VIRGINIA ELECTRIC AND POWER COMPANY
RICHMOND, VIRGINIA 23261

October 17, 1990

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

Serial No. 90-368A
NES/ISI/EWT:jbl R8b
Docket Nos. 50-338
50-339
License Nos. NPF-4
NPF-7

Gentlemen:

VIRGINIA ELECTRIC AND POWER COMPANY
NORTH ANNA POWER STATION UNITS 1 AND 2
ASME SECTION XI INSERVICE TESTING PROGRAM PLAN
REVISED RELIEF REQUESTS AND SUPPLEMENTAL INFORMATION

On June 14, 1990, Virginia Electric and Power Company submitted Revision 6 to the ASME Section XI Inservice Testing (IST) Program Plan for Pumps and Valves for North Anna Units 1 and 2. This IST Program Plan applies to the second inspection interval which begins December 14, 1990 for both units. On September 6, 1990, we met with members of the NRC Staff to discuss certain alternate testing methods described in the relief requests submitted with the IST Program Plan. During this meeting, it was determined that we should revise certain relief requests and provide supplemental information in support of certain other relief requests.

In accordance with 10 CFR 50.55a(g)(5)(iv), Virginia Electric and Power Company requests relief from certain pump and valve testing requirements described in ASME Section XI and the NRC positions described in Attachment 1 to Generic Letter 89-04. In addition to the changes to the relief requests, the equipment modifications required for implementation of this testing program (as referenced in our June 14, 1990 submittal) have been determined not to require a refueling outage or unit shutdown for installation. Therefore, the equipment modifications will be completed in accordance with the schedule allowed by Generic Letter 89-04 which is by April 3, 1991 for both North Anna Units 1 and 2.

The equipment modification schedules and relief requests contained in this letter supersede their corresponding counterparts submitted as part of the IST Program Plan, Revision 6, dated June 14, 1990. Attachment 1 provides a discussion of the changes to the IST Program Plan and the equipment modification schedules. Attachment 2 provides the supplemental information requested during our September 6, 1990 meeting. Attachments 3 and 4 provide the revised pages to the Revision 6 IST Program Plan submittals for North Anna Units 1 and 2, respectively.

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Several of the relief requests contained in the second interval program plan require NRC approval prior to implementation. They are Relief Requests P-4, P-6, P-7, V-42, V-55, V-61, V-64, V-66, and V-67 for Unit 1 and Relief Requests P-4, P-6, P-7, V-43, V-56, V-62, V-65, V-67, and V-68 for Unit 2. These relief requests were not approved by issuance of NRC Generic Letter 89-04 and/or contain alternate testing methods not addressed in Attachment 1 to the Generic Letter.

It is our intent to implement this revised testing program by the first scheduled test after the start of the second inspection interval (the second interval begins December 14, 1990). To satisfy this schedule, we request that the above relief requests be approved prior to the interval start.

The enclosed relief requests have been reviewed and approved by the Station Nuclear Safety and Operating Committee.

Should you have any questions or require additional information, please contact us.

Very truly yours,

W. L. Stewart
Senior Vice President - Nuclear

Attachments:

1. Discussion of Changes to Revision 6 of the ASME Section XI Inservice Testing Program Plan for Pumps and Valves for North Anna Units 1 and 2.
2. Supplemental Information to Support the Relief Requests in Revision 6 of the ASME Section XI Inservice Testing Program Plan for North Anna Units 1 and 2.
3. Revised Pages to the IST Program Plan submittal for North Anna Unit 1.
4. Revised Pages to the IST Program Plan submittal for North Anna Unit 2.

cc: U.S. Nuclear Regulatory Commission
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Mr. M. S. Lesser
NRC Senior Resident Inspector
North Anna Power Station

Attachment 1

Discussion of Changes to Revision 6 of the ASME Section XI Inservice Testing Program Plan for Pumps and Valves for North Anna Units 1 and 2

Virginia Electric and Power Company

Attachment 1

Discussion of Changes

Background

North Anna Unit 2 is currently in its 10-year ISI refueling outage and North Anna Unit 1 will begin its next refueling outage in January 1991.

