VIRGINIA ELECTRIC AND POWER COMPANY RICHMOND, VIRGINIA 23261

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License Nos. NPF-4 License No. NPF-7

Gentlemen:

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VIRGINIA ELECTRIC AND POWER COMPANY NORTH ANNA POWER STATION UNIT NOS. 1 AND 2 INSERVICE TESTING PROGRAM ANOMALIES

Hanlon

The NRC safety evaluation report for North Anna Power Station's ASME Section XI Inservice Testing (IST) Program was received by letter dated October 18, 1994. Appendix A to this report identified 10 anomalies in the program. Responses for each anomaly are provided in Attachment 1.

As a result of the anomalies identified in the NRC safety evaluation report, certain IST program changes have been made. IST program changes have also resulted from incorporating a sampling plan for nonintrusive testing of Safety Injection check valves and from system configuration changes. These changes and the revised program pages are included in Attachments 2 and 3, for North Anna Units 1 and 2, respectively. These changes have been approved by the Station Nuclear Safety and Operating Committee.

If you have any questions concerning our response or IST program changes, please contact us.

Very truly yours,

James P. O'Hanlon

Senior Vice President - Nuclear

Attachments

A047

9510250122 951018 PDR ADDCK 05000338 Q PDR cc: U.S. Nuclear Regulatory Commission Region II 101 Marietta Street, N.W. Suite 2900 Atlanta, Georgia 30323

> Mr. R. D. McWhorter NRC Senior Resident Inspector North Anna Power Station

ATTACHMENT 1

NRC SAFETY EVALUATION OF NORTH ANNA UNITS 1 AND 2 INSERVICE TESTING PROGRAMS REVISION 7

RESPONSES TO IST PROGRAM ANOMALIES

RESPONSE TO IST PROGRAM ANOMALIES

1. SER Anomaly In TER section 2.1.1.1 Pump Relief Request P-13, the licensee requests relief from the flow rate and discharge pressure instrument accuracy requirements of Section XI, Paragraph IWP-4110, for pumps 1(2)-CH-P-1A, -1B, and -1C, 1(2)-CC-P-1A and -1B, and 1(2)-SW-P-1A, -1B, and -4. The service water pumps are the subject of other relief requests in this submittal; P-9, P-10, and P-12. Taken together, the reviewer does not have adequate information to fully assess the impact of the combination. We recommend that the proposed alternate be authorized pursuant to 10CFR50.55a(a)(3)(ii) with the following provision. The licensee should perform a complete assessment of the impact of the combination of this relief request and requests P-9, P-10, and P-12 as to their ability to assess the operational readiness of these pumps. The results of that assessment should be available for inspection at the facility.

<u>Virginia Power Response</u> The assessment has been performed with the conclusion that the operational readiness of pumps 1(2)-CH-P-1A, -1B, and -1C, 1(2)-CC-P-1A and -1B, and 1(2)-SW-P-4 can be assessed given the relaxation of instrument accuracies requested by P-13 in combination with P-10 and P-12. The use of Code acceptable discharge pressure gauges has been implemented for pumps 1(2)-SW-P-1A and B and these pumps were removed from P-13. However, an assessment on the impact of combining relief requests P-9 and P-12 was performed for pumps 1(2)-SW-P-1A and B in a manner similar for the other pumps in P-13.

The assessment for determining operational readiness included a review of normalized test data for each pump. North Anna has the ability to normalize the test data and trend the data from test to test. By knowing the polynomial equation that describes the reference pump curve discussed in P-12, a reference value can be calculated for the dependent variable using the value of the independent variable. The actual test result is divided by the reference value to yield a normalized test result which can then be used to trend the performance of the pump. This review showed that the test results were trendable and provide the ability to assess the operational readiness of these pumps.

2. <u>SER Anomaly</u> In TER section 2.2.1.1, Pump Relief Request P-5, the licensee requests relief from the test frequency requirements of Section XI, Paragraphs

IWP-3400(a) and -3500(a) for the RHR pumps. The licensee proposes to test them during refueling outages. However, the flow loop is equipped to measure individual pump inlet and discharge pressure, and combined system flow rate. This configuration should be conducive to the gathering of some meaningful test data during pump operation. It may not be prudent to arbitrarily extend the test interval to refueling outages if meaningful testing is practicable during cold shutdowns. We recommend that relief be granted pursuant to 10CFR50.55a(f)(6)(i) provided the licensee tests these pumps according to the Code test method requirements during cold shutdowns when heat loads are low and individual testing is practicable, and the licensee considers testing methods and acceptance criteria for assessing the operational readiness of these pumps during cold shutdowns when they can only be operated in parallel.

