling conditions.

4 - Tested during the time period defined in:
IWV-3511 and ANSI/ASME OM-1 - 1981 (safety and relief valves)
IWV-3620 (rupture disks)

5 - Once per 2 Years in accordance with Article IWV-3300.

5.5.5 Valve Test Table Format

Valve No.	Unique number assigned to each valve.
Class and Dwg. Coor.	The ASME valve class and drawing reference location. This is a two line entry with the class on the first line and drawing coordinate on the second line.
Valve Cat.	Valve category as defined in Subsection IWV-2200.
Size (in.) and Type	A two line entry with the first being the valve size in inches, and the second the valve type.
Actu. Type	The type of operator used to change valve position. For dual function valves this will be a two line entry. For example, a locked open stop check valve is entered as self actuating on one line, and manual on the other.
Norm. Posit.	The valve position during normal plant operation.
Test Req.	The test requirements which apply to the valve. For dual function valves, multiple line entries of applicable tests which correspond to actuator type.
Stroke Direct.	This a multiple line entry for safety-related stroke direction. If both directions are safety-related, two lines are used. This column also includes direction for positive closure power operated check valves.
Check Valve Test Direction	Direction of check valve operability verification. May be a two line entry if valve operability is safety-related in both directions.
C.S. Just. or Relief Req. No.	Reference number of the cold shutdown justification or relief request located following the Valve Test Tables for each system.
C.S. or Alt. Test Perf.	Cold shutdown or alternate testing which is being performed in lieu of the Code specified quarterly testing.

5.5.5 Valve Test Table Format (Continued)

Valve No. (continued)	Unique number assigned to each valve
Remarks	Key to notes providing amplifying remarks. These notes are located prior to the Valve Test Tables.
Rev. No.	This column records the document revision number for each valve.

System	Dwg. No.	Rev. No.	Section
Containment HVAC	2165-S-1017	1	5.6.1
Reactor Aux. Bldg. HVAC	2168-G-517 S03	9	5.6.2
Control Room HVAC	2168-G-517 S04	8	5.6.3
Fuel Bldg. HVAC	2168-G-533	10	5.6.4
Switchgear and Protection Room HVAC	2168-G-517 S05	11	5.6.5
Main Steam	2165-S-542	12	5.6.6
Feedwater	2165-S-544	14	5.6.7
Auxiliary Feedwater	2165-S-544	14	5.6.8
Condensate	2165-S-545	16	5.6.9
Service Water	2165-S-547 2165-S-588 2165-S-936	14 8 10	5.6.10
Containment Spray	2165-S-550	9	5.6.11
Steam Generator Blowdown	2165-S-551	6	5.6.12
Process Sampling	2165-S-551 2165-S-552	6 7	5.6.13
D.G. Fuel Oil Transfer	2165-S-563	5	5.6.14
Rad. Monitor and H2 Analizer	2165-S-605	7	5.6.15
D.G. Starting Air	2165-S-633	4	5.6.16
Demineralized Water	2165-S-799	5	5.6.17

5.5.5 Valve Test Table Format (Continued)

System	Dwg. No.	Rev. No.	Section
CTMT. Sump Drains	2165-S-685	8	5.6.18
Service Air	2165-S-800	5	5.6.19
Instrument Air	2165-S-801	12	5.6.20
	2165-S-1017	1	
Fuel Pool Cooling	2165-S-561	4	5.6.21
	2165-S-805	5	
Emergency Screen Wash	2165-S-808	6	5.6.22
Fire Protection	2165-S-888	3	5.6.23
Essential Chilled Water	2165-S-998	3	5.6.24
	2165-S-998 S02	6	
	2165-S-999	2	
	2165-S-999 S02	6	
Reactor Coolant	2165-S-1301	6	5.6.25
CVCS	2165-S-1303	7	5.6.26
	2165-S-1303 S01	3	
	2165-S-1303 S02	2	
	2165-S-1304	9	
	2165-S-1305	9	
	2165-S-1306	6	
	2165-S-1307	4	
Safety Injection	2165-S-1308	7	5.6.27
	2165-S-1309	10	
	2165-S-1310	6	
CTMT. Waste Processing	2165-S-1313	4	5.6.28
Component Cooling Water	2165-S-1319	7	5.6.29
	2165-S-1320	0	
	2165-S-1321	5	
	2165-S-1322	3	
	2165-S-1322 S01	2	
Residual Heat Removal	2165-S-1324	7	5.6.30
CTMT. Integrated Leakage Detection	2166-S-916	1	5.6.31

5.6 Valve Test Tables and Relief Requests

PUMP AND VALVE INSERVICE TESTING PROGRAM PLAN

FOR

SHEARON HARRIS NUCLEAR POWER PLANT

SECTION 5.6.1

VALVE TEST TABLES AND RELIEF REQUESTS

FOR

CONTAINMENT HVAC

DWG. NO. 2165-S-1017

SYSTEM: CONTAINMENT HVAC

NO.	NOTE
1.	Containment Vacuum relief Containment isolation valves.
2.	Post-accident Hydrogen Purge Back-up to Recombiners. Valves are maintained closed except for Post-LOCA Hydrogen Purge.
3.	Normal Containment Purge and Make-up Isolation Valves. Plant Tech. Spec. 3.6.1.7 allows these valves to be opened for safety-related reasons only in Modes 1-4.
4.	Containment Isolation Valves for Pre-Entry Purge. Valves are incapable of closing against accident flow. Plant Tech. Spec. 3.6.1.7 requires maintaining these valves closed during normal operation.
5.	Valve numbers have been revised as follows:

2CB-B1 = 1CB-2	2CP-B1 = 1CP-9
2CB-B2 = 1CB-6	2CP-B4 = 1CP-7
2CB-V1 = 1CB-3	2CP-B3 = 1CP-10
2CB-V2 = 1CB-7	2CP-B6 = 1CP-3
2CM-B4 = 1CM-4	2CP-B5 = 1CP-5
2CM-B5 = 1CM-2	2CP-B8 = 1CP-1
2CM-B6 = 1CM-5	2CP-B7 = 1CP-4
2CM-V1 = 1CM-7	
2CP-B2 = 1CP-6	

6.	Containment Isolation Valve

COLD SHUTDOWN TEST JUSTIFICATION

CS-1

System:	Containment HVAC
Valve:	1CP-1,4,7,10
Category:	A
Class:	2
ASME Section XI Quarterly Test Requirements:	Exercise, Time and Fail.
Cold Shutdown Test Justification:	If these valves were open during LOCA, the valve operators are incapable of closing the valves against the accident flow conditions. Plant Technical Specifications (3.6.1.7) require maintaining these valves closed and sealed closed during plant operating modes 1,2,3 and 4.
Quarterly Part Stroke Testing:	Valves are administratively close and sealed closed during normal operations.
Cold Shutdown Testing:	Exercise, time and fail.

VALVE

RELIEF REQUEST

RV-1

System:	Containment HVAC
Valve:	1CB-3,7 :1CM-7
Category:	AC
Class:	2
Function:	Containment Vacuum Relief Isolation Check Valves (1CB-3,7), and Hydrogen Purge Make-up Isolation Valve (1CM-7).
Test Requirements:	Verify forward flow operability and reverse flow closure.
Basis for Relief:	There are inside Containment simple check valves and do not have position verification capability. To verify forward flow operability using system fluid would require injecting large quantities of air into the Containment and would result in a Containment overpressurization condition. The only practical method to verify forward flow operability is by mechanically exercising the valve disk through a complete cycle by hand. Entry into Containment during cold shutdown is limited by plant procedures to perform only necessary repair and maintenance work. In cases of short shutdowns caused by problems external to the Containment there may be no entry made into the Containment. The only method available to verify reverse flow closure is by valve leak rate testing during Appendix J, Type C, Testing at refueling.
Alternate Testing:	Verify forward flow operability by using a manual exercising procedure via a spring scale at Refueling. Verify reverse flow closure during Appendix J, Type C, Testing at Refueling.

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE

SYSTEM: CONTAINMENT HVAC

DWG. NO. 2165-S-1017

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
1CB-2	2 G-4	A	24 BF	AO	C	FS-1 TS-1 FC-1 PI-5 LJ-3	C O				NOTE 1,5	
1CB-3	2 G-6	AC	24 CK	SA	C	FS-1 BS-1 LJ-3		FF BS	RV-1 RV-1	SP-3 SP-3	NOTE 1,5	
1CB-6	2 H-4	A	24 BF	AO	C	FS-1 TS-1 FC-1 PI-5 LJ-3	C O				NOTE 1,5	
1CB-7	2 H-6	AC	24 CK	SA	C	FS-1 BS-1 LJ-3		FF BS	RV-1 RV-1	SP-3 SP-3	NOTE 1,5	
1CM-2	2 B-5	A	3 BF	AO	C	FS-1 TM-1 FC-1 PI-5 LJ-3	C				NOTE 2,5,6	
1CM-4	2 B-4	A	3 BF	MA	LC	PV LJ-3					NOTE 2,5,6	
1CM-5	2 H-4	A	3 BF	MA	LC	PV LJ-3					NOTE 2,5,6	
1CM-7	2 H-6	AC	3 CK	SA	C	FS-1 BS-1 LJ-3		FF BS	RV-1 RV-1	SP-3 SP-3	NOTE 2,5,6	
1CP-1	2 D-4	A	42 BF	AO	C	FS-1 TS-1 FC-1 PI-5 LJ-3	C		CS-1 CS-1 CS-1	FS-2 TS-2 FC-2	NOTE 4,5	

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE

SYSTEM: CONTAINMENT HVAC

DWG. NO. 2165-S-1017

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
1CP-3	2 E-4	A	8 BF	AO	O/C	FS-1 TS-1 FC-1 PI-5 LJ-3	C				NOTE 3,5	
1CP-4	2 D-6	A	42 BF	AO	C	FS-1 TS-1 FC-1 PI-5 LJ-3	C		CS-1 CS-1 CS-1	FS-2 TS-2 FC-2	NOTE 4,5	
1CP-5	2 E-6	A	8 BF	AO	O/C	FS-1 TS-1 FC-1 PI-5 LJ-3	C				NOTE 3,5	
1CP-6	2 F-5	A	8 BF	AO	O/C	FS-1 TS-1 FC-1 PI-5 LJ-3	C				NOTE 3,5	
1CP-7	2 F-5	A	42 BF	AO	C	FS-1 TS-1 FC-1 PI-5 LJ-3	C		CS-1 CS-1 CS-1	FS-2 TS-2 FC-2	NOTE 4,5	
1CP-9	2 F-6	A	8 BF	AO	O/C	FS-1 TS-1 FC-1 PI-5 LJ-3	C				NOTE 3,5	
1CP-10	2 F-6	A	42 BF	AO	C	FS-1 TS-1 FC-1 PI-5 LJ-3	C		CS-1 CS-1 CS-1	FS-2 TS-2 FC-2	NOTE 4,5	

PUMP AND VALVE INSERVICE TESTING PROGRAM PLAN

FOR

SHEARON HARRIS NUCLEAR POWER PLANT

SECTION 5.6.2

VALVE TEST TABLES AND RELIEF REQUESTS

FOR

REACTOR AUXILIARY BUILDING (RAB) HVAC

DWG. NO. 2165-G-517 S03

SYSTEM: RAB HVAC

NO.	NOTE
NONE	

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE

SYSTEM: RAB HVAC

DWG. NO. 2168-G-517 S03

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
3AV-B1SA-1	3 F-14	B	20 BF	MO	C	FS-1 TM-1 PI-5	O					
3AV-B2SA-1	3 F-17	B	20 BF	MO	C	FS-1 TM-1 PI-5	O					
3AV-B3SB-1	3 E-14	B	6 BF	MO	C	FS-1 TM-1 PI-5	O					
3AV-B4SB-1	3 G-14	B	20 BF	MO	C	FS-1 TM-1 PI-5	O					
3AV-B5SB-1	3 G-17	B	20 BF	MO	C	FS-1 TM-1 PI-5	O					
3AV-B6SA-1	3 G-14	B	6 BF	MO	C	FS-1 TM-1 PI-5	O					
3AV-V3-1	3 E-14	C	6 CK	SA	C	FS-1		FF				
3AV-V4-1	3 G-14	C	6 CK	SA	C	FS-1		FF				

PUMP AND VALVE INSERVICE TESTING PROGRAM PLAN

FOR

SHEARON HARRIS NUCLEAR POWER PLANT

SECTION 5.6.3

VALVE TEST TABLES AND RELIEF REQUESTS

FOR

CONTROL ROOM HVAC

DWG. NO. 2165-G-517 S04

SYSTEM: CONTROL ROOM HVAC

NO.	NOTE
1.	Verification of reverse flow is not necessary since the intake valves are interlocked with blower operation and are closed when the blowers are idle.

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE

SYSTEM: CONTROL ROOM HVAC

DWG. NO. 2168-G-517 S04

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
3CZ-B1SA-1	3 H-2	B	16 BF	MO	O	FS-1 TM-1 PI-5	C					
3CZ-B2SB-1	3 H-2	B	16 BF	MO	O	FS-1 TM-1 PI-5	C					
3CZ-B3SA-1	3 E-2	B	12 BF	MO	O	FS-1 TM-1 PI-5	C					
3CZ-B4SB-1	3 E-2	B	12 BF	MO	O	FS-1 TM-1 PI-5	C					
3CZ-B9SA-1	3 N-5	B	12 BF	MO	C	FS-1 TM-1 PI-5	O					
3CZ-B10SB-1	3 N-5	B	12 BF	MO	C	FS-1 TM-1 PI-5	O					
3CZ-B11SA-1	3 N-11	B	12 BF	MO	C	FS-1 TM-1 PI-5	O					
3CZ-B12SB-1	3 N-11	B	12 BF	MO	C	FS-1 TM-1 PI-5	O					
3CZ-B13SA-1	3 B-4	B	30 BF	MO	C	FS-1 TM-1 PI-5	C					

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE

SYSTEM: CONTROL ROOM HVAC

DWG. NO. 2168-G-517 S04

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
3CZ-B14SB-1	3 B-4	B	30 BF	MO	C	FS-1 TM-1 PI-5	C					
3CZ-B17SA-1	3 G-2	B	36 BF	MO	C	FS-1 TM-1 PI-5	C					
3CZ-B18SB-1	3 G-2	B	36 BF	MO	C	FS-1 TM-1 PI-5	C					
3CZ-B19SA-1	3 H-7	B	20 BF	MO	C	FS-1 TM-1 PI-5	O					
3CZ-B20SB-1	3 H-8	B	20 BF	MO	C	FS-1 TM-1 PI-5	O					
3CZ-B21SA-1	3 K-6	B	20 BF	MO	C	FS-1 TM-1 PI-5	O					
3CZ-B22SB-1	3 K-7	B	20 BF	MO	C	FS-1 TM-1 PI-5	O					
3CZ-B23SA-1	3 L-6	B	20 BF	MO	C	FS-1 TM-1 PI-5	O					
3CZ-B24SB-1	3 L-7	B	20 BF	MO	C	FS-1 TM-1 PI-5	O					

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE

SYSTEM: CONTROL ROOM HVAC

DWG. NO. 2168-G-517 S04

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
3CZ-B25SA-1	3 G-4	B	36 BF	MO	O/C	FS-1 TM-1 PI-5	O					
3CZ-B26SB-1	3 H-4	B	36 BF	MO	O/C	FS-1 TM-1 PI-5	O					
3CZ-V1SA-1	3 L-7	C	6 CK	SA	C	FS-1		FF			NOTE 1	
3CZ-V2SB-1	3 L-7	C	6 CK	SA	C	FS-1		FF			NOTE 1	

PUMP AND VALVE INSERVICE TESTING PROGRAM PLAN

FOR

SHEARON HARRIS NUCLEAR POWER PLANT

SECTION 5.6.4

VALVE TEST TABLES AND RELIEF REQUESTS

FOR

FUEL BUILDING HVAC

DWG. NO. 2165-G-533

SYSTEM: FUEL BUILDING HVAC

NO.	NOTE
NONE	

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE

SYSTEM: FUEL BUILDING HVAC

DWG. NO. 216-G-533

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
3FV-B2SA-1-4	3 G-14	B	24 BF	MO	C	FS-1 TM-1 PI-5	O					
3FV-B4SB-1-4	3 F-14	B	24 BF	MO	C	FS-1 TM-1 PI-5	O					

PUMP AND VALVE INSERVICE TESTING PROGRAM PLAN

FOR

SHEARON HARRIS NUCLEAR POWER PLANT

SECTION 5.6.5

VALVE TEST TABLES AND RELIEF REQUESTS

FOR

SWITCHGEAR AND PROTECTION ROOM HVAC

DWG. NO. 2165-G-517 S05

SYSTEM: SWITCHGEAR AND PROTECTION ROOM HVAC

NO.	NOTE
1.	Valves close and Blowers shutdown on a SIS signal.

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE

SYSTEM: SWTCHGR & PROT. ROOM HVAC

DWG. NO. 2168-G-517 S05

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
3CZ-B5SA-1	3 L-3	B	12 BF	MO	O	FS-1 TM-1 PI-5	C				NOTE 1	
3CZ-B6SB-1	3 L-3	B	12 BF	MO	O	FS-1 TM-1 PI-5	C				NOTE 1	
3CZ-B7SA-1	3 K-10	B	12 BF	MO	O	FS-1 TM-1 PI-5	C				NOTE 1	
3CZ-B8SB-1	3 K-9	B	12 BF	MO	O	FS-1 TM-1 PI-5	C				NOTE 1	

PUMP AND VALVE INSERVICE TESTING PROGRAM PLAN

FOR

SHEARON HARRIS NUCLEAR POWER PLANT

SECTION 5.6.6

VALVE TEST TABLES AND RELIEF REQUESTS

FOR

MAIN STEAM

DWG. NO. 2165-S-542

SYSTEM: MAIN STEAM

NO.	NOTE
1.	Main Steam to Auxiliary Feedwater Turbine Trip and Throttle Valves.
2.	Main Steam Sample Valves.
3.	Main Steam Relief Valves.
4.	Main Steam Power Operated Relief Valves. Valves are Nitrogen supplied, electro/hydrolic operated gate valves.
5.	Main Steam to Auxiliary Feedwater Turbine Line Block Valves.
6.	Main Steam Supply to Auxiliary Feedwater Turbine Line Check Valves. Partial forward flow operability is verified by Turbine operation. Reverse flow closure is required to prevent steam flow between the Main Steam lines when line block valves are open (both block valves open on system isolation).
7.	Main Steam Line Isolation Valves. Valve operators are designed to perform a partial stroke closed test with full steam flow.
8.	Bypass Line Valves around the Main Steam Line Isolation Valves.
9.	Steam Generator Blowdown Isolation Valves.

COLD SHUTDOWN TEST JUSTIFICATION

CS-1

System:	MAIN STEAM
Valve:	1MS-58,60,62
Category:	B
Class:	2
ASME Section XI Quarterly Test Requirements:	Exercise, Time and Fail.
Cold Shutdown Test Justification:	Exercising these valves during normal operation would cause a decrease in Main Steam line pressure and an increase in secondary system steam demand, resulting in a serious self imposed plant transient. This transient could result in a forced plant shutdown.
Quarterly Part Stroke Testing:	Valves are full stroke on initiation and can not be partial stroke exercised.
Cold Shutdown Testing:	Exercise, time and fail.

COLD SHUTDOWN TEST JUSTIFICATION

CS-2

System:	MAIN STEAM
Valve:	1MS-80,82,84
Category:	B
Class:	2
ASME Section XI Quarterly Test Requirements:	Exercise, Time and Fail.
Cold Shutdown Test Justification:	Exercising these valves during normal operation isolates one line of steam flow to the Turbine and would cause a severe pressure transient in the Main Steam line which could result in a forced plant shutdown. Reducing power level to perform testing without causing a transient would significantly impact plan operations and power production.
Quarterly Part Stroke Testing:	Valves are equipped with a partial stroke closed exerciser and will be partial stroke exercised Quarterly.
Cold Shutdown Testing:	Exercise, time and fail.