On October 3, 1989, in response to NRC Generic Letter 89-04, Virginia Electric and Power Company submitted Revision 5 to the Section XI Inservice Testing (IST) Program Plan for North Anna Units 1 and 2. Revision 5 of the IST Program Plan applies to the first inspection interval. The first interval ASME Section XI Inservice Testing Program Plan for Pumps and Valves for North Anna Units 1 and 2 ends on December 14, 1990.

On June 14, 1990, we submitted Revision 6 to the Section XI IST Program Plan for Pumps and Valves for North Anna Units 1 and 2. This IST Program Plan applies to the second inspection interval which begins December 14, 1990. On September 6, 1990, we met with members of the NRC Staff to discuss certain alternate testing methods described in the relief requests submitted with the Program Plan. During this meeting, it was determined that we should revise certain relief requests and provide supplemental information in support of certain other relief requests.

In addition to the changes discussed in the meeting, several other changes became apparent during the preparation of this letter, i.e., changes to Relief Requests P-2, P-4, P-6, P-15, and V-67/68 were not discussed in our September 6, 1990 meeting. We also identified that we must revise certain commitments regarding schedule for equipment modifications.

It is our intent to implement this revised testing program by the first scheduled test after the start of the second inspection interval. Therefore, to facilitate your review of the program, the following is a discussion of the changes to the second interval ASME Section XI IST Program Plan for North Anna Units 1 and 2.

Discussion of Previous Equipment Modification Commitments

Several instrument modifications were required to be completed to implement Revision 6 of the IST Program Plan. These modifications and their completion schedules were described in Attachment 2 of our June 14, 1990 submittal.

In general, the strap-on flow instrumentation currently in use at North Anna may not in all cases be suitable for use in Section XI pump testing applications. The initial test results and instrument accuracy information provided by the manufacturer indicated that this strap-on instrumentation was suitable for pump testing. However, subsequent test results revealed that the flow instruments may not provide adequate repeatability to meet the Section XI accuracy requirements for pump testing. Further data gathering refinements and evaluations are necessary to determine the suitability of the strap-on

flow instrumentation for pump testing. However, the strap-on flow instrumentation can be used to verify full flow for check valve testing.

Based on these general concerns, the following commitments update their respective items from the June 14, 1990 submittal.

1. Emergency Diesel Generator Fuel Oil Pumps (1-EG-P-1HA, 1HB, 1JA, and 1JB and 2-EG-P-2HA, 2HB, 2JA, and 2JB) - Permanent flow instrumentation is currently not installed on the piping from the fuel oil storage tanks to the fuel oil day tanks. In Revision 4 of the IST program plan (letter dated January 16, 1989) and in our response to Generic Letter 89-04 (letter dated October 3, 1989) and in Revision 6 of the IST program plan (letter dated June 14, 1990), we committed to install flow instrumentation on the fuel oil lines during the current outage for Unit 2 and the January 1991 outage for Unit 1. Ultrasonic (strap-on type) flow instruments have been purchased for this application.

   Based on the manufacturer's information and initial results from the boric acid transfer pump tests, the strap-on ultrasonic flow instrumentation appeared to meet the accuracy requirements of Subsection IWP and to be equivalent to other types of flow instrumentation.

   We will run several tests with the strap-on ultrasonic flow instruments. After we have evaluated the test results and if these instruments are determined unsuitable for use in this application, we will submit to the NRC a plan and schedule for properly instrumenting the diesel fuel oil transfer pumps. This evaluation of the ultrasonic flow instruments will be completed by the end of March 1991 and, if necessary, our plan and schedule for installation of permanent flow instrumentation will be submitted to the NRC by September 20, 1991.