<u>Virginia Power Response</u> The test frequency is being changed from every reactor refueling to every cold shutdown (but not more frequently than once every three months) for the RHR pumps.

As a result of industry experience and NRC guidance (Generic Letter 88-17) concerning the loss of decay heat removal capability, North Anna Power Station practices a policy of minimizing perturbations to RHR pump flow and system configuration when decay heat must be removed during cold shutdowns and reactor refueling outages.

Therefore, to permit RHR pump testing and to minimize system perturbations during cold shutdown testing, the RHR pumps will be tested in a range of flows from approximately 2500 gpm to 4000 gpm (depending on the system flow at the time of the test), and the results will be compared to acceptance criteria based on that portion of the pump curve described above and the hydraulic acceptance criteria given in OM Part 6. The guidelines set forth in NUREG 1482, Section 5.2, "Use of Variable Reference Values for Flow Rate and Differential Pressure During Pump Testing," will be followed.

If vibration is found to vary significantly over the range of flow rates, flow rate versus vibration velocity data for at least five points will be taken, and a curve fit for these data points will be determined. Using the fitted curve and the acceptance criteria for vibration testing in OM Part 6, acceptance criteria dependent on flow rate will be determined.

3. SER Anomaly In TER sections 2.3.1.1 and 2.3.1.2, Pump Relief Requests P-9 and P-10, the licensee requests relief from measuring pump inlet and d/p for service water pumps 1(2)-SW-P-1A -1B, and -4 as required by Section XI, Paragraph IWP-3100.

The licensee proposes to monitor pump discharge pressure and use it in place of d/p to monitor for pump degradation. Inlet pressure will not be measured for these pumps. These pumps are the subject of other relief requests in this submittal; P-12 and P-13. The reviewer does not have adequate information to fully assess the impact of the combination of these requests. We recommend that the alternative be approved pursuant with 10CFR50.55a(a)(3)(ii) with the following provision. The licensee should perform a complete assessment of the impact of the combination of this relief request and requests P-12 and P-13 as to their ability to assess the operational readiness of these pumps. The results of that assessment should be available for inspection at the facility.

<u>Virginia Power Response</u> The assessment described for Anomaly 1 applies to Anomaly 3. Refer to the response for Anomaly 1.

SER Anomaly In TER section 2.4.1.1, Pump Relief Request P-12, the licensee requests relief from establishing fixed set(s) of reference values for component cooling water and service water pumps as required by Section XI, Paragraphs IWP-3100 and -3110. The licensee proposes to test these pumps in their as-found condition of flow rate and d/p and to compare the results to acceptance criteria based on a reference pump curve that is generated mathematically from the results of test data taken at least five points of operation. The service water pumps, 1(2)SW-P-1A, -1B, and -4 are also the subject of other relief requests in this submittal; P-9, P-10, and P-13. The reviewer does not have adequate information to fully assess the impact of the combination. Relief should be granted from this Code requirement pursuant to 10CFRS0.55a(f)(6)(i) with the following provisions. The licensee should follow the seven guidelines identified in section 2.4.1.1 for using reference curves, if practicable. Where it is not practicable to follow these guidelines, the licensee should identify the specifics of their alternative and justify the deviations and show the adequacy of their proposed testing. Also, for the service water pumps, the licensee should perform a complete assessment of the impact of the combination of this relief request and requests P-9, P-10, and P-13 as to their ability to assess the operational readiness of these pumps. The results of that assessment should be available for inspection at the facility.

<u>Virginia Power Response</u> The assessment described for Anomaly 1 applies to Anomaly 4. Refer to the response for Anomaly 1.

5. SER Anomaly In Relief Request V-59 (see TER section 3.1.1.1), the licensee requests relief from assigning individual leakage rates to various valves as required by Section XI, Paragraph IWV-3426, and proposes to leak rate test these valves in groups. Leak rate testing in groups can be acceptable provided this testing does not

permit excessive leak through an individual valve in the group without taking appropriate corrective action. Therefore, the leakage limit for the group should be conservative considering the number and size of the valves in the group so that excessive leakage through any particular valve in the group results in appropriate corrective action.

<u>Virginia Power Response</u> The acceptance criteria are based on the diameter of the largest valve in the group. The groups are given below.