VALVE

RELIEF REQUEST

RV-1

System:	MAIN STEAM
Valve:	1MS-G
Category:	B
Class:	3
Function:	Auxiliary feedwater steam driven turbine Governing Valve (1MS-G)
Test Requirements:	Measure stroke time Quarterly.
Basis for Relief:	The purpose of this valve is to regulate steam flow to the AFW steam driven turbine. Operability is adequately demonstrated by proper turbine operation. Valve position is steam line pressure and turbine speed dependent and therefore will not repeatedly throttled to the same position. During turbine operation this valve moves in response to control signals.
Alternate Testing:	Proper operation of this valve will be verified during turbine testing. No stroke time testing will be performed.

VALVE

RELIEF REQUEST

RV-2

System:	MAIN STEAM
Valve:	1MS-71,73
Category:	C
Class:	3
Function:	Main Steam to Auxiliary Feedwater Pump Turbine Line Check Valves.
Test Requirements:	Verify forward flow and reverse flow closure.
Basis for Relief:	The only possible method to verify forward flow operability is by running the Auxiliary Feedwater Pump Turbine at full flow conditions. The quarterly pump test is performed with flow through a minimum flow line which is not a full flow test. These check valves are also safety-related to prevent cross-flow between the Main Steam lines when the upstream motor operated valves are open (both motor operated valves open on initiation of Auxiliary Feedwater). To verify reverse flow closure would require blanking (the turbine stop valve is not a leak tight valve) the turbine line, injecting fluid into the line and monitoring upstream of the valves for evidence of gross leakage. Upstream of these valves are the Main Steam lines and Steam Generators. Because of the long time to perform this test and the large volume of waste water involved, it is not a practical test method.

Alternate Testing:

Both valves will be partial flow exercised in the forward direction quarterly during Auxiliary Feedwater Pump testing and one of the Check valves will be disassembled at Refueling and visually inspected. Alternate valves will be inspected at each Refueling, unless the inspected valve fails to pass inspection. If either valve fails to pass inspection the other valve will also be disassembled and inspected.

Both valves will be full flow exercised in the forward direction on a cold shutdown frequency when the full flow test on the Turbine Driven Aux Feed Pump is performed.

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE

SYSTEM: MAIN STEAM

DWG. NO. 2165-S-542

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
1MS-G	3 N-1	B	4 GL	EH	O	FS-1 TM-1	O C		RV-1	SP-1	NOTE 1	
1MS-T	3 N-1	B	4 GT	MO	O	FS-1 TM-1 PI-5	O C				NOTE 1	
1MS-25	2 D-2	B	1 GA	AO	O/C	FS-1 TM-1 FC-1 PI-5	C				NOTE 2	
1MS-27	2 G-2	B	1 GA	AO	O/C	FS-1 TM-1 FC-1 PI-5	C				NOTE 2	
1MS-29	2 K-2	B	1 GA	AO	O/C	FS-1 TM-1 FC-1 PI-5	C				NOTE 2	
1MS-43	2 C-3	C RL	8X10	SA	C	RL-4					NOTE 3	
1MS-44	2 G-3	C	8X10 RL	SA	C	RL-4					NOTE 3	
1MS-45	2 J-3	C	8X10 RL	SA	C	RL-4					NOTE 3	
1MS-46	2 C-4	C	8X10 RL	SA	C	RL-4					NOTE 3	

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE

SYSTEM: MAIN STEAM

DWG. NO. 2165-S-542

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
1MS-47	2 G-4	C	8X10 RL	SA	C	RL-4					NOTE 3	
1MS-48	2 J-4	C	8X10 RL	SA	C	RL-4					NOTE 3	
1MS-49	2 C-5	C	8X10 RL	SA	C	RL-4					NOTE 3	
1MS-50	2 G-5	C	8X10 RL	SA	C	RL-4					NOTE 3	
1MS-51	2 J-5	C	8X10 RL	SA	C	RL-4					NOTE 3	
1MS-52	2 C-6	C	8X10 RL	SA	C	RL-4					NOTE 3	
1MS-53	2 G-6	C	8X10 RL	SA	C	RL-4					NOTE 3	
1MS-54	2 J-6	C	8X10 RL	SA	C	RL-4					NOTE 3	
1MS-55	2 C-6	C	8X10 RL	SA	C	RL-4					NOTE 3	

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE

SYSTEM: MAIN STEAM

DWG. NO. 2165-S-542

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
1MS-56	2 G-6	C	8X10 RL	SA	C	RL-4					NOTE 3	
1MS-57	2 J-6	C	8X10 RL	SA	C	RL-4					NOTE 3	
1MS-58	2 C-8	BC	8 GA	EH NO	C	FS-1 TM-1 FC-1 PI-5	O C		CS-1 CS-1 CS-1	FS-2 TM-2 FC-2	NOTE 4	
1MS-60	2 F-8	BC	8 GA	EH NO	C	FS-1 TM-1 FC-1 PI-5	O C		CS-1 CS-1 CS-1	FS-2 TM-2 FC-2	NOTE 4	
1MS-62	2 J-8	BC	8 GA	EH NO	C	FS-1 TM-1 FC-1 PI-5	O C		CS-1 CS-1 CS-1	FS-2 TM-2 FC-2	NOTE 4	
1MS-70	2 H-7	B	6 GA	MO	C	FS-1 TM-1 PI-5	O C				NOTE 5	
1MS-71	3 H-7	C	6 CK	SA	C	FS-1 BS-1		FF BS	RV-2 RV-2	PE-1 DS	NOTE 6	
1MS-72	2 K-7	B	6 GA	MO	C	FS-1 TM-1 PI-5	O C				NOTE 5	
1MS-73	3 K-7	C	6 CK	SA	C	FS-1 BS-1		FF BS	RV-2 RV-2	PE-1 DS	NOTE 6	

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE

SYSTEM: MAIN STEAM

DWG. NO. 2165-S-542

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
1MS-80	2 D-9	B	34 GL	PO	O	FS-1 TS-1 FC-1 PI-5	C		CS-2 CS-2 CS-2	FS-2 TS-2 FC-2 PE-1	NOTE 7	
1MS-81	2 D-9	B	3 GA	AO	C	FS-1 TS-1 FC-1 PI-5	C				NOTE 8	
1MS-82	2 G-9	B	34 GL	PO	C	FS-1 TS-1 FC-1 PI-5	C		CS-2 CS-2 CS-2	FS-2 TS-2 FC-2 PE-1	NOTE 7	
1MS-83	2 H-9	B	3 GA	AO	C	FS-1 TS-1 FC-1 PI-5	C				NOTE 8	
1MS-84	2 J-9	B	34 GL	PO	O	FS-1 TS-1 FC-1 PI-5	C		CS-2 CS-2 CS-2	FS-2 TS-2 FC-2 PE-1	NOTE 7	
1MS-85	2 K-9	B	3 GA	AO	C	FS-1 TS-1 FC-1 PI-5	C				NOTE 8	
1MS-231	2 E-8	B	2 GL	AO	O/C	FS-1 TS-1 FC-1 PI-5	C				NOTE 9	
1MS-266	2 I-8	B	2 GL	AO	O/C	FS-1 TS-1 FC-1 PI-5	C				NOTE 9	
1MS-301	2 L-8	B	2 GL	AO	O/C	FS-1 TS-1 FC-1 PI-5	C				NOTE 9	

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE

SYSTEM: MAIN STEAM

DWG. NO. 2165-S-542

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
1MS-336	3 M-4	B	2 GL	AO	O	FS-1 TM-1 FC-1 PI-5	C					
1MS-354	3 N-5	B	2 GL	AO	O	FS-1 TM-1 FC-1 PI-5	C					

PUMP AND VALVE INSERVICE TESTING PROGRAM PLAN

FOR

SHEARON HARRIS NUCLEAR POWER PLANT

SECTION 5.6.7

VALVE TEST TABLES AND RELIEF REQUESTS

FOR

FEEDWATER

DWG. NO. 2165-S-544

SYSTEM: FEEDWATER

NO.	NOTE
1.	Feedwater Isolation Valves, close on isolation signal. Valves are equipped with partial stroke operators for testing at full flow.
2.	Chemical Addition Isolation Valves.
3.	Feedwater Isolation Valve Bypass Valves which close on an isolation signal.

COLD SHUTDOWN TEST JUSTIFICATION

CS-1

System:	Feedwater
Valve:	1FW-159,217,277
Category:	B
Class:	2
ASME Section XI Quarterly Test Requirements:	Exercise, Time and Fail.
Cold Shutdown Test Justification:	Exercising these valves closed during normal operation would result in a loss of Feedwater to the associated Steam Generator. Isolation of Feedwater flow during normal operation would cause a severe Steam Generator operating transient which could result in a forced plant shutdown and/or Reactor trip.
Quarterly Part Stroke Testing:	Valves are equipped with partial stroke exercisers. Each valve will be exercised to it's 90% open position and back to the full open position.
Cold Shutdown Testing:	Exercise, Time and Fail.

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE

SYSTEM: FEEDWATER

DWG. NO. 2165-S-544

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
1FW-159	2 B-6	B	16 GA	EH	O	FS-1 TS-1 FC-1 PI-5	C		CS-1 CS-1 CS-1	FS-2 TS-2 FC-2 PE-1	NOTE 1	
1FW-163	2 B-6	B	1 GA	AO	O/C	FS-1 TM-1 FC-1 PI-5	C				NOTE 2	
1FW-165	2 B-5	B	1 GA	AO	O/C	FS-1 TM-1 FC-1 PI-5	C				NOTE 2	
1FW-217	2 D-4	B	16 GA	EH	O	FS-1 TS-1 FC-1 PI-5	C		CS-1 CS-1 CS-1	FS-2 TS-2 FC-2 PE-1	NOTE 1	
1FW-221	2 D-4	B	1 GA	AO	O/C	FS-1 TM-1 FC-1 PI-5	C				NOTE 2	
1FW-223	2 D-4	B	1 GA	AO	O/C	FS-1 TM-1 FC-1 PI-5	C				NOTE 2	

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE

SYSTEM: FEEDWATER

DWG. NO. 2165-S-544

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
1FW-277	2 E-4	B	16 GA	EH	O	FS-1 TS-1 FC-1 PI-5	C		CS-1 CS-1 CS-1	FS-2 TS-2 FC-2 PE-1	NOTE 1	
1FW-279	2 E-4	B	1 GA	AO	O/C	FS-1 TM-1 FC-1 PI-5	C				NOTE 2	
1FW-281	2 E-3	B	1 GA	AO	O/C	FS-1 TM-1 FC-1 PI-5	C				NOTE 2	
1FW-307	2 B-6	B	3 GA	AO	TH	FS-1 TM-1 FC-1 PI-5	C				NOTE 3	
1FW-313	2 D-4	B	3 GA	AO	TH	FS-1 TM-1 FC-1 PI-5	C				NOTE 3	
1FW-319	2 F-4	B	3 GA	AO	TH	FS-1 TM-1 FC-1 PI-5	C				NOTE 3	

PUMP AND VALVE INSERVICE TESTING PROGRAM PLAN

FOR

SHEARON HARRIS NUCLEAR POWER PLANT

SECTION 5.6.8

VALVE TEST TABLES AND RELIEF REQUESTS

FOR

AUXILIARY FEEDWATER

DWG. NO. 2165-S-544

SYSTEM: AUXILIARY FEEDWATER

NO.	NOTE
1.	Auxiliary Feedwater Bypass Line to Condensate Storage Tank Line Check Valve. Failure to close would not degrade system operation.
2.	Pump Recirculation to the Condensate Storage Tank Isolation Valve.
3.	Motor Driven Auxiliary Feed Pump Discharge Check Valve. Reverse flow closure necessary to preclude diversion of flow back across idle pump.
4.	Motor Driven Pump Discharge Pressure Control Valves. Valves are installed in the discharge lines of the motor driven pumps and regulate pump discharge pressure to prevent pump damage caused from a runout condition. The valves prevent pump runout by automatically throttling as Steam Generator pressure decreases. Valves are normally open when the system is in standby and automatically throttle in responce to line pressure on initiation.
5.	Motor Driven and Steam Driven Pump Discharge Flow Control Valves. Each of the six Pump discharge lines contains a remote-manually controlled flow control valve. Flow from 0 to 100 Percent is manually selected using remote control logic switches. In addition to flow control, the valve control logic causes the valves to close in each Steam Generator Feedwater Header if a Feedwater Header rupture or Main Steam Header rupture occurs.
6.	Pump Discharge Line Check Valves. Valves prevent cross flow between the motor driven and steam driven pump discharge headers and reverse flow from the Steam Generators back through the pumps. Each flow path contains two check valves in series.
7.	Auxiliary Feedwater Motor-operated Isolation Valves. Valves allow for isolation of each header for maintenance or header rupture.

SYSTEM: AUXILIARY FEEDWATER

NO.	NOTE
8.	Auxiliary Feedwater Isolation From Normal Feedwater Valves.
9.	Auxiliary Feedwater Isolation From Normal Feedwater Check Valves.
10.	Auxiliary Feedwater Inlet to Steam Generator Check Valves.
11.	Chemical Addition Valves. Valves are normally closed when the system is idle. Chemicals are added as necessary when the system is in operation.

COLD SHUTDOWN TEST JUSTIFICATION

CS-1

System:	Auxiliary Feedwater
Valve:	1AF-64,81,102
Category:	B
Class:	2
ASME Section XI Quarterly Test Requirements:	Exercise, Time and Fail.
Cold Shutdown Test Justification:	These six inch valves are normally open and supply eighteen percent of the normal Feedwater to the Steam Generators. Exercising during normal operation would cause Steam Generator transients and would have a significant undesirable effect on plant operations.
Quarterly Part Stroke Testing:	Valves are full stroke on initiation and can not be partial stroke exercised.
Cold Shutdown Testing.	Exercise, Time and Fail.

COLD SHUTDOWN TEST JUSTIFICATION

CS-2

System: Auxiliary Feedwater

Valve: 1AF-16, 31

Category: C

Class: 3

Function: Motor Driven Auxiliary Feedwater Pump discharge check valves.

Test Requirements: Verify forward flow operability and reverse flow closure.

Basis for Relief: The only way to verify forward flow operability is by operating the motor driven Auxiliary Feedwater pumps and injecting relatively cold condensate water directly into the hot Steam Generators. The introduction of cold water into the hot Steam Generators during normal operation would result in large thermal shock to the Feedwater Nozzles which could cause cracking of the nozzles. In addition, to test Auxiliary Feedwater during normal operation would require starting the Auxiliary Feedwater pumps and securing the normal Feedwater System flow, which would have an adverse effect on Steam Generator water level control and could cause a forced plant shutdown. Quarterly pump testing is done through the pump recirculation lines and the downstream flow control valves automatically close so that the pumps are essentially isolated from each other and reverse flow closure of these pump discharge check valves can not be verified until full Auxiliary Feedwater flow is injected into the Steam Generators.

Alternate Testing: Verify forward flow operability and reverse flow closure on a cold shutdown frequency when full flow test is performed on motor driven auxiliary feed pumps.

COLD SHUTDOWN TEST JUSTIFICATION

CS-3

System:	Auxiliary Feedwater
Valve:	1AF-19,34,49,50,51,129,130,131
Category:	B
Class:	3
Function:	1AF-19,34: Auxiliary Feedwater Pump Discharge Pressure Control Valves. 1AF-49,50,51,129,130,131: Auxiliary Feedwater Pump Discharge Flow Control Valves.
Test Requirement:	Exercise, Time, and Fail
Basis for Relief:	Position of these valves is automatically modulated during pump operation to control Auxiliary Feedwater flow rate. To test these valves would require use of control logic defeating methods, such as temporary jumpers. In order to minimize the impact on the auxiliary feedwater system by forcing these valves to their non fail safe position, valve testing will be performed on a cold shutdown frequency.
Alternate Testing:	Exercise; time and fail on a cold shutdown frequency.

COLD SHUTDOWN TEST JUSTIFICATION

CS-4

System:	Auxiliary Feedwater
Valve:	1AF-54,73,92,201,202,203
Category:	C
Class:	3
Function:	Motor driven Auxiliary Feedwater Pump discharge check valves:
Test Requirements:	Verify forward flow operability.
Basis for Relief:	The only way to verify forward flow operability is by operating the motor driven Auxiliary Feedwater pumps and injecting relatively cold condensate water directly into the hot Steam Generators. The introduction of cold water into the hot Steam Generators during normal operation would result in large thermal shock to the Feedwater Nozzles and could cause cracking of the nozzles. In addition, to test the Auxiliary Feedwater during normal operation would require starting the Auxiliary Feedwater pumps and securing the normal Feedwater System flow, which would have an adverse effect on Steam Generator water level control and could cause a forced plant shutdown.
Alternate Testing:	Verify full forward flow operability at cold shutdown when the Auxiliary Feedwater Pumps are being full flow tested.

COLD SHUTDOWN JUSTIFICATION

CS-5

System:	Auxiliary Feedwater
Valve:	1AF-117, 136, 142, 148, 204, 205, 206
Category:	C
Class:	3
Function:	Steam driven Auxiliary Feedwater pump line to Steam Generator series check valves.
Test Requirement:	Verifiy forward flow operability.
Basis for Relief:	These valves can only be forward flow operability tested by operation the steam driven pumps and injecting full flow into the Steam Generators, which can not be done during normal operations (See CS-2). The only source of steam to the steam driven turbine is from the Main Steam System. To operate the turbine requires that the Steam Generators be producing sufficient steam to drive the turbine. Control of Steam Generator water level when producing steam is much more critical than during the refilling process, where the motor operated pumps are tested. To perform flow testing during steam production would have a significant impact on Steam Generator water level control on all three Steam Generators, would require a significant amount of startup time and could result in a forced plant shutdown.
Alternate Testing:	Perform full forward flow operability testing of these valves during full steam driven pump testing on a cold shutdown frequency when the impact on plant operations will be minimized.

COLD SHUTDOWN JUSTIFICATION

CS-6

System:	Auxiliary Feedwater
Valve:	1AF-117
Category:	C
Class:	3
Function:	1C-SAB Discharge Check Valve
Test Requirements:	Verify reverse flow closure.
Basis for Relief:	The system has no design provision for verification of reverse flow closure. The only possible test method involes pressurizing the downstream section of pipe and monitoring an upstream tap for evidence of gross leakage performing this at power could result in a loss of steam generator level control and could cause a plant shutdown.
Alternate Testing:	Verify reverse flow closure on a cold shutdown frequency when test can be performed with little impact on plant condition.

VALVE

RELIEF REQUEST

RV-1

System:	Auxiliary Feedwater
Valve:	1AF-65, 84, 103
Category:	C
Class:	2
Function:	Auxiliary Feedwater Isolation From Normal Feedwater Line Check Valves.
Test Requirements:	Verify reverse flow closure.
Basis for Relief:	The system has no design provision for verification of reverse flow closure. The only possible test method involes pressurizing the downstream section of pipe and monitoring an upstream tap for evidence of gross leakage. This method involves filling and draining large segments of the system. Because of the time involved, ALARA consideration and large amounts of wastes, it is not practical to perform testing execpt at refueling. The only other alternative testing is to disassemble and visually inspect each valve.
Alternate Testing:	One valve will be disassembled and visually inspected at each refueling, and alternate valves will be done during subsequent refuelings. Failure to pass inspection will initiate disassembly and inspection of the other two valves.

VALVE

RELIEF REQUEST

RV-2

System: Auxiliary Feedwater

Valve: 1AF-201, 202, 203
204, 205, 206

Category: C

Class: 3

Function: Auxiliary Feedwater Pump Discharge Line to Feedwater Line Check Valves.

Test Requirement: Verifiy reverse flow closure.

Basis for Relief: The system has no design provision for verification of reverse flow closure. The only possible test method involes pressurizing the downstream section of pipe and monitoring an upstream tap for evidence of gross leakage. This method involves filling and draining large segments of the system. Because of the time involved, ALARA consideration, and large amounts of wastes, it is not practical to perform testing execpt at refueling. The only other alternative testing is to disassemble and visually inspect each valve.