   In addition, inlet pressure instrumentation is currently not installed in the piping from the fuel oil storage tanks to the fuel oil day tanks. In our response to Generic Letter 89-04 (letter dated October 3, 1989) and in Revision 6 of the IST program plan (letter dated June 14, 1990), we committed to install inlet pressure instrumentation on the fuel oil lines during the current outage for Unit 2 and the January 1991 outage for Unit 1. However, unit shutdown is not required for installation of these instruments. Therefore, as allowed by Generic Letter 89-04, we now commit to complete the installation of the inlet pressure instrumentation within 18 months of the date of our confirmatory letter, i.e., by April 3, 1991, for Units 1 and 2.

   On a separate concern, the flow and differential pressure quantities are quite small for these pumps. The flow rate is expected to be less than 8 gpm and the expected differential pressures are between 5 and 10 psi. Applying the Section XI acceptance criteria to these quantities yields a very small upper operating range. We intend to trend the data scatter for several tests. If the scatter falls outside the operability ranges given by Section XI, we will expand the ranges on a case by case basis. The expanded ranges will be determined by engineering evaluation considering the type of pump and the general condition of the pump.

If the expanded ranges are necessary, the required Relief Requests will be submitted to the NRC.

2. Boric Acid Transfer Pumps (1-CH-P-2A, B, C, and D) - During normal operation, the recirculation flow piping is the only test loop available for quarterly flow testing. Permanent flow instrumentation is not installed on the recirculation flow piping of these pumps. Strap-on flow instrumentation is currently being used for quarterly testing the boric acid transfer pumps. As discussed above, further data gathering refinements and evaluations are necessary to determine the suitability of the strap-on flow instrumentation for testing pumps. There is a flow path available through the emergency boration line that does have installed instrumentation. However, this path will inject boric acid into the RCS and can only be used on the way to or during reactor refueling. Therefore, relief is requested from measuring flow for these pumps quarterly (reference Relief Request P-15 for both units) and no further attempts will be made to measure flow for these pumps using strap-on instrumentation. Flow will be measured every reactor refueling by flowing the boric acid transfer system through the emergency borate line into the RCS. The alternate testing methodology described in the relief requests complies with NRC Generic Letter 89-04, Position 9.

   Unit 2 is currently in a refueling outage. We intend to test pumps 1-CH-P-2C and 2D by flowing to the RCS. To limit the amount of boric acid injected into the RCS, the pumps will be run for more than three minutes on the recirculation flow path and then only two minutes with flow to the RCS before the test quantities are measured.

   In addition, inlet pressure instrumentation is currently not installed in the piping for the boric acid transfer pumps. In our response to Generic Letter 89-04 (letter dated October 3, 1989) and in Revision 6 of the IST program plan (letter dated June 14, 1990), we committed to install inlet pressure instrumentation on these pumps during the current outage for Unit 2 and the January 1991 outage for Unit 1. However, unit shutdown is not required for installation of these instruments. Therefore, as allowed by Generic Letter 89-04, we now commit to complete the installation of the inlet pressure instrumentation within 18 months of the date of our confirmatory letter, i.e., by April 3, 1991, for Units 1 and 2.

3. Charging Pumps (1-CH-P-1A, 1B, and 1C and 2-CH-P-1A, 1B, and 1C) - In Revision 4 of the IST program plan (letter dated January 16, 1989), we removed the reference to measurement of inlet pressure from our relief request for these charging pumps (Relief Request No. 2). In our response to Generic Letter 89-04 (letter dated October 3, 1989) and in Revision 6 of the IST program plan (letter dated June 14, 1990), we indicated that we would measure inlet pressure on these pumps during the required quarterly testing. However, inlet pressure instrumentation is not currently installed on these pumps. The omission of any discussion of this required equipment modification from previous correspondence was an administrative error.