Group 1	Valve Size	Ratio	Group 2	Valve Size	Ratio
1-SI-MOV-1867C 1-SI-MOV-1867D	3" 3"	1	1-CH-402 1-CH-MOV-1380	0.75 " 3"	4
Group 3	Valve Size	Ratio	Group 4	Valve Size	Ratio
1-SI-MOV-1890C 1-SI-MOV-1890D	10" 10"	1	1-HV-MOV-100B 1-HV-MOV-102	36" 18"	2
Group 5	Valve Size	Ratio			
1-HV-MOV-100D 1-HV-MOV-101	36" 8"	4.5			

Although this method is not as conservative as basing the entire penetration leakage criterion on the smallest valve in the group, it still is adequately conservative to identify leakage from the smallest valve because the ratios between the largest and smallest valves are not that large. The largest ratio of 4.5 is for Group 5. The methodology is documented and available for NRC inspection.

6. SER Anomaly In Relief Request V-42 (V-43), the licensee requests relief from the test frequency requirements of Section XI and proposes to exercise the accumulator discharge and cold leg injection check valves by performing a low pressure discharge of the accumulator each refueling outage and to verify a full-stroke using nonintrusive techniques on one valve from each group on a sampling basis. Use of nonintrusive techniques can be a positive means of verifying a full-stroke exercise as allowed by the Code, however, to use this technique on a sampling basis, the guidelines listed in the TER evaluation should be followed (see TER Section 3.2.2.3.3). The licensee's proposed alternate testing appears to comply with most of these guidelines, however, it is unclear from the submittal if all of these conditions are met. The licensee should verify that the testing of the subject valves complies with all of these guidelines. The

proposed grouping in this request does not appear to comply with the GL 89-04 requirement that group valves have the same service conditions. Valve 1-SI-127 (2-SI-153) is the second check valve (closer to the RCS) in the injection line from the accumulator to the RCS while the other three group valves are the first check valves (closer to the accumulators). Differences in service conditions may affect the corrosion, erosion, wear, etc. for this valve such that it is not representative of the other valves in the proposed group. The licensee should justify the proposed grouping or bring it into compliance with the grouping criteria of GL 89-04.

<u>Virginia Power Response</u> Anomaly 6 questions the placement of the check valve 1-SI-127 (2-SI-153) on the A loop in the same group as the three accumulator discharge check valves closest to the accumulator. It is assumed in the discussion that the valve closest to the RCS is the valve that normally seats against RCS pressure (i.e., valve 1-SI-127 (2-SI-153)), and is normally subject to RCS pressure, water chemistry, and possibly elevated temperatures, while the other valves in the group do not normally experience these conditions.

Valve 1-SI-127 (2-SI-153) in the A loop was originally placed with the valves closest to the accumulators because the valves closest to the RCS on B and C loops experience RHR flow during shutdowns, whereas the valve on the A loop does not. Therefore, it was concluded that valve 1-SI-127 (2-SI-153) was subject to different service conditions.

However, if only normal operating conditions are considered, valve 1-SI-127 (2-SI-153) should be placed in the group with the other two valves closest to the RCS. The other two valves 1-SI-144 and 161 (2-SI-170 and 187) experience RHR flow only during shutdowns, which accounts for a small percentage of the total operating time.

The other alternative would be to place 1-SI-127 (2-SI-153) in it's own group, which would require acoustic monitoring every outage. Numerous disassembly and inspections show that these check valves show virtually no degradation. Therefore, the difference in service conditions due to RHR flow during outages produces no additional detectable degradation in the valves in B and C loops. Given the lack of degradation observed in the valves during the disassembly and inspections, the added burden of acoustically monitoring valve 1-SI-127 (2-SI-153) every outage is not justified. Therefore, this valve will be placed in the same group as valves 1-SI-144 and 161 (2-SI-170 and 187). The testing of these valves complies with the provisions of GL 89-04, Position 2.

7. <u>SER Anomaly</u> Several of the licensee's relief requests are approved by GL 89 04 and are not evaluated in this TER. The licensee indicates compliance with GL 89-04, but

does not specifically address all aspects of the Generic Letter provisions in the requests. In these cases, it is assumed that the licensee is complying with all of the requirements of the applicable GL 89-04 positions. Relief is not granted for the above relief requests for testing that deviates from that prescribed in GL 89-04. Whether the licensee complies with the provisions of GL 89-04 is subject to NRC inspection. If the licensee intends to deviate from a GL 89-04 position, a revised relief request specifically stating the deviation from GL 89-04 guidance must be submitted for review and approval prior to implementing the testing.