Alternate Testing: During normal plant operation
The valves 1AF-201, 202, 203, 204, 205, and 206 will be verified to be in the closed position through the continual monitoring of installed temperature elements. Unacceptable conditions require action in accordance with Plant Operating Procedure. In addition 1 valve off of the Motor Driven Train and 1 valve off Turbine Driven Train will be disassembled and inspected at each refueling, and alternate valves will be done during subsequent refuelings. Failure to pass inspection will initiate disassembly and inspection of the other valves on the same train.

OS2

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE

SYSTEM: AUXILIARY FEEDWATER

DWG. NO. 2165-S-544

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
1AF-4	3 N-6	C	2 CK	SA	C	FS-1		FF			NOTE 1	
1AF-5	3 N-6	B	2 GL	MO	O	FS-1 TM-1 PI-5	C				NOTE 2	
1AF-16	3 L-6	C	4 CK	SA	C	FS-1 BS-1		FF BS	CS-2 CS-2	FF-2 BS-2	NOTE 3	
1AF-19	3 K-6	B	4 GL	EH	O	FS-1 FO-1 PI-5			CS-3	FS-2 FO-2	NOTE 4	
1AF-23	3 N-9	C	2 CK	SA	C	FS-1		FF			NOTE 1	
1AF-24	3 N-9	B	2 GL	MO	O	FS-1 TM-1 PI-5	C				NOTE 2	
1AF-31	3 L-8	C	4 CK	SA	C	FS-1 BS-1		FF BS	CS-2 CS-2	FF-2 BS-2	NOTE 3	
1AF-34	3 K-8	B	4 GL	EH	O	FS-1 FO-1 PI-5			CS-3	FS-2 FO-2	NOTE 4	
1AF-49	3 J-6	B	4 GL	EH	O	FO-1 PI-5 FS-1 TM-1	C		CS-3	FO-2 FS-2 TM-2	NOTE 5	

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE

SYSTEM: AUXILIARY FEEDWATER

DWG. NO. 2165-S-544

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
1AF-50	3 J-7	B	4 GL	EH	O	FO-1 FS-1 TM-1 PI-5	C		CS-3	FO-2 TM-2 FS-2	NOTE 5	
1AF-51	3 J-8	B	4 GL	EH	O	FO-1 FS-1 TM-1 PI-5	C		CS-3	FO-2 FS-2 TM-2	NOTE 5	
1AF-54	3 F-6	C	4 CK	SA	C	FS-1		FF	CS-4	FF-2	NOTE 6	
1AF-55	2 F-6	B	4 GA	MO	O	FS-1 TS-1 PI-5	C				NOTE 7	
1AF-64	2 C-6	B	6 GA	AO	O	FS-1 TM-1 FC-1 PI-5	C		CS-1 CS-1 CS-1	FS-2 TM-2 FC-2	NOTE 8	
1AF-65	2 C-6	C	6 CK	SA	O	FS-1		BS	RV-1	DS SP-3	NOTE 9	
1AF-68	2 C-2	C	6 CK	SA	O	FS-1		FF			NOTE 10	
1AF-73	3 H-7	C	4 CK	SA	C	FS-1		FF	CS-4	FF-2	NOTE 6	
1AF-74	2 G-7	B	4 GA	MO	O	FS-1 TS-1 PI-5	C				NOTE 7	

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE

SYSTEM: AUXILIARY FEEDWATER

DWG. NO. 2165-S-544

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
1AF-81	2 E-7	B	6 GA	AO	O	FS-1 TM-1 FC-1 PI-5	C		CS-1 CS-1 CS-1	FS-2 TM-2 FC-2	NOTE 8	
1AF-84	2 E-5	C	6 CK	SA	O	FS-1		BS	RV-1	DS SP-3	NOTE 9	
1AF-87	2 K-2	C	6 CK	SA	O	FS-1		FF			NOTE 10	
1AF-92	3 I-8	C	4 CK	SA	C	FS-1		FF	CS-4	FF-2	NOTE 6	
1AF-93	2 H-8	B	4 GA	MO	O	FS-1 TS-1 PI-5	C				NOTE 7	
1AF-102	2 F-4	B	6 GA	AO	O	FS-1 TM-1 FC-1 PI-5	C		CS-1 CS-1 CS-1	FS-2 TM-2 FC-2	NOTE 8	
1AF-103	2 F-4	C	6 CK	SA	O	FS-1		BS	RV-1	DS SP-3	NOTE 9	
1AF-106	2 G-2	C	6 CK	SA	O	FS-1		FF			NOTE 10	
1AF-110	3 N-11	C	2 CK	SA	C	FS-1		FF			NOTE 1	

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE

SYSTEM: AUXILIARY FEEDWATER

DWG. NO. 2165-S-544

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
1AF-117	3 L-10	C	6 CK	SA	C	FS-1 BS-1		FF BS	CS-5 CS-6	FF-2	NOTE 6	
1AF-129	3 J-9	B	4 GL	EH	O	FO-1 FS-1 TM-1 PI-5	C		CS-3	FO-2 FS-2 TM-2	NOTE 5	
1AF-130	3 J-10	B	4 GL	EH	O	FO-1 FS-1 TM-1 PI-5	C		CS-3	FO-2 FS-2 TM-2	NOTE 5	
1AF-131	3 J-11	B	4 GL	EH	O	FO-1 FS-1 TM-1 PI-5	C		CS-3	FO-2 FS-2 TM-2	NOTE 5	
1AF-136	3 F-6	C	4 CK	SA	C	FS-1		FF	CS-5	FF-2	NOTE 6	
1AF-137	2 F-6	B	4 GA	MO	O	FS-1 TS-1 PI-5	C				NOTE 7	
1AF-142	3 H-9	C	4 CK	SA	C	FS-1		FF	CS-5	FF-2	NOTE 6	
1AF-143	2 H-9	B	4 GA	MO	O	FS-1 TS-1 PI-5	C				NOTE 7	
1AF-148	3 H-7	C	4 CK	SA	C	FS-1		FF	CS-5	FF-2	NOTE 6	
1AF-149	2 G-7	B	4 GA	MO	O	FS-1 TS-1 PI-5	C				NOTE 7	
1AF-153	2 B-4	B	1 GA	AO	C	FS-1 TM-1 FC-1 PI-5	C				NOTE 11	

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE

SYSTEM: AUXILIARY FEEDWATER

DWG. NO. 2165-S-544

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
1AF-155	2 B-3	B	1 GA	AO	C	FS-1 TM-1 FC-1 PI-5	C				NOTE 11	
1AF-157	2 G-4	B	1 GA	AO	C	FS-1 TM-1 FC-1 PI-5	C				NOTE 11	
1AF-159	2 G-3	B	1 GA	AO	C	FS-1 TM-1 FC-1 PI-5	C				NOTE 11	
1AF-161	2 K-4	B	1 GA	AO	C	FS-1 TM-1 FC-1 PI-5	C				NOTE 11	
1AF-163	2 K-3	B	1 GA	AO	C	FS-1 TM-1 FC-1 PI-5	C				NOTE 11	
1AF-201	3 H-5	C	4 CK	SA	C	FS-1 BS-1		FF BS	CS-4 RV-2	FF-2 DS	NOTE 9	
1AF-202	3 I-8	C	4 CK	SA	C	FS-1 BS-1		FS BS	CS-4 RV-2	FF-2 DS	NOTE 9	
1AF-203	3 I-6	C	4 CK	SA	C	FS-1 BS-1		FS BS	CS-4 RV-2	FF-2 DS	NOTE 9	
1AF-204	3 H-7	C	4 CK	SA	C	FS-1 BS-1		FS BS	CS-5 RV-2	FF-2 DS	NOTE 9	
1AF-205	3 H-10	C	4 CK	SA	C	FS-1 BS-1		FS BS	CS-5 RV-2	FF-2 DS	NOTE 9	
1AF-206	3 H-11	C	4 CK	SA	C	FS-1 BS-1		FS BS	CS-5 RV-2	FF-2 DS	NOTE 9	

PUMP AND VALVE INSERVICE TESTING PROGRAM PLAN

FOR

SHEARON HARRIS NUCLEAR POWER PLANT

SECTION 5.6.9

VALVE TEST TABLES AND RELIEF REQUESTS

FOR

CONDENSATE

DWG. NO. 2165-S-545

SYSTEM: CONDENSATE

NO.	NOTE
1.	Condensate Storage Tank to Auxiliary Feedwater Pump Inlet Check Valves. Reverse flow closure required to prevent flow of service water into the Condensate Storage Tank.
2.	Relief Valves which protect the Low Pressure Suction piping from back leakage across the Pump Discharge Check Valves.

COLD SHUTDOWN TEST JUSTIFICATION

CS-1

System:	Condensate
Valve:	1CE-36,46,56
Category:	C
Class:	3
Function:	Condensate Storage Tank to Auxiliary Feedwater Pump Inlet Check Valves.
Test Requirements:	Verify forward flow operability.
Basis for Relief:	The only way to verify full forward flow operability is by operating the motor driven Auxiliary Feedwater pumps and injecting relatively cold condensate water directly into the hot Steam Generators. The introduction of cold water into the Steam Generators during normal operation would result in large thermal shock to the Feedwater Nozzles and could cause cracking of the nozzles. In addition to test the Auxiliary Feedwater during normal operation would require starting the Auxiliary Feedwater pumps and securing the normal Feedwater System flow, which would have an adverse effect on Steam Generator water level control and could cause a forced plant shutdown.
Alternate Testing:	Valves will be partial stroke exercised during quarterly pump testing with flow through the small pump recirculation line back to the Condensate Storage Tank. Valves will be full flow exercised on the way to cold shutdown when the Aux. Feed System is in operation.

VALVE

RELIEF REQUEST

RV-1

System:	Condensate
Valve:	1CE-36,46,56
Category:	C
Class:	3
Function:	Condensate Storage Tank to Auxiliary Feedwater Pump Inlet Check Valve which prevents back-flow from the Service Water System into the Condensate Storage Tank.
Test Requirements:	Verify reverse flow closure.
Basis for Relief:	These valves are in the line from the Condensate Storage Tank to the Auxiliary Feedwater Pump Inlet and are upstream from the ross-tie with the Service Water System. In this location the valves prevent back-flow from the Service Water System into the Condensate Storage Tank. The only possible method to verify reverse flow closure would be by monitoring for a increase in tank level. This technique is not possible in this case because of the volume of the tank and the normal level changes which occur during normal operation.
Alternate Testing:	One valve will be disassembled and visually inspected at refueling and alternate valves will be done during subsequent refuelings. Only one valve will be inspected at a refueling unless it fails to pass inspection. Failure to pass inspection will initiate disassembly and inspection of the other two valves.

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE

SYSTEM: CONDENSATE

DWG. NO. 2165-S-545

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
1CE-36	3 H-7	C	6 CK	SA	C	FS-1 FS-1 BS-1		FF FF BS	CS-1 CS-1 RV-1	FF-2 PE-1 DS	NOTE 1	
1CE-46	3 H-8	C	6 CK	SA	C	FS-1 FS-1 BS-1		FF FF BS	CS-1 CS-1 RV-1	FF-2 PE-1 DS	NOTE 1	
1CE-56	3 H-9	C	8 CK	SA	C	FS-1 FS-1 BS-1		FF FF BS	CS-1 CS-1 RV-1	FF-2 PE-1 DS	NOTE 1	
1CE-1157	3 I-7	C	1X1 RL	SA	C	RL-4					NOTE 2	
1CE-1158	3 I-8	C	1X1 RL	SA	C	RL-4					NOTE 2	
1CE-1159	3 I-9	C	1X1 RL	SA	C	RL-4					NOTE 2	

PUMP AND VALVE INSERVICE TESTING PROGRAM PLAN

FOR

SHEARON HARRIS NUCLEAR POWER PLANT

SECTION 5.6.10

VALVE TEST TABLES AND RELIEF REQUESTS

FOR

SERVICE WATER

DWG. NO. 2165-S-547
2165-S-588
2165-S-936

SYSTEM: SERVICE WATER

NO.	NOTE
1.	Pump Discharge Check Valves. Valves prevent backflow through the pumps.
2.	CTMU Pump Inlet Isolation Valves.
3.	Cross-tie to Normal Service Water Isolation Valves.
4.	Valves Close to Isolate Non-Safety-Related Loads.
5.	Thermal Relief Valve added to Program to comply with North Carolina State Requirements.
6.	Emergency Service Water to Containment Fan Coolers Check Valve. Reverse flow closure to prevent drain back from the coolers.
7.	Emergency Service Water to Containment Fan Coolers Isolation Valves.
8.	Orifice Bypass Valve. Valve closes on system initiation.
9.	Back-up Water Supply to the Auxiliary Feedwater Pumps.
10.	Charging Pump Oil Cooler Check Valves. Reverse flow closure is not required to prevent cross-flow between Emergency Service Water Headers. Valves are 1 1/2 inch and if they fail to close the amount of water diverted from the operating to non-operating header would not be great enough to cause significant degradation of system operation.
11.	Normal Service Water to the Non-Safety-Related Containment Fan Coolers. Can only be tested when the Emergency Service Water system is in operation with flow through the Emergency Containment Fan Coolers Containment Isolation Valve.
12.	Normal Service Water to Non-Safety-Related Containment Fan Coolers inside Containment Isolation Check Valve. Reverse flow closure for Containment isolation.

SYSTEM: SERVICE WATER

NO.	NOTE
13.	Return Header Isolation Valves.
14.	Normal CTMUP and ESW Water soures for ESW Intake Structure Fan Coolers. Valves are controlled by local temperature elements and as such are temperature control valves, exempt from Section XI test requirements. Normal CTMUP isolates and ESW source initiates on loss of site power or LOCA condition. Valves are tested for fail-safe operation only.

VALVE

RELIEF REQUEST

RV-1

System:	SERVICE WATER
Valve:	1SW-233
Category:	AC
Class:	2
Function:	Normal Service Water System Inside Containment Isolation Check Valve
Test Requirements:	Verify reverse flow closure.
Basis for Relief:	The only method available to verify reverse flow closure is by valve leak testing during Appendix J, Type C, Testing at refueling.
Alternate Testing:	Reverse flow closure will be verified during Appendix J, Type C, Testing at refueling.

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE

SYSTEM: SERVICE WATER

DWG. NO. 2165-S-547

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
1SW-9	3 E-2	C	30 CK	SA	C	FS-1 BS-1		FF BS			NOTE 1	
1SW-10	3 E-3	C	30 CK	SA	C	FS-1 BS-1		FF BS			NOTE 1	
1SW-20	3 F-1	B	3 BA	PO	O/C	FS-1 TM-1 FO-1 PI-5	O				NOTE 2	
1SW-23	3 F-4	B	3 BA	PO	O/C	FS-1 TM-1 FO-1 PI-5	O				NOTE 2	
1SW-39	3 I-1	B	30 BF	MO	O/C	FS-1 TM-1 PI-5	O C				NOTE 3	

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE

SYSTEM: SERVICE WATER

DWG. NO. 2165-S-547

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
1SW-40	3 I-2	B	30 BF	MO	O/C	FS-1 TM-1 PI-5	O C				NOTE 3	
1SW-60	3 I-6	C	3/4X1 RL	RL	C	RL-4					NOTE 5	
1SW-86	3 F-6	C	14 CK	SA	O/C	FS-1 BS-1		FF BS			NOTE 6	
1SW-91	2 C-6	B	8 BF	MO	O	FS-1 TS-1 PI-5	O C				NOTE 7	
1SW-92	2 C-7	B	8 BF	MO	O	FS-1 TS-1 PI-5	O C				NOTE 7	
1SW-97	2 C-8	B	8 BF	MO	O	FS-1 TS-1 PI-5	O C				NOTE 7	
1SW-98	2 C-9	B	8 BF	MO	O	FS-1 TS-1 PI-5	O C				NOTE 7	
1SW-95	2 C-8	C	1X1½ RL	SA	C	RL-4					NOTE 5	
1SW-96	2 C-9	C	1X1½ RL	SA	C	RL-4					NOTE 5	

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE

SYSTEM: SERVICE WATER

DWG. NO. 2165-S-547

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
1SW-109	2 C-12	B	8 BF	MO	O	FS-1 TS-1 PI-5	O C				NOTE 7	
1SW-110	2 C-13	B	8 BF	MO	O	FS-1 TS-1 PI-5	O C				NOTE 7	
1SW-116	3 H-7	B	14 BF	AO	O	FS-1 TM-1 FC-1 PI-5	C				NOTE 8	
1SW-118	3 G-13	B	14 BF	AO	O	FS-1 TM-1 FC-1 PI-5	C				NOTE 8	
1SW-121	3 J-8	B	8 BF	MO	C	FS-1 TM-1 PI-5	O C				NOTE 9	
1SW-123	3 J-8	B	8 BF	MO	C	FS-1 TM-1 PI-5	O C				NOTE 9	
1SW-124	3	B I-8	8	MO BF	C	FS-1 TM-1 PI-5	O C				NOTE 9	
1SW-126	3 I-8	B	8 BF	MO	C	FS-1 TM-1 PI-5	O C				NOTE 9	
1SW-127	3 I-9	B	8 BF	MO	C	FS-1 TM-1 PI-5	O C				NOTE 9	

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE

SYSTEM: SERVICE WATER

DWG. NO. 2165-S-547

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
1SW-129	3 I-9	B	8 BF	MO	C	FS-1 TM-1 PI-5	O C				NOTE 9	
1SW-130	3 I-9	B	8 BF	MO	C	FS-1 TM-1 PI-5	O C				NOTE 9	
1SW-132	3 J-10	B	8 BF	MO	C	FS-1 TM-1 PI-5	O C				NOTE 9	
1SW-141	3 H-8	C	1 1/2 CK	SA	O/C	FS-1		FF			NOTE 10	
1SW-143	3 H-9	C	1 1/2 CK	SA	O/C	FS-1		FF			NOTE 10	
1SW-152	3 H-10	C	1 1/2 CK	SA	O/C	FS-1		FF			NOTE 10	
1SW-154	3 H-11	C	1 1/2 CK	SA	O/C	FS-1		FF			NOTE 10	
1SW-163	3 H-11	C	1 1/2 CK	SA	O/C	FS-1		FF			NOTE 10	
1SW-165	3 H-12	C	1 1/2 CK	SA	O/C	FS-1		FF			NOTE 10	
1SW-107	2 C-12	C	1X1½ RL	SA	C	RL-4					NOTE 5	
1SW-108	2 C-13	C	1X1½ RL	SA	C	RL-4					NOTE 5	

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE

SYSTEM SERVICE WATER

DWG. NO. 2165-S-547

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
1SW-171	3 F-11	C	3/4X1 RL	SA	C	RL-4					NOTE 5	
1SW-179	3 I-15	B	4 GA	PO	O	FS-1 TM-1 FC-1 PI-5	C				NOTE 4	
1SW-180	3 I-15	B	4 GA	PO	O	FS-1 TM-1 FC-1 PI-5	C				NOTE 4	
1SW-204	3 K-16	B	4 GA	PO	O	FS-1 TM-1 FC-1 PI-5	C				NOTE 4	
1SW-206	3 K-16	B	4 GA	PO	O	FS-1 TM-1 FC-1 PI-5	C				NOTE 4	
1SW-220	3 F-6	C	14 CK	SA	O/C	FS-1 BS-1		FF BS			NOTE 6	
1SW-225	2 C-14	B	8 BF	MO	O	FS-1 TS-1 PI-5	O C				NOTE 7	
1SW-227	2 C-14	B	8 BF	MO	O	FS-1 TS-1 PI-5	O C				NOTE 7	
1SW-231	2 C-15	A	12 BF	AO	O	FS-1 TS-1 FC-1 PI-5 LJ-3	C				NOTE 11	