Unit shutdown is not required for installation of this equipment. Therefore, as allowed by Generic Letter 89-04, we commit to complete the installation of the inlet pressure instrumentation within 18 months of the date of our confirmatory letter, i.e., by April 3, 1991, for Units 1 and 2.

Changes to Relief Requests

Changes to Relief Request P-2 / P-2 (Unit 1 / Unit 2)

Relief Requests P-2 (for both units) are being withdrawn. The high head safety injection / charging pumps will be tested on a quarterly basis. As discussed above, the inlet pressure instrumentation will be installed by April 3, 1991 for both units.

Changes to Relief Request P-4 / P-4

Relief Requests P-4 (for both units) for the emergency diesel generator fuel oil transfer pumps are revised to withdraw our request for relief from measuring flow rate. Strap-on type ultrasonic flow instrumentation is currently being used to measure flow

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

Proposed Alternate Testing

The measurement of Section XI quantities for each emergency diesel generator fuel oil transfer pump will begin when the pump automatically starts on a low day tank level signal.

Changes to Relief Request P-6 / P-6

Relief Requests P-6 (for both Units) for the inside containment recirculation spray pumps are being revised to remove the reference to disassembly and inspection every five years. ASME Section XI does not require disassembly and inspection of pumps to demonstrate operational readiness of these components. The five-year teardown inspection was based on a commitment made during the licensing process for North Anna Unit 2. The commitment to perform the inspection is independent from Section XI and was included in this relief request as additional information. Virginia Power is investigating the possibility of eliminating the commitment to disassemble the pumps every five years. Further discussion of this will be by a separate submittal to the NRC.

The references to the high vibration detector and observing the high vibration alarm in the control room have been removed from the alternate testing section. This removes any concern that reference to observing this detector could be construed to mean that the vibration detector is subject to the instrumentation requirements of Subsection IWP. This vibration detector is part of the system design and was never intended to satisfy Subsection IWP requirements. There is no reduction in safety by eliminating this reference from the relief request.

Proposed Alternate Testing

The inside containment recirculation spray pumps will be run dry every quarter to verify operability. Each pump is equipped with a sensor to detect pump rotation. Motor current will be recorded for each dry pump test. A full-flow test which includes vibration measurement will be performed every reactor refueling.

Changes to Relief Request P-7 / P-7

Relief Requests P-7 (for both units) have been revised to reference testing the outside containment recirculation spray pumps every 24 months instead of every 3 months. Section XI testing is the only source of operational based degradation for these pumps. The pumps are maintained dry and therefore are not subject to normal corrosion or fouling. Considering the hardship of testing these pumps, the exposure to degradation caused by frequent testing, and the dry state in which the pumps are maintained, there is no compensating increase in safety achieved by testing these pumps every three months.

This position is supported by the ANSI / ASME OM-6 Standard, In-Service Testing of Pumps, Paragraph 5.5, which states, "Pumps lacking required fluid inventory, (e.g., pumps in dry sumps) need not be tested in accordance with this Part every 3 months. These pumps shall be tested at least once every 2 years except as provided in para. 5.4. The required fluid inventory shall be provided during this test." (Paragraph 5.4 of OM-6 describes the testing frequency of pumps which are declared inoperable or not required for service.)

Also, the request for relief from measuring inlet pressure was revised. Although suitable suction pressure instrumentation is not installed on the outside recirculation spray pumps, inlet pressure can be calculated from the initial water level in the test loop. The recirculation flow path will be filled with water to establish initial conditions for testing.

Proposed Alternate Testing

The outside containment recirculation spray pumps will be flow tested on their recirculation paths at least once every two years. After a two minute stabilization period, inlet pressure, differential pressure (as determined from the calculated inlet pressure and measured discharge pressure), flow rate, and vibration measurements will be taken.