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE

SYSTEM: SERVICE WATER

DWG. NO. 2165-S-547

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
1SW-233	2 C-15	AC	12 CK	SA	O	FS-1 LJ-3		BS	RV-1	SP-3	NOTE 12	
1SW-240	2 D-17	A	12 BF	AO	O	FS-1 TS-1 FC-1 PI-5 LJ-3	C				NOTE 11	
1SW-242	2 E-17	A	12 BF	AO	O	FS-1 TS-1 FC-1 PI-5 LJ-3	C				NOTE 11	
1SW-257	3 I-13	C	3/4X1 RL	SA	C	RL-4					NOTE 5	
1SW-270	3 K-16	B	30 BF	MO	C	FS-1 TM-1 PI-5.	O C				NOTE 13	
1SW-271	3 J-16	B	30 BF	MO	C	FS-1 TM-1 PI-5	O C				NOTE 13	
1SW-274	3 L-16	B	30 BF	MO	O	FS-1 TM-1 PI-5	O C				NOTE 13	
1SW-275	3 L-16	B	30 BF	MO	O	FS-1 TM-1 PI-5	O C				NOTE 13	
1SW-276	3 M-15	B	36 BF	MO	O	FS-1 TM-1 PI-5	O C				NOTE 13	

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE

SYSTEM: SERVICE WATER

DWG. NO. 2165-S-588

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
1MP-70	3 C-18	B	2 GL	SO	O	FC-1 PI-5	C				NOTE 14	
1MP-71	3 C-19	B	2 GL	SO	O	FC-1 PI-5	C				NOTE 14	
1SW-1000	3 C-18	B	2 GL	SO	C	FO-1 PI-5	O				NOTE 14	
1SW-1001	3 C-19	B	2 GL	SO	C	FO-1 PI-5	O				NOTE 14	
1SW-150	3 F-8	C	3/4X1 RL	SA	C	RL-4					NOTE 5	
1SW-160	3 F-8	C	3/4X1 RL	SA	C	RL-4					NOTE 5	

PUMP AND VALVE INSERVICE TESTING PROGRAM PLAN

FOR

SHEARON HARRIS NUCLEAR POWER PLANT

SECTION 5.6.11

VALVE TEST TABLES AND RELIEF REQUESTS

FOR

CONTAINMENT SPRAY

DWG. NO. 2165-S-550

SYSTEM: CONTAINMENT SPRAY

NO.	NOTE
1.	Relief Valve which protects Safety-Related Equipment.
2.	NaOH Additive Valves. Valves open on CSAC signal and close on low tank level.
3.	CTMT Spray Eductor Test Valves. Valves close on system initiation.
4.	RWST to Pump Inlet Block Valves. Valves close on switch over to recirculation mode.
5.	RWST to Pump Inlet Check Valves. Test line is large enough to verify full design forward flow. The Recirculation and RWST Block Valves are interlocked and can not be open at the same time. Thus, reverse flow closure of these check valves is not required.
6.	Pump Test Line to RWST Block Valves. Valves close on system initiation.
7.	Containment Isolation Valves.
8.	NaOH Injection Check Valves. Reverse flow closure is required to separate headers, since both motor operated block valves open on initiation.
9.	Containment Sump Isolation Valves. Valves open for Recirculation operating mode and close for CTMT isolation. Cycling will drain system water into the Stainless Steel sumps.
10.	Spring loaded check valves used as vacuum brakers on the Spray Additive Tank. Valves open with a 0.17 Psid (maximum) across the valves. They will be treated and tested in a manner similar to relief valves. At each refueling, one of the valves will be tested. Failure of valve to pass test will result in other valve being tested.

COLD SHUTDOWN TEST JUSTIFICATION

CS-1

System:	CONTAINMENT SPRAY
Valve:	1CT-102,105
Category:	B
Class:	2
Function:	Containment Recirculation Sump Isolation Valves.
Test Requirements:	Exercise and Time
Basis for Relief:	Exercising these valves, even with the in-line block valves closed, would result in a small amount of water being drained into the Containment Sump. This highly oxygenated, stagnant water could result in excessive corrosion of the sump structure. The amount of water is insufficient to insure adequate pump NPSH so it can not be removed with the system pumps. There are no provisions for removing the water except by a temporary sump pump and entering the sump to hand dry the wetted surfaces.
Alternate Testing:	Exercise and Time at cold shutdown when sump water can be removed.

VALVE

RELIEF REQUEST

RV-1

System:	CONTAINMENT SPRAY
Valve:	1CT-53,91
Category:	AC
Class:	2
Function:	Containment Spray System Inside Containment Isolation Check Valves.
Test Requirements:	Verify forward flow operability and reverse flow closure.
Basis for Relief:	Since there is no test recirculation line the only way to verify forward flow operability would be by using the pumps and injecting a large quantity of water into the Containment. Spraying the Containment would result in extensive damage to safety-related equipment located inside Containment. Using air as a test medium is not practical since large segments of the system would have to be drained and high pressure air pumped into the system through a small test connection. The amount of air that could be injected using this method would be insufficient to verify full stroke opening and could result in an overpressurization of the Containment structure. The only method available to verify leak testing during Appendix J, Type C, testing at refueling.
Alternate Testing:	One of the valves will be disassembled and visually inspected at refueling. Valve inspections will alternate with subsequent refuelings. Failure to pass inspection will initiate disassembly and inspection of the other valve. Reverse flow closure will be verified during Appendix J, Type C, valve leak testing at refueling.

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE

SYSTEM: CONTAINMENT SPRAY

DWG. NO. 2165-S-550

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
1CT-5	3 B-9	C	1X1.25 RL	SA	C	RL-4					NOTE 1	
1CT-11	3 I-12	B	2 GL	MO	C	FS-1 TM-1 PI-5	O C				NOTE 2	
1CT-12	3 H-12	B	2 GL	MO	C	FS-1 TM-1 PI-5	O C				NOTE 2	
1CT-24	2 H-14	B	2 GL	MO	C	FS-1 TM-1 PI-5	C				NOTE 3	
1CT-25	2 H-14	B	2 GL	MO	C	FS-1 TM-1 PI-5	C				NOTE 3	
1CT-26	2 F-15	B	12 GA	MO	D	FS-1 TM-1 PI-5	C				NOTE 4	
1CT-27	2 F-14	C	12 CK	SA	C	FS-1		FF			NOTE 5	
1CT-47	2 E-5	B	6 GA	MO	C	FS-1 TM-1 PI-5	C				NOTE 6	
1CT-50	2 F-4	A	8 GA	MO	C	FS-1 TS-1 PI-5 LJ-3	O C				NOTE 7	

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE

SYSTEM: CONTAINMENT SPRAY

DWG. NO. 2165-S-550

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
1CT-53	2 F-3	AC	8 CK	SA	C	FS-1 BS-1 LJ-3		FF BS	RV-1 RV-1	DS SP-3	NOTE 7	
1CT-62	2 H-8	C	2 CK	SA	C	FS-1 BS-1		FF BS			NOTE 8	
1CT-65	2 J-8	C	2 CK	SA	C	FS-1 BS-1		FF BS			NOTE 8	
1CT-71	2 K-16	B	12 GA	MO	O	FS-1 TM-1 PI-5	C				NOTE 4	
1CT-72	2 K-15	C	12 CK	SA	C	FS-1		FF			NOTE 5	
1CT-88	2 K-4	A	8 GA	MO	C	FS-1 TS-1 PI-5 LJ-3	O C				NOTE 7	
1CT-91	2 K-3	AC	8 CK	SA	C	FS-1 BS-1 LJ-3		FF BS	RV-1 RV-1	DS SP-3	NOTE 7	
1CT-95	2 L-5	B	6 GA	MO	C	FS-1 TM-1 PI-5	C				NOTE 6	
1CT-102	2 M-7	B	12 GA	MO	C	FS-1 TM-1 PI-5	O C		CS-1 CS-1	FS-2 TM-2	NOTE 9, 7	

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE

SYSTEM: CONTAINMENT SPRAY

DWG. NO. 2165-S-550

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
1CT-105	2 N-7	B	12 GA	MO	C	FS-1 TM-1 PI-5	O C		CS-1 CS-1	FS-2 TM-2	NOTE 9,7	
1VB-1 (1CT-E017)	3 A-8	C	2 CK	SA	C	FS-1		FF			NOTE 10	
1VB-2 (1CT-E018)	3 A-8	C	2 CK	SA	C	FS-1		FF			NOTE 10	

PUMP AND VALVE INSERVICE TESTING PROGRAM PLAN

FOR

SHEARON HARRIS NUCLEAR POWER PLANT

SECTION 5.6.12

VALVE TEST TABLES AND RELIEF REQUESTS

FOR

STEAM GENERATOR BLOWDOWN

DWG. NO. 2165-S-551

SYSTEM: STEAM GENERATOR BLOWDOWN

NO.	NOTE
1.	Steam Generator Blowdown Line Block Valves.

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE

SYSTEM: STEAM GENERATOR BLOWDOWN

DWG. NO. 2165-S-551

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
1BD-1	2 D-3	C	2 GL	AO	O	FS-1 TS-1 FC-1 PI-5	C				NOTE 1	
1BD-7	2 C-3	B	4 GA	PO	O	FS-1 TS-1 FC-1 PI-5	C				NOTE 1	
1BD-11	2 D-7	B	4 GL	PO	O	FS-1 TS-1 FC-1 PI-5	C				NOTE 1	
1BD-20	2 I-3	B	2 GL	AO	O	FS-1 TS-1 FC-1 PI-5	C				NOTE 1	
1BD-26	2 H-3	B	4 GA	PO	O	FS-1 TS-1 FC-1 PI-5	C				NOTE 1	
1BD-30	2 I-6	B	4 GL	PO	O	FS-1 TS-1 FC-1 PI-5	C				NOTE 1	
1BD-39	2 N-3	B	2 GL	AO	O	FS-1 TS-1 FC-1 PI-5	C				NOTE 1	
1BD-45	2 L-3	B	4 GA	PO	O	FS-1 TS-1 FC-1 PI-5	C				NOTE 1	
1BD-49	2 N-7	B	4 GL	PO	O	FS-1 TS-1 FC-1 PI-5	C				NOTE 1	

PUMP AND VALVE INSERVICE TESTING PROGRAM PLAN

FOR

SHEARON HARRIS NUCLEAR POWER PLANT

SECTION 5.6.13

VALVE TEST TABLES AND RELIEF REQUESTS

FOR

PROCESS SAMPLING

DWG. NO. 2165-S-551
2165-S-552

SYSTEM: PROCESS SAMPLING

NO.	NOTE
1.	Steam Generator Sample Block Valves.
2.	Sampling System Containment Isolation Valves.
3.	Position Indication will be verified during performance of Appendix J, LLRT Testing.

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE

SYSTEM: PROCESS SAMPLING

DWG. NO. 2165-S-551

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
1SP-214	2 C-4	B	3/4 GL	SO	O/C	FS-1 TS-1 FC-1 PI-5	C				NOTE 1	
1SP-216	2 C-4	B	3/4 GL	SO	O/C	FS-1 TS-1 FC-1 PI-5	C				NOTE 1	
1SP-217	2 C-6	B	3/4 GL	SO	O/C	FS-1 TS-1 FC-1 PI-5	C				NOTE 1	
1SP-219	2 G-4	B	3/4 GL	SO	O/C	FS-1 TS-1 FC-1 PI-5	C				NOTE 1	
1SP-221	2 H-4	B	3/4 GL	SO	O/C	FS-1 TS-1 FC-1 PI-5	C				NOTE 1	
1SP-222	2 H-6	B	3/4 GL	SO	O/C	FS-1 TS-1 FC-1 PI-5	C				NOTE 1	
1SP-224	2 L-4	B	3/4 GL	SO	O/C	FS-1 TS-1 FC-1 PI-5	C				NOTE 1	
1SP-226	2 M-4	B	3/4 GL	SO	O/C	FS-1 TS-1 FC-1 PI-5	C				NOTE 1	
1SP-227	2 L-6	B	3/4 GL	SO	O/C	FS-1 TS-1 FC-1 PI-5	C				NOTE 1	

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE

SYSTEM: PROCESS SAMPLING

DWG.NO. 2165-S-552

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
1SP-40	2 C-4	A	3/8 GL	SO	O	FS-1 TS-1 FC-1 PI-5 LJ-3	C				NOTE 2, 3	
1SP-41	2 C-5	A	3/8 GL	SO	O	FS-1 TS-1 FC-1 PI-5 LJ-3	C				NOTE 2, 3	
1SP-59	2 D-4	A	3/8 GL	SO	O	FS-1 TS-1 FC-1 PI-5 LJ-3	C				NOTE 2, 3	
1SP-60	2 D-5	A	3/8 GL	SO	O	FS-1 TS-1 FC-1 PI-5 LJ-3	C				NOTE 2, 3	
1SP-78	2 D-3	A	3/8 GL	SO	C	FS-1 TS-1 FC-1 PI-5 LJ-3	C				NOTE 2, 3	
1SP-81	2 E-3	A	3/8 GL	SO	C	FS-1 TS-1 FC-1 PI-5 LJ-3	C				NOTE 2, 3	
1SP-84	2 F-3	A	3/8 GL	SO	C	FS-1 TS-1 FC-1 PI-5 LJ-3	C				NOTE 2, 3	
1SP-85	2 E-4	A	3/8 GL	SO	C	FS-1 TS-1 FC-1 PI-5 LJ-3	C				NOTE 2, 3	
1SP-200	2 N-6	A	1 GL	SO	C	FS-1 TS-1 FC-1 PI-5 LJ-3	C				NOTE 2, 3	

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE

SYSTEM: PROCESS SAMPLING

DWG. NO. 2165-S-552

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
1SP-201	2 N-5	A	1 GL	SO	C	FS-1 TS-1 FC-1 PI-5 LJ-3	C				NOTE 2, 3	
1SP-208	2 N-6	A	3/4 GL	SO	C	FS-1 TS-1 FC-1 PI-5 LJ-3	C				NOTE 2, 3	
1SP-209	2 N-5	A	3/4 GL	SO	C	FS-1 TS-1 FC-1 PI-5 LJ-3	C				NOTE 2, 3	
1SP-948	2 B-4	A	3/8 GL	SO	O	FS-1 TS-1 FC-1 PI-5 LJ-3	C				NOTE 2, 3	
1SP-949	2 B-5	A	3/8 GL	SO	O	FS-1 TS-1 FC-1 PI-5 LJ-3	C				NOTE 2, 3	

PUMP AND VALVE INSERVICE TESTING PROGRAM PLAN

FOR

SHEARON HARRIS NUCLEAR POWER PLANT

SECTION 5.6.14

VALVE TEST TABLES AND RELIEF REQUESTS

FOR

DIESEL GENERATOR FUEL OIL TRANSFER

DWG. NO. 2165-S-563

SYSTEM: DIESEL GENERATOR FUEL OIL TRANSFER

NO.	NOTE
1.	D.G. Fuel Oil Transfer Pump Discharge Check Valves. Failure of the check valves to close on reverse flow will not siphon the tank or degrade system operation, so, verification of reverse flow closure is not required.
2.	Relief valve which protects safety-related equipment.

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE

SYSTEM: D. G. FUEL OIL TRANSFER

DWG. NO. 2165-S-563

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
1DFO-168	3 G-2	C	2 CK	SA	C	FS-1		FF			NOTE 1	
1DFO-170	3 G-1	C	3/4X1 RL	SA	C	RL-4					NOTE 2	
1DFO-186	3 G-7	C	2 CK	SA	C	FS-1		FF			NOTE 1	
1DFO-188	3 G-5	C	3/4X1 RL	SA	C	RL-4					NOTE 2	
1DFO-176	3 F-10	C	1½ X 1½ RL	SA	C	RL-4					NOTE 2	
1DFO-194	3 F-15	C	1½ X 1½ RL	SA	C	RL-4					NOTE 2	

PUMP AND VALVE INSERVICE TESTING PROGRAM PLAN

FOR

SHEARON HARRIS NUCLEAR POWER PLANT

SECTION 5.6.15

VALVE TEST TABLES AND RELIEF REQUESTS

FOR

RADIATION MONITOR AND HYDROGEN ANALIZER

DWG. NO. 2165-S-605

SYSTEM: RADIATION MONITOR AND HYDROGEN ANALIZER

NO.	NOTE
1.	Containment Isolation Valves.
2.	Position Indication will be verified during performance of Appendix J, LLRT Testing.

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE

SYSTEM: RAD. MON. & H2 ANALIZER

DWG. NO. 2165-S-605

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
1SP-12	2 C-12	A	1 GL	SO	O	FS-1 TS-1 FC-1 PI-5 LJ-3	C				NOTE 1, 2	
1SP-16	2 C-13	B	1 GL	SO	O	FS-1 TS-1 FC-1 PI-5	C				NOTE 1, 2	
1SP-42	2 G-12	A	1 GL	SO	C	FS-1 TS-1 FC-1 PI-5 LJ-3	C				NOTE 1, 2	
1SP-62	2 I-12	A	1 GL	SO	C	FS-1 TS-1 FC-1 PI-5 LJ-3	C				NOTE 1, 2	
1SP-915	2 C-12	A	1 GL	SO	O	FS-1 TS-1 FC-1 PI-5 LJ-3	C				NOTE 1, 2	

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE

SYSTEM: RAD. MON. & H2 ANALIZER

DWG. NO. 2165-S-605

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
1SP-916	2 C-13	B	1 GL	SO	O	FS-1 TS-1 FC-1 PI-5 LJ-3	C				NOTE 1, 2	
1SP-917	2 D-12	A	1 GL	SO	O	FS-1 TS-1 FC-1 PI-5 LJ-3	C				NOTE 1, 2	
1SP-918	2 D-13	B	1 GL	SO	O	FS-1 TS-1 FC-1 PI-5 LJ-3	C				NOTE 1, 2	
1SP-919	2 G-12	A	1 GL	SO	C	FS-1 TS-1 FC-1 PI-5 LJ-3	C				NOTE 1, 2	
1SP-939	2 D-13	B	1 GL	SO	O	FS-1 TS-1 FC-1 PI-5 LJ-3	C				NOTE 1, 2	
1SP-941	2 D-12	A	1 GL	SO	O	FS-1 TS-1 FC-1 PI-5 LJ-3	C				NOTE 1, 2	
1SP-943	2 I-12	A	1 GL	SO	C	FS-1 TS-1 FC-1 PI-5 LJ-3	C				NOTE 1, 2	

PUMP AND VALVE INSERVICE TESTING PROGRAM PLAN

FOR

SHEARON HARRIS NUCLEAR POWER PLANT

SECTION 5.6.16

VALVE TEST TABLES AND RELIEF REQUESTS

FOR

DIESEL GENERATOR AIR START

DWG. NO. 2165-S-633

SYSTEM: DIESEL GENERATOR AIR START

NO.	NOTE
1.	D.G. Air Compressor to Air Receiver Check Valves. Valves are exercised by normal operation of the Compressors in the forward direction. Air Receivers are alarmed to indicate drop in pressure. Reverse flow verification is required to maintain sufficient Receiver inventory for D. G. Starting.
2.	Relief Valve which protects safety-related equipment.

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE

SYSTEM: D. G. AIR START

DWG. NO. 2165-S-633

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
1EA-4	3 C-2	C	1½ CK	SA	O/C	FS-1		BS			NOTE 1	
1EA-6	3 B-3	C	1½ RL	SA	C	RL-4					NOTE 2	
1EA-19	3 D-2	C	1½ CK	SA	O/C	FS-1		BS			NOTE 1	
1EA-21	3 C-3	C	1½ RL	SA	C	RL-4					NOTE 2	
1EA-35	3 C-12		1½ CK	SA	O/C	FS-1		BS			NOTE 1	
1EA-37	3 B-13		1½ RL	SA	C	RL-4					NOTE 2	
1EA-50	3 D-12	C	1½ CK	SA	O/C	FS-1		BS			NOTE 1	
1EA-52	3 C-13	C	1½ RL	SA	C	RL-4					NOTE 2	

PUMP AND VALVE INSERVICE TESTING PROGRAM PLAN

FOR

SHEARON HARRIS NUCLEAR POWER PLANT

SECTION 5.6.17

VALVE TEST TABLES AND RELIEF REQUESTS

FOR

DEMINERALIZED WATER

DWG. NO. 2165-S-799

SYSTEM: DEMINERALIZER WATER

NO.	NOTE
1.	Containment Isolation Valves.

VALVE

RELIEF REQUEST

RV-1

System:	Demineralized Water
Valve:	1DW-65
Category:	AC
Class:	2
Function:	Containment Isolation Simple Check Valve (reverse flow closure for containment isolation only).
Test Requirements:	Verify reverse flow closure.
Basis for Relief:	The only method available to verify reverse flow closure is by valve leak testing during Appendix J, Type C, testing at refueling.
Alternate Testing:	Reverse flow closure will be verified during Appendix J, Type C, testing at refueling.

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE

SYSTEM: DEMINERALIZED WATER

DWG. NO. 2165-S-799

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
1DW-63	2 H-5	A	3 GA	MA	LC LJ-3	PV					NOTE 1	
1DW-65	2 H-6	AC	3 CK	SA	FS-1 LJ-3			BS	RV-1	SP-3	NOTE 1	

PUMP AND VALVE INSERVICE TESTING PROGRAM PLAN

FOR

SHEARON HARRIS NUCLEAR POWER PLANT

SECTION 5.6.18

VALVE TEST TABLES AND RELIEF REQUESTS

FOR

CONTAINMENT SUMP DRAINS

DWG. NO. 2165-S-685

SYSTEM: CONTAINMENT SUMP DRAINS

NO.	NOTE
1.	Containment Isolation Valves.

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE

SYSTEM: CONTAINMENT SUMP DRAINS

DWG. NO. 2165-S-685

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
1ED-94	2 M-7	A	3 GA	MO	O	FS-1 TS-1 PI-5 LJ-3	C				NOTE 1	
1ED-95	2 M-7	A	3 GA	MO	O	FS-1 TS-1 PI-5 LJ-3	C				NOTE 1	

PUMP AND VALVE INSERVICE TESTING PROGRAM PLAN

FOR

SHEARON HARRIS NUCLEAR POWER PLANT

SECTION 5.6.19

VALVE TEST TABLES AND RELIEF REQUESTS

FOR

SERVICE AIR

DWG. NO. 2165-S-800

SYSTEM: SERVICE AIR

NO.	NOTE
1.	Containment Isolation Valves.

VALVE

RELIEF REQUEST

RV-1

System:	Service Air
Valve:	1SA-82
Category:	
Class:	
Function:	Containment Isolation Simple Check Valve (reverse flow closure for containment isolation only).
Test Requirement:	Verify reverse flow closure.
Basis for Relief:	The only method available to verify reverse flow closure is by valve leak testing during Appendix J, Type C, testing at refueling.
Alternate Testing:	Reverse flow closure will be verified during Appendix J, Type C, testing at refueling.

OS2

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE

SYSTEM: SERVICE AIR

DWG. NO. 2165-S-800

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
1SA-80	2 C-2	A	2 GL	MA	LC	PV LJ-3					NOTE 1	
1SA-82	2 C-3	AC	2 CK	SA	C	FS-1 LJ-3		BS	RV-1	SP-3	NOTE 1	

PUMP AND VALVE INSERVICE TESTING PROGRAM PLAN

FOR

SHEARON HARRIS NUCLEAR POWER PLANT

SECTION 5.6.20

VALVE TEST TABLES AND RELIEF REQUESTS

FOR

INSTRUMENT AIR

DWG. NO. 2165-S-801
2165-S-1017

SYSTEM: INSTRUMENT AIR

NO.	NOTE
1.	Containment Isolation Valves.
2.	Accumulator fill line check valves. Accumulators are maintained charged and are alarmed during normal operations.
3.	Valve numbers have been revised. Valves formally numbered as: 1CB-V01A, V01B, V02A, V02B AND 1CV-1,2.

COLD SHUTDOWN TEST JUSTIFICATION

CS-1

System:	Instrument Air
Valve:	IIA-819
Category:	A
Class:	2
ASME Section XI Quarterly Test Requirements:	Exercise, Time and Fail.
Cold Shutdown Test Justification:	Instrument Air supplies a number of components inside Containment which are necessary for normal operation. Testing during normal operation would deprive these components of their normal air supply and, since the system has no reserve air storage capacity, could result in operating transients and a possible forced plant shutdown.
Quarterly Part Stroke Testing:	Valves are equipped with full stroke only operators and can not be partial stroke exercised.
Cold Shutdown Testing:	Exercise, Time and Fail at cold shutdown when the normal Instrument Air can be isolated without causing loss of instruments and components necessary for normal plant operations.

VALVE

RELIEF REQUEST

RV-1

System:	Instrument Air
Valve:	1IA-220
Category:	AC
Class:	2
Function:	Containment Isolation Simple Check Valve (reverse flow closure for Containment isolation only).
Test Requirements:	Verify reverse flow closure.
Basis for Relief:	The only method available to verify reverse flow closure is by valve leak testing during Appendix J, Type C, testing at refueling.
Alternate Testing:	Reverse flow closure will be verified during Appendix J, Type C, testing at refueling.

VALVE

RELIEF REQUEST

RV-2

System: Instrument Air

Valve: 1IA-784, 785, 786, 787, 788, 789

Category: C

Class: 2

Function: Instrument Air To Air Operated Containment Isolation Valve Accumulators.

Test Requirements: Verify reverse flow closure.

Basis for Relief: Each fill line to the accumulators contains two simple check valves in series and there are no system provisions for individual valve closure verification. Only one automatic actuating valve is required to isolate the non-classed instrument air system from the accumulators. The two valves function as a single unit and if either of them close proper operation of the accumulators is assured. To verify reverse flow closure of the unit requires isolating and depressurization of a large segment of the Instrument Air System for an extended length of time. Loss of instrument air during operation would cause loss of instrumentation needed for normal operations. Because of the time required to perform testing, performing verification at cold shutdown could cause delays in returning the plant to normal operations.

Alternate Testing: One valve on the accumulator side and one valve on the instrument air side will be disassembled and inspected at each refueling. Failure of the tested valve will initiate testing of the other two corresponding valves.

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE

SYSTEM: INSTRUMENT AIR

DWG. NO. 2165-S-801

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
1IA-220	2 C-3	A	3 CK	SA	O	FS-1 LJ-3		BS	RV-1	SP-3	NOTE 1	
1IA-819	2 C-3	A	3 GA	PO	O	FS-1 TS-1 FC-1 PI-5 LJ-3	C		CS-1 CS-1 CS-1	FS-2 FS-2 FS-2	NOTE 1	

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE

SYSTEM: INSTRUMENT AIR

DWG. NO. 2165-S-801

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
1IA-784	2 B-7	C	3/4 CK	SA	O/C	FS-1		BS	RV-2	DS-3	NOTE 2,3	
1IA-785	2 B-8	C	3/4 CK	SA	O/C	FS-1		BS	RV-2	DS-3	NOTE 2,3	
1IA-786	2 G-2	C	3/4 CK	SA	O/C	FS-1		BS	RV-2	DS-3	NOTE 2,3	
1IA-787	2 G-3	C	3/4 CK	SA	O/C	FS-1		BS	RV-2	DS-3	NOTE 2,3	
1IA-788	2 H-2	C	3/4 CK	SA	O/C	FS-1		BS	RV-2	DS-3	NOTE 2,3	
1IA-789	2 H-3	C	3/4 CK	SA	O/C	FS-1		BS	RV-2	DS-3	NOTE 2,3	

PUMP AND VALVE INSERVICE TESTING PROGRAM PLAN

FOR

SHEARON HARRIS NUCLEAR POWER PLANT

SECTION 5.6.21

VALVE TEST TABLES AND RELIEF REQUESTS

FOR

FUEL POOL COOLING

DWG. NO. 2165-S-561
2165-2-805

SYSTEM: FUEL POOL COOLING

NO.	NOTE
1.	Containment Isolation Valves.
2.	Fuel Pool Cooling Pump Discharge Check Valves. In normal operation only one pump is in service and the Discharge Header is isolated between the pumps by normally closed valves. Since recirculation flow back across the idle pump is not possible verification of reverse flow closure is not required.
3.	Thermal Relief Valve added to the program to comply with North Carolina State Requirements.

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE

SYSTEM: FUEL POOL COOLING

DWG. NO. 2165-S-561

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
1SF-118	2 E-2	A	4 GA	MA	LC	PV LJ-3					NOTE 1	
1SF-119	2 E-3	A	4 GA	MA	LC	PV LJ-3					NOTE 1	
1SF-144	2 A-3	A	4 GA	MA	LC	PV LJ-3					NOTE 1	
1SF-145	2 A-2	A	4 GA	MA	LC	PV LJ-3					NOTE 1	

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE

SYSTEM: FUEL POOL COOLING

DWG. NO. 2165-S-805

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
1SF-3	3 G-9	C	12 CK	SA	O/C	FS-1		FF			NOTE 2	
1SF-13	3 J-9	C	12 CK	SA	O/C	FS-1		FF			NOTE 2	
1SF-45	3 H-3	C	3/4 X 1 RL	SA	C	RL-4					NOTE 3	
1SF-66	3 K-3	C	3/4 X 1 RL	SA	C	RL-4					NOTE 3	

PUMP AND VALVE INSERVICE TESTING PROGRAM PLAN

FOR

SHEARON HARRIS NUCLEAR POWER PLANT

SECTION 5.6.22

VALVE TEST TABLES AND RELIEF REQUESTS

FOR

EMERGENCY SCREEN WASH

DWG. NO. 2165-S-808

SYSTEM: EMERGENCY SCREEN WASH

NO.	NOTE
1.	Emergency Screen Wash Pump Discharge to Screen Line Block Valves. Valves are used for system alignment and fail closed.
2.	Emergency Screen Wash Pump Discharge Check Valves. Failure of the valve to close on reverse flow will not degrade system operation, so, verification of reverse flow closure is not required.

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE

SYSTEM: EMERGENCY SCREEN WASH

DWG. NO. 2165-S-808

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
1SC-20	3 D-16	B	3 GL	EH	O/C	FS-1 TM-1 FC-1 PI-5	C O				NOTE 1	
1SC-24	3 C-15	C	3 CK	SA	O/C	FS-1		FF		DS-3	NOTE 2	
1SC-30	3 D-13	B	3 GL	EH	O/C	FS-1 TM-1 FC-1 PI-5	C O				NOTE 1	
1SC-34	3 C-12	C	3 CK	SA	O/C	FS-1		FF		DS-3	NOTE 2	
1SC-37	3 B-13	B	3 GL	EH	O/C	FS-1 TM-1 FC-1 PI-5	C O				NOTE 1	
1SC-40	3 B-16	B	3 GL	EH	O/C	FS-1 TM-1 FC-1 PI-5	C O				NOTE 1	
3SC-41	3 B-16	B	3 GL	EH	O/C	FS-1 TM-1 FC-1 PI-5	C				NOTE 1	

PUMP AND VALVE INSERVICE TESTING PROGRAM PLAN

FOR

SHEARON HARRIS NUCLEAR POWER PLANT

SECTION 5.6.23

VALVE TEST TABLES AND RELIEF REQUESTS

FOR

FIRE PROTECTION

DWG. NO. 2165-S-888

SYSTEM: FIRE PROTECTION

NO.	NOTE
1.	Containment Isolation Valves.

VALVE

RELIEF REQUEST

RV-1

System:	Fire Protection
Valve:	1FP-349,357
Category:	AC
Class:	2
Function:	Containment Isolation Simple Check Valve (reverse flow closure for containment isolation).
Test Requirements:	Verify reverse flow closure.
Basis for Relief:	The only method available to verify reverse flow closure is by valve leak testing during Appendix J, Type C, testing at refueling.
Alternate Testing:	Reverse flow closure will be verified during Appendix J, Type C, testing at refueling.

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE

SYSTEM: FIRE PROTECTION

DWG. NO. 2165-S-888

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
1FP-347	2 L-2	A	6 GL	AO	O	FS-1 TS-1 FC-1 PI-5 LJ-3	C				NOTE 1	
1FP-349	2 L-3	AC	6 CK	SA	O	FS-1 LJ-3		BS	RV-1	SP-3	NOTE 1	
1FP-357	2 L-3	AC	4 CK	SA	C	FS-1 LJ-3		BS	RV-1	SP-3	NOTE 1	
1FP-355	2 L-2	A	4 GA	MA	C	LJ-3					NOTE 1	

PUMP AND VALVE INSERVICE TESTING PROGRAM PLAN

FOR

SHEARON HARRIS NUCLEAR POWER PLANT

SECTION 5.6.24

VALVE TEST TABLES AND RELIEF REQUESTS

FOR

ESSENTIAL CHILLED WATER

DWG. NO. 2165-S-998
2165-2-998 S02
2165-2-999
2165-S-999 S02

SYSTEM: ESSENTIAL CHILLED WATER

NO.	NOTE
1.	Valves Isolate Non-Safety-Related from Safety-Related portions of system and close on system initiation.
2.	Relief Valve which protects Safety-Related Equipment.
3.	Valve is a normally throttled pressure control valve. Valve automatically responds to changes in system pressure and as such is exempt from Section XI testing. Valve fails open on loss of power. Test fail open function only.
4.	Thermal Relief Valve added to the program to comply with North Carolina State Requirements.
5.	Recirculation Pump Discharge Check Valve. Reverse flow closure is required to prevent flow by-passing the Condenser.
6.	Safety-Related Make-up to the Chillers Line Check Valve. Normally closed in-line block valve is only open when water is being added. Thus, Verification of reverse flow closure is not required.
7.	Safety-Related Make-up to the Chillers, which is only used after an S Signal.

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE

SYSTEM: ESSENTIAL CHILLED WATER

DWG. NO. 2165-S-998

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
1CH-115	3 H-14	B	4 BF	AO	O	FS-1 TM-1 FC-1 PI-5	C				NOTE 1	
1CH-116	3 H-14	B	4 BF	AO	O	FS-1 TM-1 FC-1 PI-5	C				NOTE 1	
1CH-125	3 L-10	B	4 BF	AO	O	FS-1 TM-1 FC-1 PI-5	C				NOTE 1	
1CH-126	3 L-10	B	4 BF	AO	O	FS-1 TM-1 FC-1 PI-5	C				NOTE 1	

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE

SYSTEM: ESSENTIAL CHILLED WATER

DWG. NO. 2165-S-998 S02

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
1CH-6	3 F-4	C	1X1 RL	SA	C	RL-4					NOTE 2	
1CH-10	3 I-4	C	1X1 RL	SA	C	RL-4					NOTE 2	
1CH-19	3 H-6	C	3/4 X 1 RL	SA	C	RL-4					NOTE 2	
1FP-1014	3 J-4	B	1 GL	SO	O	FS-1 TM-1 FC-1 PI-5	C				NOTE 1	
1FP-1015	3 J-4	B	1 GL	SO	O	FS-1 TM-1 FC-1 PI-5	C				NOTE 1	
1SA-494	3 E-3	B	1 GA	SO	O	FS-1 TM-1 FC-1 PI-5	C				NOTE 1	
1SA-495	3 E-3	B	1 GA	SO	O	FS-1 TM-1 FC-1 PI-5	C				NOTE 1	
1SW-1055	3 E-6	B	10 BF	EH	TH	FO-1 PI-5	O				NOTE 3	
1SW-1063	3 E-9	C	3/4 X 1 RL	SA	C	RL-4					NOTE 4	

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE

SYSTEM: ESSENTIAL CHILLED WATER

DWG. NO. 2165-S-998 S02

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
1SW-1078	3 C-8	C	3/4 X 1 RL	SA	C	RL-4					NOTE 2	
1SW-1079	3 C-8	C	8 CK	SA	O/C	FS-1 BS-1		 BS			NOTE 5	
1SW-1170	3 F-3	C	1 CK	SA	C	FS-1		FF			NOTE 6	
1SW-1171	3 G-5	B	1 GL	SO	C	FS-1 TM-1 FC-1 PI-5	 O				NOTE 7	
1CH-34	3 F-11	C	3/4 X 1 RL	SA	C	RL-4					NOTE 4	

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE

SYSTEM: ESSENTIAL CHILLED WATER

DWG. NO. 2165-S-999

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
1CH-148	3 A-16	B	4 BF	AO	O	FS-1 TM-1 FC-1 PI-5	C				NOTE 1	
1CH-149	3 A-16	B	4 BF	AO	O	FS-1 TM-1 FC-1 PI-5	C				NOTE 1	
1CH-196	3 L-16	B	4 BF	AO	O	FS-1 TM-1 FC-1 PI-5	C				NOTE 1	
1CH-197	3 L-16	B	4 BF	AO	O	FS-1 TM-1 FC-1 PI-5	C				NOTE 1	

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE.

SYSTEM: ESSENTIAL CHILLED WATER

DWG. NO. 2165-S-999 S02

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
1CH-50	3 G-3	C	1X1 RL	SA	C	RL-4					NOTE 2	
1CH-54	3 I-3	C	1X1 RL	SA	C	RL-4					NOTE 2	
1CH-63	3 H-7	C	3/4 X 1 RL	SA	C	RL-4					NOTE 2	
1FP-1025	3 J-4	B	1 GL	SO	O	FS-1 TM-1 FC-1 PI-5	C				NOTE 1	
1FP-1026	3 J-4	B	1 GL	SO	O	FS-1 TM-1 FC-1 PI-5	C				NOTE 1	
1SA-502	3 E-3	B	1 GL	SO	O	FS-1 TM-1 FC-1 PI-5	C				NOTE 1	
1SW-1203	3 G-3	C	1 CK	SA	C	FS-1		FF			NOTE 6	
1SW-1204	3 H-5	B	1 GL	SO	C	FS-1 TM-1 FC-1 PI-5	 O				NOTE 7	
1SA-503	3 E-3	B	1 GL	SO	O	FS-1 TM-1 FC-1 PI-5	C				NOTE 1	

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE

SYSTEM: ESSENTIAL CHILLED WATER

DWG. NO. 2165-S-999 S02

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
1SW-1208	3 F-6	B	10 BF	EH	TH	FO-1 PI-5	O				NOTE 3	
1SW-1216	3 E-9	C	3/4 X 1 RL	SA	C	RL-4					NOTE 4	
1SW-1231	3 C-8	C	3/4 X 1 RL	SA	C	RL-4					NOTE 2	
1SW-1232	3 D-8	C	8 CK	SA	O/C	FS-1 BS-1			BS		NOTE 5	
1CH-78	3 F-10	C	3/4 X 1 RL	SA	C	RL-4					NOTE 4	

PUMP AND VALVE INSERVICE TESTING PROGRAM PLAN

FOR

SHEARON HARRIS NUCLEAR POWER PLANT

SECTION 5.6.25

VALVE TEST TABLES AND RELIEF REQUESTS

FOR

REACTOR COOLANT SYSTEM

DWG. NO. 2165-S-1301

SYSTEM: REACTOR COOLANT

NO.	NOTE
1.	Pressurizer Power Operated Relief Line Block Valves.
2.	Pressurizer Power Operated Relief Valves. Valves are controlled by the Pressureizer over Pressure Protection System, which automatically opens two of the valves at a preset pressure. These valves are tested/timed in open direction as a Augmented Test. Timing to open position will not be considered Section XI Commitment.
3.	Pressurizer Relief Valves.
4.	Containment Isolation Valve.
5.	Reactor Pressure Vessel and Pressurizer Vent Path Block Valves. Tech. Spec. 3.4.11 requires that only one path be operable and the other valves be electrically disabled during normal operation.
6.	Reactor Pressure Vessel and Pressurizer Vent Path Block Valves downstream of normally closed vent valves.
7.	Reactor Pressure Vessel and Pressurizer Vent Path Check Valve.
8.	Position Indication will be verified during performance of G.P.1.