Changes to Relief Request P-15 / P-15

Relief Requests P-15 (for both units) are being added to extend the testing frequency of the boric acid transfer pumps for the full Section XI test to every reactor refueling. Permanent flow instrumentation is not installed on the recirculation flow piping of the boric acid transfer pumps. The recirculation flow piping is the only test loop available for quarterly flow testing. Strap-on flow instrumentation is currently being used for quarterly testing. Initial test results and instrument accuracy information provided by the manufacturer indicated that this strap-on instrumentation was suitable for use in ASME Section XI pump testing applications. However, subsequent test results revealed that the flow instruments may not provide adequate repeatability. Further data gathering refinements and evaluations are necessary to determine the suitability of the strap-on flow instrumentation for pump testing.

Proposed Alternate Testing

These pumps will be tested every quarter on the recirculation flow loop and inlet pressure, differential pressure, and vibration will be measured. Every reactor refueling, inlet pressure, differential pressure, flow, and vibration will be measured.

The required inlet pressure instrumentation will be installed by April 3, 1991 for both units. The alternate testing methodology described in the relief requests will then comply with NRC Generic Letter 89-04, Position 9.

Changes to Relief Request V-42 / V-43

Relief Requests V-42 for Unit 1 and V-43 for Unit 2 are revised to change the alternate testing method used to verify that the disks of the safety injection accumulator discharge check valves move to the open position. These valves cannot be full-flow tested by discharging the accumulator into the RCS. The testing method proposed in Revision 6 of the Program Plan for North Anna was disallowed by the NRC for Surry (letter dated August 27, 1990). Therefore, in accordance with the grouping provisions of ASME Section XI, the alternate testing for the accumulator discharge check valves has been changed to indicate that the valves will be placed into two groups. (For example, for Unit 1, valves 1-SI-144 and 161 are in one group and 1-SI-125, 127, 142, and 159 are in the other group. The valves are grouped this way because valves 1-SI-144 and 161 are downstream from RHR and experience different service conditions than the other four valves.) One valve from each group will be disassembled and inspected every other reactor refueling. These valves will then be partial-stroke exercised after reassembly by flowing the accumulator into the RCS. This alternate testing method (i.e., disassembly and inspection) conforms to Generic Letter 89-04, Attachment 1, Position 2 except for frequency.

During the 1989 outages for Units 1 and 2, all six SI accumulator check valves from each unit were inspected and found to be in "like new condition." However, an inspection report (i.e., a VT-3 nondestructive examination report) was generated for

only one of the six valves on each unit because only one valve was required to be examined in accordance with our ISI / NDE program.

During the current Unit 2 outage, one valve from each group was disassembled and inspected. One of the valves disassembled was the same valve for which inspection results were documented from the last outage. The capability of the valves to be full-stroke exercised was demonstrated and the condition of the valve internals were documented in detail. The inspection results were compared to the previous inspection report to determine signs of degradation. No degradation was detected.

Because no degradation was detected, it can be concluded that the other valves in each group for Units 1 and 2 are in good condition and that an extended interval is justified for both units. The "like new condition" of these valves is expected because during normal operation they remain closed and are subject to low flow conditions only during reactor refueling when a partial flow test is performed and when RHR is operating.

Given the lack of degradation observed in the SI accumulator discharge check valves, disassembling these valves presents a hardship with no compensating increase in safety. The average dose received during the last disassembly and inspection for the check valves farthest from the accumulator was from 1500 to 2000 mrem per valve, and the average dose for the check valves nearest to the accumulator was approximately 400 mrem per valve. To open the valves, the vessel inventory must be reduced which can significantly increase the dose rate for areas near the vessel and increase the probability and consequences of a loss of decay heat removal. Generic Letter 88-17 addresses the problems associated with loss of decay heat removal. Because of the increase in dose rate, most work in the vessel area must be delayed until the vessel is refilled.