COLD SHUTDOWN TEST JUSTIFICATION

CS-1

System:	Reactor Coolant
Valve:	1RC-114, 116, 118
Category:	B, C
Class:	1
Test Requirements:	Exercise, Time and Fail
ASME Section XI Quarterly Test Requirements:	These power operated relief (PORV) valves are controlled by the Pressurizer Overpressure Protection System, which automatically opens two of the valves at a preset pressure. Set pressures are established to limit undesirable opening of the spring-loaded Safety Valves. These valves have shown a high probability of sticking open and are not essential for overpressure protection during power operation. The PORV's are relied upon during reactor startup and shutdown to protect the RCS from low temperature overpressurization conditions. Therefore, testing these valves at cold shutdown will adequately demonstrate operability at the time the systems safety-related function is being performed.
Quarterly Part Stroke Testing:	Valve operators are full-stroke on initiation and can not be partial-stroke exercised.
Cold Shutdown Testing:	Exercise, time and fail.

COLD SHUTDOWN TEST JUSTIFICATION

CS-2

System: Reactor Coolant

Valve: 1RC-900, 901, 902, 903, 904, 905

Category: B: 1RC-900, 901, 902, 903, 904, 905

Class: 2

Function: RCS Vent Valves

Test Requirements: 1RC-900, 901, 902, 903, 904, 905: Exercise valve for operability, observe proper operation of fail-safe actuators, and measure stroke time quarterly.

Cold Shutdown Justification: Valves are RCS high point vent valves, which were installed subsequent to TMI accident, and are intended only to provide venting capabilities during a natural circulation cool-down evolution. Valves are only routinely used during cold shutdown to provide a path for RCS venting. 1RC-993 prevents normal PRT pressure from pressurizing 1RC-905.

Technical Specification 3.4.11 required that one vent path from the Reactor pressure vessel head and one vent path from the pressurizer be operable and closed during operation. Technical Specifications require testing of these valves every 18 months. Testing of these valves during power operation could result in an uncontrolled blowdown should the downstream block valves inadvertently open or experience excessive leakage resulting in a loss of RCS inventory to the pressurizer relief tank or containment atmosphere.

Quarterly Part Stroke Testing: None. These valves are not equipped with part stroke exercisers.

Cold Shutdown Testing: 1RC-900, 901, 902, 903, 904, 905: Exercise valve for operability, observe proper operation of fail-safe actuators, and measure stroke time at Cold Shutdown.

VALVE

RELIEF REQUEST

RV-1

System:	Reactor Coolant
Valve:	1RC-164
Category:	AC
Class:	2
Function:	Containment Isolation Simple Check Valves (reverse flow closure for containment isolation only).
Test Requirements:	Verify reverse flow closure.
Basis for Relief:	The only method available to verify reverse flow closure is by valve leak testing during Appendix J, Type C, testing at refueling.
Alternate Testing:	Reverse flow closure will be verified during Appendix J, Type C, Testing at Refueling.

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE

SYSTEM: REACTOR COOLANT

DWG. NO. 2165-S-1301

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
1RC-113	1 H-2	B	3 GA	MO	O	FS-1 TM-1 PI-5	C				NOTE 1	
1RC-114	1 H-1	BC	3 GL	AO	C	FS-1 TM-1 FC-1 PI-5	C O		CS-1 CS-1 CS-1	FS-2 TM-2 FC-2	NOTE 2	
1RC-115	1 F-2	B	3 GA	MO	O	FS-1 TM-1 PI-5	C				NOTE 1	
1RC-116	1 F-1	BC	3 GL	AO	C	FS-1 TM-1 FC-1 PI-5	C O		CS-1 CS-1 CS-1	FS-2 TM-2 FC-2	NOTE 2	
1RS-117	1 E-2	B	3 GA	MO	O	FS-1 TM-1 PI-5	C				NOTE 1	
1RC-118	1 E-1	BC	3 GL	AO	C	FS-1 TM-1 FC-1 PI-5	C O		CS-1 CS-1 CS-1	FS-2 TM-2 FC-2	NOTE 2	
1RC-123	1 F-4	C	6 X 6 RL	SA	C	RL-4					NOTE 3	
1RC-125	1 F-6	C	6 X 6 RL	SA	C	RL-4					NOTE 3	
1RC-127	1 F-8	C	6 X 6 RL	SA	C	RL-4					NOTE 3	

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE

SYSTEM: REACTOR COOLANT

DWG. NO. 2165-S-1301

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
1RC-141	2 C-16	A	1 DA	AO	O	FS-1 TS-1 FC-1 PI-5 LJ-3	C				NOTE 4	
1RC-144	2 C-17	A	1 DA	AO	O	FS-1 TS-1 FC-1 PI-5 LJ-3	C				NOTE 4	
1RC-161	2 D-17	A	3 DA	AO	C	FS-1 TS-1 FC-1 PI-5 LJ-3	C				NOTE 4	
1RC-164	2 D-16	AC	3 CK	SA	C	FS-1 LJ-3		BS	RV-1	SP-3	NOTE 4	
1RC-900	2 A-7	B	1 GL	SO	C	PI-5 FS-1 TM-1 FC-1	C		CS-2	FS-2 TM-2 FC-2	NOTE 5, 8	
1RC-901	2 A-7	B	1 GL	SO	C	PI-5 FS-1 TM-1 FC-1	C		CS-2	FS-2 TM-2 FC-2	NOTE 5, 8	
1RC-902	2 B-7	B	1 GL	SO	C	PI-5 FS-1 TM-1 FC-1	C		CS-2	FS-2 TM-2 FC-2	NOTE 5, 8	
1RC-903	2 B-7	B	1 GL	SO	C	PI-5 FS-1 TM-1 FC-1	C		CS-2	FS-2 TM-2 FC-2	NOTE 5, 8	
1RC-904	2 B-5	B	1 GL	SO	C	PI-5 FS-1 TM-1 FC-1	C		CS-2	FS-2 TM-2 FC-2	NOTE 6, 8	

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE

SYSTEM: REACTOR COOLANT

DWG. NO. 2165-S-1301

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
1RC-905	2 A-8	B	1 GL	SO	C	PI-5 FS-1 TM-1 FC-1	C		CS-2	FS-2 TM-2 FC-2	NOTE 6, 8	

PUMP AND VALVE INSERVICE TESTING PROGRAM PLAN

FOR

SHEARON HARRIS NUCLEAR POWER PLANT

SECTION 5.6.26

VALVE TEST TABLES AND RELIEF REQUESTS

FOR

CHEMICAL AND VOLUME CONTROL

DWG. NO. 2165-S-1303
2165-S-1303 S01
2165-S-1303 S02
2165-S-1304
2165-S-1305
2165-S-1306
2165-S-1307

SYSTEM: CHEMICAL AND VOLUME CONTROL

NO.	NOTE
1.	RCS Normal Letdown to the CVCS Containment Isolation Valves. Valves are in parallel and can be exercised quarterly without terminating normal RCS Letdown Flow.
2.	Relief Valve which protects Safety-Related Equipment.
3.	RCS Normal Letdown to CVCS Containment Isolation Valves. Failure in the closed position would cause loss of Pressurizer Level Control.
4.	CVCS Charging Flwo to RCS Containment Isolation Valves.
5.	CVCS to and from the RCS Pump Seals Containment Isolation Valves.
6.	A check valve which functions as a thermal relief valve when both containment isolation valves are closed. The only Safety-Related function is containment isolation.
7.	RCS Alternate Charging Line from the CVCS Block Valve. Provides redundant flow path to the RCS.
8.	RCS Alternate Charging Line Check Valves.
9.	RCS Normal Charging Line Check Valves.
10.	Alternate Charging Pump Minimum Flow Path Block Valves. Valves open in a S signal to prevent dead heading the pumps.
11.	Thermal Relief Valve added to the program to comply with North Carolina State Requirements.
12.	Volume Control Tank Valves are interlocked with the RWST Block Valves such that the VCT Block Valves can not be closed until the RWST Block Valves are fully open.

SYSTEM: CHEMICAL AND VOLUME CONTROL

NO.	NOTE
13.	VCT Outlet Check Valve. VCT provides head to the charging pumps until the RWST Block Valves are fully open. Reverse flow closure is not required since inline block valves close on system initiation.
14.	Charging Header Pump Inlet Header Block Valves.
15.	Charging Pump Discharge Check Valves. Charging Pump C is an installed spare and will not be connected unless Pump A or B isout of service. Only those valves associated with Charging Pumps in service will be tested.
16.	Charging Pump Minimum Flow Line Check Valves. Inline Motor operated valves close on a S signal. Since one pump is an installed spare a manual valve between headers is maintained closed and the two operating pumps are isolated from each other and reverse closure is not required for system operation.
17.	Charging Pump Minimum Flow line Block Valves. Valves close on an S signal.
18.	Charging Pump Discharge Header Isolation Valves. Valves used for system alignment for Post-LOCA System operation.
19.	Charging Pump Discharge Header Line to the RCS. Provides flow control during normal operation and fails open to guarantee full flow.
20.	Charging Pump Discharge Header Line to the RCS Block Valve. Valve receives an S signal to close on system initiation.

SYSTEM: CHEMICAL AND VOLUME CONTROL

NO.	NOTE
21.	Valves used for Emergency Boron Addition. Check valve is down stream of a normally closed flow control valve which will only be open during Boron addition. Reverse flow closure is not required for system operation.
22.	RWST Line to Charging Pump Inlet Header Check Valve. To verify full forward flow testing requires full flow through the Charging Pumps. Reverse flow closure is not required since in-line block valves will be closed except when forward flow is needed.
23.	Boron Transfer Pump Discharge Check Valves. Reverse flow closure required to prevent recirculation flow through idle pump.
24.	Valves open for Boric Acid Transfer for guaranteed cold shutdown.
25.	Containment Isolation Valve

COLD SHUTDOWN TEST JUSTIFICATION

CS-1

System:	CVCS
Valve:	1CS-11,231,235,238
Category:	A(1CS-11,238) : B(1CS-231,235)
Class:	2
ASME Section XI Quarterly Test Requirements:	Exercise and Time (1CS-235,238) Exercise, Time and Fail (1CS-11,231).
Cold Shutdown Test Justification:	These valves are in the normal letdown and charging lines to the RCS. Exercising during normal operation would disrupt normal RCS charging flow which could decrease significantly the capability of the CVCS to provide proper boration ratio. Failure of each valve in the closed position coincident with normal charging flow could result in a high RCS water level trip. Because of these reasons and a potential for thermal shock to the Regenative Heat Exchanger, valve testing will be delayed to cold shutdown.
Quarterly Part Stroke Testing:	Valves are equipped with full stroke only operators and can not be partial stroke exercised.
Cold Shutdown Testing:	Exercise and time (1CS-235,238) Exercise, time and fail(1CS-11,231).

COLD SHUTDOWN TEST JUSTIFICATION

CS-2

System:	CVCS
Valve:	1CS-341,382,423,470,472
Category:	A
Class:	2.
Function:	CVCS Seal Water Flow to the Reactor Coolant Pumps Containment Isolation Valves.
Test Requirements:	Exercise and Time.
Basis for Relief:	Exercising these valves during normal operation or at cold shutdown results in a loss of normal seal water to the RCS Pump Seals. If seal water is terminated, Reactor Coolant is forced from the high pressure RCS into the seals. Reactor Coolant normally contains a high particulate matter concentration which is carried with RCS inleakage and contaminates the seals.
Alternate Testing:	The valves 1CS-341,382,423, and 472 will be tested at cold shutdown when the RCS is open, vented, and drained to the top of the vessel flange.

COLD SHUTDOWN TEST JUSTIFICATION

CS-3

System:	CVCS
Valve:	1CS-165,166,291,292
Category:	B
Class:	2
Function:	Volume Control Tank Discharge Block Valves (1CS-165,166) and BWST to CVCS Charging Pump Line Block Valves (1CS-291,292).
Test Requirement:	Exercise and Time
Basis for Relief:	The Volume Control Tank Discharge Valves and RSWT to CVCS Charging Pump Inlet Header Block Valves are interlocked such that both sets of valves cannot be open at the same time. To exercise the valves would result in BWST water being injected into the RCS and RCS Pump Seals by the Charging Pumps. RCS Pump Seal flow is required at normal operation. Exercising at this time would affect RCS Boron Concentration and inlet high Boron concentrations into the RCS Pump Seals, which could cause seal damage and shorten service life.
Alternate Testing:	Exercise and Time at cold shutdown when seal injection can be terminated.

COLD SHUTDOWN TEST JUSTIFICATION

CS-4

System:	CVCS
Valve:	1CS-279,536,546
Category:	C
Class:	1CS-279: 2 1CS-536,546: 3
Function:	1CS-279: Check valve in the line from the CVCS BA Filter to the Charging Pump Header. 1CS-536,546: B.A. Transfer pump discharge check valve.
Test Requirement:	Verify forward flow operability.
Basis for Relief:	The only possible way to verify forward flow operability is by passing concentrated Boric Acid Fluid through the valve to the Charging Pump Inlet Header.
Alternate Testing:	Verify forward flow operability when borating to go to cold shutdown.

COLD SHUTDOWN TEST JUSTIFICATION

CS-5

System: CVCS

Valve: 1CS-294

Category: C

Class: 2

Function: RWST line to CVCS Charging Pump Inlet Header Check Valve.

Test Requirement: Verify forward flow operability.

Basis for Relief: To verify forward flow operability would require opening the downstream block valves(1CS-291,292) to the Charging Pump Inlet Header. Exercising the block valves results in injecting RWST water into the RCS and RCS Pump Seals. Exercising at normal operation when RCS Pump Seal flow is required, would inject high boron concentrations into the RCS Pump Seals. High Boron concentrations in the seal flow could cause seal damage and shorten service life.

Alternate Testing: Verify forward flow operability at cold shutdown when seal injection can be terminated.

VALVE

RELIEF REQUEST

RV-1

System:	CVCS
Valve:	1CS-344,385,426,471,477
Category:	AC
Class:	2
Function:	Containment Isolation Simple Check Valve (reverse flow closure for containment isolation only).
Test Requirement:	Verify reverse flow closure.
Basis for Relief:	The only method available to verify reverse flow closure is by valve leak testing during Appendix J, Type C, testing at refueling.
Alternate Testing:	Reverse flow closure will be verified during Appendix J, Type C, testing at refueling.

VALVE

RELIEF REQUEST

RV-2

System:	CVCS
Valve:	1CS-178,192,206
Category:	C
Class:	2
Function:	Charging Pump Discharge Line Check Valves.
Test Requirements:	Verify forward flow operability.
Basis for Relief:	These Charging Pump discharge check valves can not be verified for full flow operability quarterly. Normal operating charging flow is automatically controlled by downstream flow control valve (1CS-231) in responce to RCS operating conditions. To inject full flow into the RCS during normal operation would result in undesirable RCS boron concentrations and system pressure, temperature and level transients. Full stroke exercising these valves at cold shutdown would result in RCS pressure and level transients due to limitations on letdown capability.
Alternate Testing:	Valves will be partial stroke exercised quarterly and verification of full forward flow operability performed at refueling.

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE

SYSTEM: CVCS

DWG. NO. 2165-S-1303

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
1CS-7	2 B-10	A	2 GL	AO	O	FS-1 TS-1 FC-1 PI-5 LJ-3	C				NOTE 1	
1CS-8	2 B-11	A	2 GL	AO	O	FS-1 TS-1 FC-1 PI-5 LJ-3	C				NOTE 1	
1CS-9	2 B-12	A	2 GL	AO	O	FS-1 TS-1 FC-1 PI-5 LJ-3	C				NOTE 1	
1CS-10	2 A-10	C	2X3 RL	SA	C	RL-4 LJ-3					NOTE 2	
1CS-11	2 A-17	A	3 GL	AO	O	FS-1 TS-1 FC-1 PI-5 LJ-3	C		CS-1 CS-1 CS-1	FS-2 TS-2 FC-2	NOTE 3	
1CS-238	2 B-17	A	3 GA	MO	O	FS-1 TS-1 PI-5 LJ-3	C		CS-1 CS-1	FS-2 TS-2	NOTE 4	
1CS-341	2 K-3	A	1 1/2 GL	MO	O	FS-1 TS-1 PI-5 LJ-3	C		CS-2	FS-3 TS-3	NOTE 5	
1CS-344	2 K-3	AC	1 1/2 CK	SA	O	FS-1 LJ-3		BS	RV-1	SP-3	NOTE 5	
1CS-467	2 D-16	C	2X3 RL	SA	C	RL-4					NOTE 2	

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE

SYSTEM: CVCS

DWG. NO. 2165-S-1303

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
1CS-470	2 D-16	A	2 GL	MO	O	FS-1 TS-1 PI-5 LJ-3	C		CS-2	FS-3 TS-3	NOTE 5	
1CS-471	2 E-16	AC	3/4 CK	SA	C	FS-1 LJ-3		BS	RV-1	SP-3	NOTE 6	
1CS-472	2 D-17	A	2 GL	MO	O	FS-1 TS-1 PI-5 LJ-3	C		CS-2	FS-3 TS-3	NOTE 5	
1CS-477	2 B-16	AC	3 CK	SA	O	FS-1 LJ-3		FF BS	RV-1	SP-3	NOTE 4	
1CS-480	2 B-4	B	3 GL	AO	C	FS-1 TM-1 FO-1 PI-5	O				NOTE 7	
1CS-483	1 B-3	C	3 CK	SA	C	FS-1		FF			NOTE 8	
1CS-486	1 B-3	C	3 CK	SA	C	FS-1		FF			NOTE 8	
1CS-492	2 C-4	B	3 GL	AO	O	FS-1 TM-1 FO-1 PI-5	O				NOTE 7	
1CS-497	1 C-3	C	3 CK	SA	O	FS-1		FF			NOTE 9	

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE

SYSTEM: CVCS

DWG. NO. 2165-S-1303

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
1CS-500	1 C-3	C	3 CK	SA	O	FS-1		FF			NOTE 9	

OS2

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE

SYSTEM: CVCS

DWG. NO. 2165-S-1303 S01

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
1CS-382	2 L-3	A	1 1/2 GL	MO	O	FS-1 TS-1 PI-5 LJ-3	C		CS-2	FS-3 TS-3	NOTE 5	
1CS-385	2 K-3	AC	1 1/2 CK	SA	O	FS-1 LJ-3		BS	RV-1	SP-3	NOTE 5	

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE

SYSTEM: CVCS

DWG. NO. 2165-S-1303 S02

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
1CS-423	2 K-3	A	1 1/2 GL	MO	O	FS-1 TS-1 PI-5 LJ-3	C		CS-2	FS-3 TS-3	NOTE 5	
1CS-426	2 K-3	AC	1 1/2 CK	SA	O	FS-1 LJ-3		BS	RV-1	SP-3	NOTE 5	

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE

SYSTEM: CVCS

DWG. NO. 2165-S-1304

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
1CS-47	2 E-12	C	2 RL	SA	C	RL-4					NOTE 2	
1CS-744	2 H-16	C	1.5X2.5 RL	SA	C	RL-4					NOTE 2	
1CS-746	2 H-18	B	2 GL	MO	C	FS-1 TM-1 PI-5	O				NOTE 10	
1CS-752	2 I-18	B	2 GL	MO	C	FS-1 TM-1 PI-5	O				NOTE 10	
1CS-755	2 I-16	C	1.5X2.5 RL	SA	C	RL-4					NOTE 2	

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE

SYSTEM: CVCS

DWG. NO. 2165-S-1305

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
1CS-127	2 C-10	C	3/4X1" RL	SA	C	RL-4					NOTE 11	
1CS-165	2 G-11	B	4 GA	MO	O	FS-1 TM-1 PI-5	C		CS-3 CS-3	FS-2 TM-2	NOTE 12	
1CS-166	2 G-11	B	4 GA	MO	O	FS-1 TM-1 PI-5	C		CS-3	FS-2 TM-2	NOTE 12	
1CS-167	2 G-11	C	4 CK	SA	O	FS-1		FF			NOTE 13	
1CS-168	2 I-11	B	8 GT	MO	O	FS-1 TM-1 PI-5	C				NOTE 14	
1CS-169	2 J-11	B	8 GT	MO	O	FS-1 TM-1 PI-5	C				NOTE 14	
1CS-170	2 I-11	B	8 GT	MO	O	FS-1 TM-1 PI-5	C				NOTE 14	
1CS-171	2 K-11	B	8 GT	MO	O	FS-1 TM-1 PI-5	C				NOTE 14	
1CS-178	2 H-7	C	3 CK	SA	O/C	FS-1 BS-1		FF BS	RV-2	FS-3 PE-1	NOTE 15	

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE

SYSTEM: CVCS

DWG. NO. 2165-S-1305

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
1CS-179	2 H-8	C	2 CK	SA	O/C	FS-1		FF			NOTE 16	
1CS-182	2 G-7	B	2 GL	MO	O	FS-1 TM-1 PI-5	C				NOTE 17	
1CS-192	2 K-7	C	3 CK	SA	O/C	FS-1 BS-1		FF BS	RV-2	FS-3 PE-1	NOTE 15	
1CS-193	2 K-8	C	2 CK	SA	O/C	FS-1		FF			NOTE 16	
1CS-196	2 J-7	B	2 GL	MO	O	FS-1 TM-1 PI-5	C				NOTE 17	
1CS-206	2 J-7	C	3 CK	SA	O/C	FS-1 BS-1		FF BS	RV-2	FS-3 PE-1	NOTE 15	
1CS-207	2 I-8	C	2 CK	SA	O/C	FS-1		FF			NOTE 16	
1CS-210	2 I-7	B	2 GL	MO	O	FS-1 TM-1 PI-5	C				NOTE 17	
1CS-214	2 G-4	B	3 GA	MO	O	FS-1 TM-1 PI-5	C				NOTE 17	

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE

SYSTEM: CVCS

DWG. NO. 2165-S-1305

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
1CS-217	2 I-6	B	4 GA	MO	O	FS-1 TM-1 PI-5	C				NOTE 18	
1CS-218	2 J-6	B	4 GA	MO	O	FS-1 TM-1 PI-5	C				NOTE 18	
1CS-219	2 I-6	B	4 GA	MO	O	FS-1 TM-1 PI-5	C				NOTE 18	
1CS-220	2 K-6	B	4 GA	MO	O	FS-1 TM-1 PI-5	C				NOTE 18	
1CS-231	2 H-4	B	3 GL	AO	TH	FS-1 TM-1 FO-1 PI-5	O		CS-1 CS-1 CS-1	FS-2 TM-2 FO-2	NOTE 19	
1CS-235	2 H-2	B	3 GA	MO	O	FS-1 TM-1 PI-5	C		CS-1 CS-1	FS-2 TM-2	NOTE 20	
1CS-278	2 J-16	B	2 GL	MO	C	FS-1 TM-1 PI-5	O				NOTE 21	
1CS-279	2 J-13	C	2 CK	SA	C	FS-1		FF	CS-4	FS-2	NOTE 21	
1CS-290	2 J-13	C	3/4 X 1 RL	SA	C	RL-4					NOTE 2	

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE

SYSTEM: CVCS

DWG. NO. 2165-S-1305

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
1CS-291	2 I-12	B	8 GA	MO	C	FS-1 TM-1 PI-5	C O		CS-3	FS-3 TM-3	NOTE 12	
1CS-292	2 K-12	B	8 GA	MO	C	FS-1 TM-1 PI-5	C O		CS-3	FS-3 TM-3	NOTE 12	
1CS-293	2 K-13	C	3/4 X 1 RL	SA	C	RL-4					NOTE 2	
1CS-294	2 K-14	C	8 CK	SA	C	FS-1		FF	CS-5	FF-2	NOTE 22	
1CS-310	2 E-4	C	3/4 X 1 RL	SA	C	RL-4					NOTE 11	

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE

SYSTEM: CVCS

DWG. NO. 2165-S-1306

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
1CS-601	3 F-17	C	3/4 X 1 RL	SA	C	RL-4					NOTE 11	

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE

SYSTEM: CVCS

DWG. NO. 2165-S-1307

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
1CS-536	3 E-7	C	2 CK	SA	C	FS-1 BS-1		FF BS	CS-4	FS-2 BS-2	NOTE 23	
1CS-546	3 G-7	C	2 CK	SA	C	FS-1 BS-1		FF BS	CS-4	FS-2 BS-2	NOTE 23	
1CS-559	3 E-3	B	2 PG	PO	O	FS-1 TM-1 FO-1 PI-5	O				NOTE 24	
1CS-563	3 E-2	B	2 PG	PO	O	FS-1 TM-1 FO-1 PI-5	O				NOTE 24	

PUMP AND VALVE INSERVICE TESTING PROGRAM PLAN

FOR

SHEARON HARRIS NUCLEAR POWER PLANT

SECTION 5.6.27

VALVE TEST TABLES AND RELIEF REQUESTS

FOR

SAFETY INJECTION

DWG. NO. 2165-S-1308
2165-S-1309
2165-S-1310

SYSTEM: SAFETY INJECTION

NO.	NOTE
1.	BIT Inlet Block Valves. Valves open on a S signal for BIT injection.
2.	BIT Discharge to RCS at CTMT Penetration M-17. Valves open on a S signal and close for CTMT Isolation by operator action.
3.	Safety Injection injection into the RCS Line Check Valves.
4.	CVCS Charging Pump Discharge to CTMT Penetration Isolation Valves. At cold shutdown only one Charging Pump is in operation due to potential for cold overpressurization. Pump Discharge Header cannot be isolated without loss of seal injection flow.
5.	RHR Heat Exchanger Outlet to RCS Line Check Valves.
6.	Containment Isolation Valves.
7.	Accumulator Safety Relief Valves.
8.	Accumulator Discharge to RCS Line Check Valves. Valves are pressure isolation valves.
9.	Accumulator Drain to RWST Containment Isolation Valves.
10.	Recirculation Sump Line Block Valves. Because of inline block valves it should be possible to exercise these valves without injecting water into the CTMT. RECIRC. Sumps. If it is found that valve exercising does drain water back into the sumps a relief request will be prepared to delay testing to refueling when water can be removed from the sumps after exercising.

SYSTEM: SAFETY INJECTION

NO.	NOTE
11.	Forward flow of these 14 inch check valves is verified by flow through the RHR Pump 8 inch test line to the RWST. The test line flow is adequate to verify that the valves will pass full design operating flow. Reverse flow closure is not required since inline block valves can be closed to prevent back flow from the sumps.
12.	RWST Line Block Valves. Valves close for recirculation mode of system operation.
13.	Cross-tie Header Block Valves. Valves are used for Post-LOCA system alignment.
14.	Relief Valves which protect Safety-Related Equipment.
15.	RHR Heat Exchanger Line to RCS Block Valves.
16.	Low Head Safety Injection Line Check Valves. Valves are high pressure isolation valves between the RCS and the RHR systems.
17.	A pressure isolation valve with a single downstream check valve. To preclude opening during operation the valve is electrically disabled.

COLD SHUTDOWN TEST JUSTIFICATION

CS-1

System:	SAFETY INJECTION
Valve:	1SI-81, 82, 83, 134, 135, 136, 137, 346, 347, 356, 357, 358
Category:	AC(1SI-134, 135, 136, 137, 346, 347, 356, 357, 358) C (1SI-81, 82, 83)
Class:	1(1SI-81, 81, 83, 134, 135, 136, 137, 356, 357, 358) 2(1SI-346,347)
ASME Section XI Quarterly Test Requirements:	Verify forward flow operability.
Cold Shutdown Test Justification:	Verification of forward flow operability of these normally closed check valves can only be performed by injecting RHR water into the RCS. During normal operation the Low Pressure RHR Pumps cannot overcome the higher RCS operating pressure. Testing these valves with high head safety injection will cause pressurizer level control problems along with borating the RCS possibly leading to a reactor scram. The isolation valve test subsystem provides the capacity for determination of the integrity of these pressure isolation valves. It is used to verify that each of the series check valves are closed and can sustain operational differential pressure. This is a required periodic procedure performed at each refueling after RCS has been pressurized.
Quarterly Part Stroke Testing:	N/A
Cold Shutdown Testing:	Verify forward flow operability during RHR System operation.

VALVE

RELIEF REQUEST

RV-1

System:	Safety Injection
Valve:	1SI-8, 9, 10, 72, 73, 74, 104, 105, 106, 127, 128, 129, 138
Category:	C
Class:	1
Function:	Safety Injection to the RCS Check Valves.
Test Requirements:	Verify forward flow.
Basis for Relief:	Verification of forward flow operability can only be performed by injecting charging water into the RCS. The charging pumps have insufficient head to overcome normal RCS operating pressure for a full flow test. Partial testing using the charging pumps would inject CVCS water which has bypassed the Regenarative Heat Exchanger and could result in thermal shocking to the RCS piping. Forward flow verification at cold shutdown could result in a cold overpressurization of the RCS.
Alternate Testing:	Verify forward flow operability at refueling when the Reactor Vessel Head is removed and full charging pump flow can be injected into the RCS.

VALVE

RELIEF REQUEST

RV-2

System:	Safety Injection
Valve:	1SI-52,86,107
Category:	A
Class:	2
Function:	Safety Injection to the RCS Hot Legs Containment Isolation Valves.
Test Requirement:	Exercise and Time.
Basis for Relief:	Exercising these valves during normal operation would result in injecting charging water flow directly into the RCS. This diverted charging water bypasses the Regenative Heat Exchanger which could cause thermal shocking to RCS piping and could also cause an overtemperature condition in the normal CVCS Letdown Line. At cold shutdown one Charging Pump is running (Tech. Spec. 3.5.3, A maximum of one Charging Pump shall be operating when RCS temperature is < 335 degrees F). This pump is supplying both RCP Pump Seals and required charging water. Seal Water flow is maintined during cold shutdown to preclude damage to the pump seals, thus if these valves were exercised at cold shutdown charging water would be injected into the RCS and a cold overpressurization of the RCS could result.
Alternate Testing:	Valves will be exercised and timed at refueling.

VALVE

RELIEF REQUEST

RV-3

System:	Safety Injection
Valve:	1SI-182,290
Category:	AC
Class:	2
Function:	Containment Isolation Simple Check Valve (reverse flow closure for containment isolation only).
Test Requirement:	Verify reverse flow closure.
Basis for Relief:	The only method available to verify reverse flow closure is by valve leak testing during Appendix J, Type C, testing at refueling.
Alternate Testing:	Reverse flow closure will be verified during Appendix J, Type C, testing at refueling.

VALVE

RELIEF REQUEST

RV-4

System:	Safety Injection
Valve:	1SI-249,250,251,252,253,254
Category:	AC
Class:	2
Function:	Accumulator Discharge to RCS Check Valves.
Test Requirement:	Verify forward flow operability.
Basis for Relief:	The Accumuator Tanks are isolated from the RCS by these normally closed check valves. Each Accumulator is charged with a Nitrogen blanket at approximately 650 psig, which is insufficient to inject into the RCS during normal operation. To exercise these valves to their full open position at cold shutdown would inject approximately 925 Cubic Ft. of high Boron Content water into the RCS, which could cause a cold overpressurization of the RCS. Dumping the full Accumulator inventory into the RCS at refueling could flush large amounts of crud into the RCS and Cleanup Systems. High particulates in the RCS at refueling reduces visibality for refueling operations and generates large amounts of contaminated wastes, which could lengthen the outage and increase personel exposures.
Alternate Testing:	Partial forward flow operability will be verified at cold shutdown by performing an accumulator partial dump test. In addition one valve will be disassembled and visually inspected at refueling. Valve inspections will alternate with subsequent refuelings. Failure of a valve to pass inspection will either initiate inspection of the remaining valves or initiate verification of the remaining valves by Accumulator injection into the RCS.

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE

SYSTEM: SAFETY INJECTION

DWG. NO. 2165-S-1308

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
1SI-1	2 M-6	B	3 GA	MO	C	FS-1 TS-1 PI-5	O C				NOTE 1	
1SI-2	2 N-6	B	3 GA	MO	C	FS-1 TS-1 PI-5	O C				NOTE 1	
1SI-3	2 G-2	A	3 GA	MO	C	FS-1 TS-1 PI-5	O C				NOTES 2,6	
1SI-4	2 F-11	A	3 GA	MO	C	FS-1 TS-1 PI-5	O C				NOTES 2,6	
1SI-8	1 D-3	C	2 CK	SA	C	FS-1		FF	RV-1	FF-3	NOTES 3,6	
1SI-9	1 D-4	C	2 CK	SA	C	FS-1		FF	RV-1	FF-3	NOTES 3,6	
1SI-10	1 D-5	C	2 CK	SA	C	FS-1		FF	RV-1	FF-3	NOTES 3,6	
1SI-52	2 F-11	A	3 GA	MO	C	FS-1 TS-1 PI-5	O C		RV-2 RV-2	FS-3 TS-3	NOTES 4,6	
1SI-72	1 D-6	C	2 CK	SA	C	FS-1		FF	RV-1	FF-3	NOTES 3,6	

OS2

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE

SYSTEM: SYSTEM INJECTION

DWG. NO. 2165-S-1308

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
1SI-73	1 D-7	C	2 CK	SA	C	FS-1		FF	RV-1	FF-3	NOTES 3,6	
1SI-74	1 D-8	C	2 CK	SA	C	FS-1		FF	RV-1	FF-3	NOTES 3,6	
1SI-81	1 B-3	C	6 CK	SA	C	FS-1		FF	CS-1	FF-2	NOTE 3	
1SI-82	1 C-3	C	6 CK	SA	C	FS-1		FF	CS-1	FF-2	NOTE 3	
1SI-83	1 D-3	C	6 CK	SA	C	FS-1		FF	CS-1	FF-2	NOTE 3	
1SI-86	2 F-12	A	3 GA	MO	C	FS-1 TS-1 PI-5	O C		RV-2 RV-2	FS-3 TS-3	NOTES 4,6	
1SI-104	1 D-12	C	2 CK	SA	C	FS-1		FF	RV-1	FF-3	NOTE 3,6	
1SI-105	1 D-13	C	2 CK	SA	C	FS-1		FF	RV-1	FF-3	NOTE 3,6	
1SI-106	1 D-4	C	2 CK	SA	C	FS-1		FF	RV-1	FF-3	NOTE 3,6	

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE

SYSTEM: SAFETY INJECTION

DWG. NO. 2165-S-1308

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
1SI-107	2 F-15	A	3 GA	MO	C	FS-1 TS-1 PI-5	O C		RV-2 RV-2	FS-3 TS-3	NOTES 4,6	
1SI-127	1 D-15	C	2 CK	SA	C	FS-1		FF	RV-1	FF-3	NOTES 3,6	
1SI-128	1 D-15	C	2 CK	SA	C	FS-1		FF	RV-1	FF-3	NOTES 3,6	
1SI-129	1 D-16	C	2 CK	SA	C	FS-1		FF	RV-1	FF-3	NOTES 3,6	
1SI-134	1 B-11	AC	6 CK	SA	C	FS-1 LK-3		FF	CS-1	FF-2	NOTES 5,6	
1SI-135	1 C-11	AC	6 CK	SA	C	FS-1 LK-3		FF	CS-1	FF-2	NOTES 5,6	
1SI-136	1 B-17	C	6 CK	SA	C	FS-1		FF	CS-1	FF-2	NOTE 3	
1SI-137	1 C-17	C	6 CK	SA	C	FS-1		FF	CS-1	FF-2	NOTE 3	
1SI-138	1 D-17	C	6 CK	SA	C	FS-1		FF	RV-1	FF-3	NOTE 3	

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE

SYSTEM: SAFETY INJECTION

DWG. NO. 2165-S-1309

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
1SI-179	2 K-17	A	1 GL	AO	C	FS-1 TS-1 FC-1 PI-5 LJ-3	C				NOTE 6	
1SI-182	2 K-16	AC	1 CK	SA	C	FS-1 LJ-3		BS	RV-3	SP-3	NOTE 6	
1SI-225	2 B-12	C	1X2 RL	SA	C	RL-4					NOTE 7	
1SI-226	2 E-12	C	1X2 RL	SA	C	RL-4					NOTE 7	
1SI-227	2 H-12	C	1X2 RL	SA	C	RL-4					NOTE 7	
1SI-249	2 D-6	AC	12 CK	SA	C	FS-1 LK-3		FF	RV-4	PE-2 DS-3	NOTE 8	
1SI-250	2 D-3	AC	12 CK	SA	C	FS-1 LK-3		FF	RV-4	PE-2 DS-3	NOTE 8	
1SI-251	2 G-6	AC	12 CK	SA	C	FS-1 LK-3		FF	RV-4	PE-2 DS-3	NOTE 8	
1SI-252	2 G-3	AC	12 CK	SA	C	FS-1 LK-3		FF	RV-4	PE-2 DS-3	NOTE 8	

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE

SYSTEM: SAFETY INJECTION

DWG. NO. 2165-S-1309

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
1SI-253	2 J-6	AC	12 CK	SA	C	FS-1 LK-3		FF	RV-4	PE-2 DS-3	NOTE 8	
1SI-254	2 J-3	AC	12 CK	SA	C	FS-1 LK-3		FF	RV-4	PE-2 DS-3	NOTE 8	
1SI-263	2 D-4	A	3/4 GL	AO	C	FS-1 TS-1 FC-1 PI-5 LJ-3	C				NOTE 9	
1SI-264	2 D-4	A	3/4 GL	AO	C	FS-1 TS-1 FC-1 PI-5 LJ-3	C				NOTE 9	
1SI-287	2 C-17	A	1 GL	AO	C	FS-1 TS-1 FC-1 PI-5 LJ-3	C				NOTE 6	
1SI-290	2 C-16	AC	1 CK	SA	C	FS-1 LJ-3		BS	RV-3	SP-3	NOTE 6	

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE

SYSTEM: SAFETY INJECTION

DWG. NO. 2165-S-1310

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
1SI-300	2 N-6	B	14 GA	MO	C	FS-1 TS-1 PI-5	O C				NOTES 10,6	
1SI-301	2 M-6	B	14 GA	MO	C	FS-1 TS-1 PI-5	O C				NOTES 10,6	
1SI-310	2 N-7	B	14 GA	MO	C	FS-1 TS-1 PI-5	O				NOTE 10	
1SI-311	2 M-7	B	14 GA	MO	C	FS-1 TS-1 PI-5	O				NOTE 10	
1SI-320	2 N-12	C	14 CK	SA	C	FS-1		FF			NOTE 11	
1SI-321	2 M-12	C	14 CK	SA	C	FS-1		FF			NOTE 11	
1SI-322	2 N-10	B	14 GA	MO	O	FS-1 TM-1 PI-5	C				NOTE 12	
1SI-323	2 M-10	B	14 GA	MO	O	FS-1 TM-1 PI-5	C				NOTE 12	
1SI-326	2 D-6	B	10 GA	MO	O	FS-1 TM-1 PI-5	C				NOTE 13	

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE

SYSTEM: SAFETY INJECTION

DWG. NO. 2165-S-1310

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
1SI-327	2 E-6	B	10 GA	MO	O	FS-1 TM-1 PI-5	C				NOTE 13	
1SI-328	2 B-4	C	3/4X1 RL	SA	C	RL-4					NOTE 14	
1SI-329	2 E-4	C	3/4X1 RL	SA	C	RL-4					NOTE 14	
1SI-330	2 B-5	C	3/4X1 RL	SA	C	RL-4					NOTE 14	
1SI-340	2 C-4	B	10 GA	MO	O	FS-1 TS-1 PI-5	C O				NOTE 15	
1SI-341	2 E-4	B	10 GA	MO	O	FS-1 TS-1 PI-5	C O				NOTE 15	
1SI-346	2 C-3	AC	10 CK	SA	C	FS-1 LK-3		FF	CS-1	FF-2	NOTES 16,6	
1SI-347	2 E-3	AC	10 CK	SA	C	FS-1 LK-3		FF	CS-1	FF-2	NOTES 16,6	
1SI-356	1 C-2	AC	6 CK	SA	C	FS-1 LK-3		FF	CS-1	FF-2	NOTE 16	

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE

SYSTEM: SAFETY INJECTION

DWG. NO. 2165-S-1310

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
1SI-357	1 E-2	AC	6 CK	SA	C	FS-1 LK-3		FF	CS-1	FF-2	NOTE 16	
1SI-358	1 E-2	AC	6 CK	SA	C	FS-1 LK-3		FF	CS-1	FF-2	NOTE 16	
1SI-359	2 B-4	A	10 GA	MO	C	FS-1 TS-1 PI-5 LK-3	O C				NOTES 17,6	

PUMP AND VALVE INSERVICE TESTING PROGRAM PLAN

FOR

SHEARON HARRIS NUCLEAR POWER PLANT

SECTION 5.6.28

VALVE TEST TABLES AND RELIEF REQUESTS

FOR

CONTAINMENT WASTE PROCESSING

DWG. NO. 2165-S-1313

SYSTEM: CONTAINMENT WASTE PROCESSING

NO.	NOTE
1.	Containment Isolation Valves.