In our October 3, 1989 letter, we discussed our intent to evaluate non-intrusive monitoring techniques to verify disk movement. This alternate testing method is no longer scheduled to be evaluated. We may evaluate the use of non-intrusive monitoring techniques to verify full movement of the valve disk at a later time.

Proposed Alternate Testing

These valves they will be placed into two groups. For example, for Unit 1, valves 1-SI-144 and 161 are in one group and 1-SI-125, 127, 142, and 159 are in the other group. (The valves are grouped this way because 1-SI-144 and 161 are downstream from RHR and experience different service conditions than the other four valves.) To verify that these valves will stroke to the open position, one valve from each group will be disassembled and inspected every other refueling outage.

These valves will be individually confirmed closed by back seat testing every reactor refueling.

Changes to Relief Request V-55 / V-56

Relief Requests V-55 for Unit 1 and V-56 for Unit 2 are revised to reference recording diesel start times and comparing them to a maximum allowable start time as the alternate testing method used to verify the operability of the emergency diesel air solenoid valves and check valves.

The basis for relief and alternate testing method in this Relief Request have been revised and the acceptance criterion used for the alternate testing does not conform to NRC Generic Letter 89-04, Attachment 1.

Proposed Alternate Testing

The solenoid valves will be full-stroke exercised and check valves will be partial-stroke exercised monthly by observing that the valves perform their intended function (i.e., if the diesel starts and the air bank pressures decrease, then the solenoid and check valves were stroked successfully).

Every 18 months, the check valves will be full stroke tested by discharging only one air bank to start the diesel. The failure of either the solenoid or check valves to open will promptly give a diesel alarm. Further investigation would identify problems with the operability of these valves. The diesel start time will be recorded and compared to a maximum allowable start time during this test.

Changes to Relief Request V-64 / V-65

Relief Requests V-64 for Unit 1 and V-65 for Unit 2 are revised to change the alternate testing methods for the instrument air isolation valves. The reference to disassembly of the valves was deleted from the alternate testing section and reference to back seat testing two check valves in series was added.

To back seat test these valves with flow to verify valve closure would require venting the lines upstream of the valves. For example, the Unit 1 valves 1-IA-925 and 926 are in series with no vent valves in between. Therefore, there is no way to individually back seat these valves.

The alternate testing presented in this relief request has been revised and does not conform to NRC Generic Letter 89-04, Attachment 1.

Proposed Alternate Testing

These valves will be back seat tested in groups. The test volume will be pressurized upstream of the two valves in series and vented downstream of the valves. If the group fails the back seat test, both valves in the group will be disassembled, inspected, and repaired as necessary.

Changes to Relief Request V-67 / V-68

Relief Requests V-67 for Unit 1 and V-68 for Unit 2 are revised to change the basis for relief and the alternate testing method. These valves can be mechanically exercised to the open and closed positions on a reactor refueling frequency. In addition, the valves are containment isolation valves and are leak tested every reactor refueling.

The alternate testing presented in this Relief Request conforms to Subsection IWP except for frequency.

Proposed Alternate Testing

These valve will be exercised to the open and closed positions every reactor refueling.

Changes to Relief Request V-69 / V-70

Relief Requests V-69 for Unit 1 and V-70 for Unit 2 are being withdrawn. ASME Section XI leakage limits will be determined based on test results for each valve. These maximum leakage limits will be maintained independent of the Appendix J leakage limits. By establishing Section XI limits based on test results, unnecessary maintenance can be avoided and these relief requests are no longer necessary.

Attachment 2

Supplemental Information to Support the Relief Requests in Revision 6 of the ASME Section XI Inservice Testing Program Plan for Pumps and Valves for North Anna Units 1 and 2

Virginia Electric and Power Company

Attachment 2

Supplemental Information

The following supplemental information is being provided to assist the NRC in reviewing Revision 6 to the North Anna Unit 1 and 2 Inservice Testing Program Plan for Pumps and Valves.