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE

SYSTEM: CTMT. WASTE PROCESSING

DWG. NO. 2165-S-1313

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
1ED-119	2 E-17	A	3 DA	MA	LC	PV LJ-3					NOTE 1	
1ED-121	2 E-16	A	3 GL	AO	O	FS-1 TS-1 FC-1 PI-5 LJ-3	C				NOTE 1	
1ED-125	2 D-16	A	3 DA	AO	O	FS-1 TS-1 FC-1 PI-5 LJ-3	C				NOTE 1	
1ED-161	2 C-7	A	3/4 DA	AO	O	FS-1 TS-1 FC-1 PI-5 LJ-3	C				NOTE 1	
1ED-164	2 E-6	A	3/4 DA	AO	O	FS-1 TS-1 FC-1 PI-5 LJ-3	C				NOTE 1	

PUMP AND VALVE INSERVICE TESTING PROGRAM PLAN

FOR

SHEARON HARRIS NUCLEAR POWER PLANT

SECTION 5.6.29

VALVE TEST TABLES AND RELIEF REQUESTS

FOR

COMPONENT COOLING WATER

DWG. NO. 2165-S-1319
2165-S-1320
2165-S-1321
2165-S-1322
2165-S-1322 S01

SYSTEM: COMPONENT COOLING WATER

NO.	NOTE
1.	One of the three pumps is an installed spare. During normal operation one pump is running, a second pump aligned to automatically start if the running pump fails and the third is electrically disabled. Only those valves associated with the operating and reserve pumps will be tested. When one of these is removed from service and the installed spare put into service, valve operability will be verified and section XI testing initiated.
2.	Pump Discharge Check Valves. Reverse flow closure required to prevent recirculation flow back across the idle reserve pump.
3.	Header Cross-tie Block Valves. Valves used to isolate Trains for Post-LOCA system alignment.
4.	Sample System Block Valves. Valves close on a S signal.
5.	Sample System Return Check Valve. Valve is relatively large and reverse flow closure is required to prevent excessive leakage from the system.
6.	Thermal relief valves added to the program to comply with North Carolina State Requirements.
7.	CCW to RHR Heat Exchanger Block Valves. Valves open when RHR is in operation.
8.	Excess Letdown and Reactor Coolant Drain Tank Line Block Valves.
9.	CCW to Reactor Coolant Pump Thermal Barriers. Cooling water must be provide at all times when RCS temperature is above 200 Degrees F.

SYSTEM: COMPONENT COOLING WATER

NO.	NOTE
10.	CCW Inlet to Reactor Coolant Pump Thermal Barriers. Reverse flow closure required to prevent damage to CCW low pressure piping from excessive high pressure thermal barrier leakage.
11.	Relief Valve which protects Safety-Related Equipment.
12.	Containment Penetration Isolation Valve By-Pass Check Valve. Valve functions as a thermal relief when both CTMT. Pen. Isolation Valves are closed. Only Safety-Related function is to provide containment isolation.
13.	CCW to Gross Failed Fuel Detector Block Valves. Valves close on a S signal.
14.	Containment Isolation Valve

COLD SHUTDOWN TEST JUSTIFICATION

CS-1

System:	Component Cooling Water
Valve:	1CC-207,208,249,251,252,297,299
Category:	A(1CC-208,249,251,252,297,299) B(1CC-207)
Class:	2
Function:	Component Cooling Water to the Reactor Coolant Pump Thermal Barriers and Bearing Oil Coolers.
Test Requirements:	Exercise and Time.
Basis for Relief:	These are the Containment Isolation and Block valves in the RCP thermal barrier and bearing oil coolers lines. A loss of cooling water for more than a few minutes could result in extensive damage to the Reactor Coolant Pumps. Westinghouse Document 1B5710-100-07A states that cooling water must be provided to the pumps at all times when the RCS temperature is above 200 degrees F. Because of local temperature variations in the RCS at RCS temperature near 200 degrees F, at least one RCP may be kept in operation during short duration cold shutdowns where the RCS temperature is maintained near 200 degrees F. It is felt that under these conditions stopping cooling water to the operating pump could contribute to pump degradation and result in unneccessary pump repairs.
Alternate Testing:	Exercise and time at cold shutdown, when the RCS temperature is less than or equal to 200 degrees. It is our intent to perform this test when the corresponding RCP can be stopped.

VALVE

RELIEF REQUEST

RV-1

System:	Component Cooling Water
Valve:	1CC-211,250,298
Category:	AC
Class:	2
Function:	Containment Isolation Simple Check Valve (reverse flow closure for containment isolation only).
Test Requirement:	Verify reverse flow closure.
Basis for Relief:	The only method available to verify reverse flow closure is by valve leak testing during Appendix J, Type C, testing at refueling.
Alternate Testing:	Reverse flow closure will be verified during Appendix J, Type C, testing at refueling.

VALVE

RELIEF REQUEST

RV-2

System:	Component Cooling Water
Valve:	1CC-216,227,238
Category:	C
Class:	3
Function:	These Check Valves will close to protect the low pressure CCW piping from RCP Thermal Barrier Leakage.
Test Requirement:	Verify Reverse flow Closure.
Basis for Relief:	The Westinghouse RCS Pumps must have cooling water to the bearing oil coolers and thermal barriers at all times when the RCS temperature is above 200 degrees F. and there are no installed taps or position indicators that could be used to verify reverse flow closure. Any possible test involves verification of these and associated upstream non-safety-related check valves as a single unit. To verify reverse flow closure at cold shutdown would involve draining large segments of the system and providing an alternate source of pressurized water inside the containment which may not be accessible during cold shutdown. Also, this test would involve waste processing of the water removed for testing and of the water used for testing. This type of testing would involve an excessive amount of time and personnel and could cause delays in plant startup.
Alternate Testing:	One valve will be disassembled and visually inspected at refueling and alternate valves will be done during subsequent refuelings. Only one valve will be inspected at a refueling unless it fails to pass inspection. Failure to pass inspection will initiate disassembly and inspection of the other two valves.

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE

SYSTEM: COMPONENT COOLING WATER

DWG. NO. 2165-S-1319

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
1CC-33	3 E-8	C	18 CK	SA	O/C	FS-1 BS-1		FF BS			NOTES 1&2	
1CC-50	3 K-8	C	18 CK	SA	O/C	FS-1 BS-1		FF BS			NOTES 1&2	
1CC-64	3 H-8	C	18 CK	SA	O/C	FS-1 BS-1		FF BS			NOTES 1&2	
1CC-99	3 F-17	B	18 BF	MO	O	FS-1 TM-1 PI-5	C				NOTE 3	
1CC-113	3 G-17	B	18 BF	MO	O	FS-1 TM-1 PI-5	C				NOTE 3	
1CC-114	3 F-18	B	4 DA	AO	O	FS-1 TM-1 FC-1 PI-5	C				NOTE 4	
1CC-115	3 F-18	B	4 DA	AO	O	FS-1 TM-1 FC-1 PI-5	C				NOTE 4	
1CC-118	3 H-2	C	4 CK	SA	O/C	FS-1		BS			NOTE 5	
1CC-119	3 I-2	C	4 CK	SA	O/C	FS-1		BS			NOTE 5	

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE

SYSTEM: COMPONENT COOLING WATER

DWG. NO. 2165-S-1319

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
1CC-127	3 H-3	B	18 BF	MO	O	FS-1 TM-1 PI-5	C				NOTE 3	
1CC-128	3 G-3	B	18 BF	MO	O	FS-1 TM-1 PI-5	C				NOTE 3	
1CC-129	3 G-4	C	3/4 X 1 RL	SA	C	RL-4					NOTE 6	

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE

SYSTEM: COMPONENT COOLING WATER

DWG. NO. 2165-S-1320

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
1CC-145	3 B-8	C	1 X 2 RL	SA	C	RL-4					NOTE 6	
1CC-147	3 A-7	B	12 GA	MO	C	FS-1 TH-1 PI-5	O				NOTE 7	
1CC-165	3 L-8	C	1 X 2 RL	SA	C	RL-4					NOTE 6	
1CC-167	3 L-7	B	12 GA	MO	C	FS-1 TH-1 PI-5	O				NOTE 7	

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE

SYSTEM: COMPONENT COOLING WATER

DWG. NO. 2165-S-1321

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
1CC-176	2 D-3	B	6 GA	MO	O	FS-1 TS-1 PI-5	C				NOTES 8,14	
1CC-186	2 D-8	C	3/4 X 1 RL	SA	C	RL-4					NOTES 6,14	
1CC-194	2 E-8	C	3/4 X 1 RL	SA	C	RL-4					NOTES 6,14	
1CC-202	2 B-10	A	6 GA	MO	O	FS-1 TS-1 PI-5	C				NOTES 8,14	
1CC-207	2 E-1	B	6 GA	MO	O	FS-1 TM-1 PI-5	C		CS-1 CS-1	FS-2 TM-2	NOTE 9	
1CC-208	2 F-1	A	6 GA	MO	O	FS-1 TM-1 PI-5 LJ-3	C		CS-1 CS-1	FS-2 TM-2	NOTES 9,14	
1CC-211	2 F-1	AC	6 CK	SA	O	FS-1 LJ-3		BS	RV-1	SP-3	NOTE 9,14	
1CC-216	3 N-2	C	2 CK	SA	O	FS-1		BS	RV-2	DS	NOTE 10	
1CC-219	3 N-4	C	3/4 X 1 RL	SA	C	RL-4					NOTE 11	

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE

SYSTEM: COMPONENT COOLING WATER

DWG. NO. 2165-S-1321

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
1CC-227	3 N-5	C	2 CK	SA	O	FS-1		BS	RV-2	DS	NOTE 10	
1CC-230	3 N-8	C	3/4 X 1 RL	SA	C	RL-4					NOTE 11	
1CC-238	3 N-9	C	2 CK	SA	O	FS-1		BS	RV-2	DS	NOTE 10	
1CC-241	3 N-11	C	3/4 X 1 RL	SA	C	RL-4					NOTE 11	
1CC-249	2 F-15	A	4 GA	MO	O	FS-1 TS-1 PI-5 LJ-3	C		CS-1 CS-1	FS-2 TS-2	NOTES 9,14	
1CC-250	2 F-15	AC	3/4 CK	SA	C	FS-1 LJ-3		BS	RV-1	SP-3	NOTES 12,14	
1CC-251	2 E-15	A	4 GA	MO	O	FS-1 TS-1 PI-5 LJ-3	C		CS-1 CS-1	FS-2 TS-2	NOTES 9,14	
1CC-252	2 D-14	A	4 GA	MO	O	FS-1 TS-1 PI-5	C		CS-1 CS-1	FS-2 TS-2	NOTE 9	
1CC-294	2 F-12	C	3 X 4 RL	SA	C	RL-4					NOTE 11	
1CC-297	2 F-12	A	6 GA	MO	O	FS-1 TS-1 PI-5 LJ-3	C		CS-1 CS-1	FS-2 TS-2	NOTES 9,14	

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE

SYSTEM: COMPONENT COOLING WATER

DWG. NO. 2165-S-1321

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
1CC-298	2 F-13	AC	3/4 CK	SA	C	FS-1 LJ-3		BS	RV-1	SP-3	NOTE 12	
1CC-299	2 E-12	A	6 GA	MO	O	FS-1 TS-1 PI-5 LJ-3	C		CS-1 CS-1	FS-2 TS-2	NOTES 9,14	

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE

SYSTEM: COMPONENT COOLING WATER

DWG. NO. 2165-S-1322

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
1CC-304	3 A-6	B	3/4 GA	AO	O	FS-1 TM-1 FC-1 PI-5	C				NOTE 13	
1CC-305	3 A-6	B	3/4 GA	AO	O	FS-1 TM-1 FC-1 PI-5	C				NOTE 13	
1CC-322	3 J-2	C	3/4 X 1 RL	SA	C	RL-4					NOTE 6	
1CC-335	3 J-5	C	3/4 X 1 RL	SA	C	RL-4					NOTE 6	
1CC-352	3 J-7	C	3/4 X 1 RL	SA	C	RL-4					NOTE 6	
1CC-355	3 J-10	C	3/4 X 1 RL	SA	C	RL-4					NOTE 6	
1CC-362	3 J-12	C	3/4 X 1 RL	SA	C	RL-4					NOTE 6	
1CC-313	3 E-5	C	3/4 X 1 RL	SA	C	RL-4					NOTE 6	

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE

SYSTEM: COMPONENT COOLING WATER

DWG. NO. 2165-S-1322 S01

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
1CC-381	3 H-3	C	3/4 X 1 RL	SA	C	RL-4					NOTE 6	
1CC-397	3 E-6	C	3/4 X 1 RL	SA	C	RL-4					NOTE 6	
1CC-520	3 E-14	C	3/4 X 1 RL	SA	C	RL-4					NOTE 6	
1CC-534	3 H-10	C	3/4 X 1 RL	SA	C	RL-4					NOTE 6	

PUMP AND VALVE INSERVICE TESTING PROGRAM PLAN

FOR

SHEARON HARRIS NUCLEAR POWER PLANT

SECTION 5.6.30

VALVE TEST TABLES AND RELIEF REQUESTS

FOR

RESIDUAL HEAT REMOVAL

DWG. NO. 2165-S-1324

SYSTEM: RESIDUAL HEAT REMOVAL

NO.	NOTE
1.	Boundary valves between high pressure RCS and the low pressure RHR. Valves are maintained closed during normal operation and are Pressure Isolation Valves.
2.	Relief Valve which protects Safety-Related Equipment.
3.	RHR Cross-tie to the CVCS opens for Safety-Related modes of operation.
4.	RHR Heat Exchanger Outlet Flow Control Valves. Valves are used to control flow during RHR System operation. Valves are normally open, fail open and are maintained open with the controller for LPCI mode of operation. Test only the fail open feature for Section XI testing.
5.	RHR Pump Min. Flow Line Block Valves. Valves close to prevent recirculation flow and to prevent flow diversion during system operation.
6.	RHR System LHSI Line Check Valves. Reverse flow is required to prevent flow recirculation through the idle pump. Forward flow is verified using the 8 inch test line which is adequate to verify full flow operability of these 10 inch Valves.

COLD SHUTDOWN TEST JUSTIFICATION

CS-1

System:	RESIDUAL HEAT REMOVAL
Valve:	1RH-1,2,39,40
Category:	A
Class:	1
ASME Section XI Quarterly Test Requirements:	Exercise and Time.
Cold Shutdown Test Justification:	These are boundary valves between the high pressure Reactor coolant System and the low pressure Residual Heat Removal System piping. The valves are interlocked to RCS pressure and can not be opened with RCS pressure greater than 425 psig. Defeating the interlocks to perform testing is not desirable since they are pressure isolation valves. If the inline valves were inadvertently opened during testing an Inter-System-LOCA could occur.
Quarterly Part Stroke Testing:	Partial valve exercising is precluded for the same reasons as full stroke exercising.
Cold Shutdown Testing:	Exercise and Time.

OS2

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE

SYSTEM: RESIDUAL HEAT REMOVAL

DWG. NO. 2165-S-1324

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
1RH-1	1 L-3	A	12 GA	MO	C	FS-1 TS-1 PI-5 LK-3	O C		CS-1 CS-1	FS-2 TS-2	NOTE 1	
1RH-2	1 L-4	A	12 GA	MO	C	FS-1 TS-1 PI-5 LK-3	O C		CS-1 CS-1	FS-2 TS-2	NOTE 1	
1RH-7	2 H-6	C	3 X 3 RL	SA	C	RL-4					NOTE 2	
1RH-25	2 C-12	B	8 GA	MO	C	FS-1 TM-1 PI-5	O				NOTE 3	
1RH-30	2 C-11	B	10 BF	AO	O	FO-1 TM-1 PI-5	O				NOTE 4	
1RH-31	2 H-7	B	3 GA	MO	O	FS-1 TM-1 PI-5	C				NOTE 5	
1RH-34	2 C-7	C	10 CK	SA	C	FS-1 BS-1		FF BS			NOTE 6	
1RH-39	1 I-3	A	12 GA	MO	C	FS-1 TS-1 PI-5 LK-3	O C		CS-1 CS-1	FS-2 TS-2	NOTE 1	
1RH-40	1 I-4	A	12 GA	MO	C	FS-1 TS-1 PI-5 LK-3	O C		CS-1 CS-1	FS-2 TS-2	NOTE 1	

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE

SYSTEM: RESIDUAL HEAT REMOVAL

DWG. NO. 2165-S-1324

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
1RH-45	2 K-6	C	3 X 3 RL	SA	C	RL-4					NOTE 2	
1RH-63	2 F-12	B	8 GA	MO	C	FS-1 TM-1 PI-5	O				NOTE 3	
1RH-66	2 E-11	B	10 BF	AO	O	FO-1 TM-1 PI-5	O				NOTE 4	
1RH-69	2 H-8	B	3 GA	MO	O	FS-1 TM-1 PI-5	C				NOTE 5	
1RH-70	2 E-8	C	10 CK	SA	C	FS-1 BS-1		FF BS			NOTE 6	
1RH-120	2 L-4	C	3/4 X 1 RL	SA	C	RL-4					NOTE 2	
1RH-121	2 I-4	C	3/4 X 1 RL	SA	C	RL-4					NOTE 2	

PUMP AND VALVE INSERVICE TESTING PROGRAM PLAN

FOR

SHEARON HARRIS NUCLEAR POWER PLANT

SECTION 5.6.31

VALVE TEST TABLES AND RELIEF REQUESTS

FOR

CONTAINMENT INTEGRATED LEAKAGE DETECTION

DWG. NO. 2166-S-916

SYSTEM: CTMT LEAK DETECTION

NO.	NOTE
1.	Locked Closed Manual Containment Isolation Valves.

SHEARON HARRIS NUCLEAR POWER PLANT
VALVE TEST TABLE

SYSTEM: CTMT. LEAK DETECTION

DWG. NO. 2166-S-916

VALVE NUMBER	CLASS AND DWG. COOR.	VALVE (CAT.)	SIZE (IN.) AND TYPE	ACTU. TYPE	NORM. POSIT.	TEST REQ.	STROKE DIRECT.	CHECK VALVE TEST DIRECT.	C.S. JUST. OR RELIEF REQ.NO.	C.S. OR ALT. TEST PERF.	REMARKS	REV. NO.
1LT-V1	2 F-3	A	8 GA	MA	LC	PV LJ-3					NOTE 1	
1LT-V2	2 F-7	A	1 GL	MA	LC	PV LJ-3					NOTE 1	
1LT-V4	2 G-7	A	1 GL	MA	LC	PV LJ-3					NOTE 1	

6.0 DIAGRAMS/ATTACHMENTS