Disassembly of Bonnet Hung Check Valves

During our September 6, 1990 meeting, the NRC Staff representatives expressed their concern for check valves with the disks attached to the bonnet which are disassembled to verify operability. Table 1 summarizes the check valves that are subject to disassembly at North Anna. Note that four valves (1-SI-1 and 16 and 2-SI-1 and 21) have disks attached to the bonnet. No other valves that are subject to disassembly have this design.

Valves 1-SI-1 and 16 and 2-SI-1 and 21 cannot be full-flow or partial-flow tested because the only source of water is from the containment sump. Water taken from the sump can pick up contaminants. This untreated water should not be introduced into the system. These valves will be back seat tested after each reassembly. This test will ensure that the disk is mating properly with the seat.

Leak Testing of Valves

Another area of concern discussed and determined to require supplemental information involves leak testing of valves to verify closure. The NRC Staff representatives commented that the following Relief Requests refer to the burden associated with leak testing to verify closure but do not describe the burden. In response, the burden associated with leak testing each of these valves is described in general terms in Section 2.3.1 of Revision 6 of the IST Program Plan.

Unit 1 Relief Requests		Unit 2 Relief Requests	
V-3	V-43	V-3	V-42
V-10	V-44	V-10	V-43
V-16	V-46	V-16	V-45
V-20	V-52	V-20	V-47
V-21	V-62	V-21	V-53
V-28	V-65	V-28	V-63
V-40	V-67	V-35	V-66
V-41	V-70	V-37	V-68
V-42		V-41	V-71

ATTACHMENT 2
TABLE 1
CHECK VALVES SUBJECT TO DISASSEMBLY

RELIEF REQUEST UNIT 1/2	VALVE NUMBER	TEST POSITION VERIFIED BY DISASSEMBLY	PARTIAL FLOW TEST / LEAK TEST	DESCRIPTION
V-33/33	1-RS-123 1-RS-138 2-RS-103 2-RS-118	OPEN / CLOSE	NO / NO	Casing cooling pump discharge check valve to outside recirculation spray pump suction, 10" Crane, swing check, hinge pin attached to valve body.
V-37/38	1-SI-1 1-SI-16 2-SI-1 2-SI-21	OPEN	NO / NO	Low head SI pump suction check valve from containment sump, 12" Aloyco, swing check, hinge pin attached to valve bonnet.
V-42/43	1-SI-125 1-SI-127 1-SI-142 1-SI-144 1-SI-159 1-SI-161 2-SI-151 2-SI-153 2-SI-168 2-SI-170 2-SI-185 2-SI-187	OPEN	YES / YES*	Accumulator discharge check valves, 12" Anchor/Darling, swing check, hinge pin attached to retaining block which is attached to valve body disk.
V-50/51	1-HC-5 2-HC-7	OPEN	YES / NO	Containment atmosphere purge blower discharge check valve, 2" Vogt, piston check.

ATTACHMENT 2
TABLE 1
CHECK VALVES SUBJECT TO DISASSEMBLY

RELIEF REQUEST UNIT 1/2	VALVE NUMBER	TEST POSITION VERIFIED BY DISASSEMBLY	PARTIAL FLOW TEST / LEAK TEST	DESCRIPTION
V-53/54	1-SI-4 1-SI-21 2-SI-6 2-SI-29	CLOSE	YES / NO	Low head SI pump seal water supply check valve from RWST, 0.75" Rockwell/Edwards, piston check.
V-61/62	1-FW-68 1-FW-100 1-FW-132 2-FW-70 2-FW-102 2-FW-134	CLOSE	YES** / NO	Auxiliary feedwater header check valve at main feedwater header 16" Crane, swing check, hinge pin attached to valve body.

NOTES:
* Unit 1 valves are not subject to leakage tests. However, we are individually back seat testing the valves with system pressure.

** Valves are full flow tested to the open position.

*** Valves are opened slightly using air prior to performing the Appendix J leakage test.