<u>Virginia Power Response</u> Unless noted in the relief requests, North Anna complies with the provisions in GL 89-04.

8. SER Anomaly Valve relief requests V-33, 42 (-43), and -73 (-74) are for check valves that may not be practically verified closed using system pressure or flow or full stroke exercised open with flow per GL 89-04, Position 1. The licensee proposes to full-stroke exercise these valves by sample disassembly, inspection, and a manual exercise. The NRC considers valve disassembly and inspection to be a maintenance procedure and not a test equivalent to the exercising produced by fluid flow. This procedure has some risk, which make its routine use as a substitute for testing undesirable when some method of testing is possible. Disassembly and inspection, to verify the full-stroke open or closure capability of check valves is not a recommended option when exercising can be practically performed by system pressure, flow, or other positive means. Check valve disassembly is a valuable maintenance tool that can provide much information about a valve's internal condition and as such should be performed under the maintenance program at a frequency commensurate with the valve type and service.

Some test method may be feasible to full-stroke exercise these valves. The licensee should consider methods such as using nonintrusive techniques (e.g., acoustics, ultrasonics, magnetics, radiography, and thermography) to verify a full-stoke exercise of the subject check valves. This testing may only be practical at cold shutdowns or refueling outages. The licensee should perform their investigation and if a test method is found to be practicable, the IST requirements of the applicable valves should be satisfied by testing instead of disassembly and inspection. If testing is not practicable and disassembly and inspection is used, it must be performed in accordance with GL 89-04, Position 2. The licensee should respond to this concern.

<u>Virginia Power Response</u> Relief request V-33 contains the casing cooling pump discharge check valves. These valves are downstream from the casing cooling pump test loop and do not experience flow when the pumps are tested. The casing cooling pump discharge lines connect to the suction lines of the outside recirculation spray

pumps at a point between the containment sump and the suction line motor operated isolation valve. Directing flow to the pump discharge valves would flood the containment sump and create a significant amount of contaminated water for disposal. Therefore, the only practical means of lifting the valve disks is to disassemble the valves and manually lift the disks.

Nonintrusive techniques are being evaluated for testing the SI accumulator discharge check valves in relief request V-42 (43). The auxiliary service water pump discharge check valve in relief request V-73 (74) has a double disk design with springs that force the disks to the seat. An attempt was made to acoustically detect when the disks strike the back seats. However, a strike could only be detected for one disk. The acceleration of the water when the pump was started was insufficient to force both disks to the back seats and create a detectable impact. Therefore, the test was inconclusive. Full flow testing of the check valves is not practical as described in the relief request. Therefore, the only practical means of exercising the valve disks is to disassemble the valves and manually exercise the disks. The testing of the valves in relief requests V-33, 42 (-43), and -73 (-74) complies with the provisions of GL 89-04, Position 2.

9. SER Anomaly V-69 (V-70) requests relief from the leak rate corrective action requirements of Section XI for all CIVs in the IST program and proposes to allow an evaluation of leakage rates above the allowable limits instead of repair or replacement as long as the overall containment leakage is less than 0.6L. The licensee did not provide details about the evaluation that would be performed. The evaluations should be performed in a manner that provides a high level of assurance that delaying the repair or replacement of valves with high leakage rates will not result in exceeding the 0.6La limit before the next leakage rate tests. The licensee should document in the program plan how these evaluations will be performed and what will be included (see Section 3.1.2.1).

<u>Virginia Power Response</u> An evaluation that returns a valve to service if it exceeds it's permissible leakage rate would typically include a determination of the cause for the leakage. The evaluation would also address the effect of the degradation mechanism for the valve on the ability of the containment to maintain overall leakage below 0.6L_a during the subsequent 24 month interval. Evaluations are documented in the plant records and are available for review.

10. SER Anomaly V-75 (V-76) requests relief from the leak rate corrective action requirements of Section XI for the RWST isolation valves and proposes to allow an evaluation of leakage rates above the allowable limits instead of repair or replacement as long as the overall containment leakage is less than the overall RWST leakage

limit. The licensee did not provide details about the evaluation that would be performed. The evaluations should be performed in a manner that provides a high level of assurance that delaying the repair or replacement of valves with high leakage rates will not result in exceeding the overall RWST limit before the next leakage rate tests. The licensee should document in the program plan how these evaluations will be performed and what will be included (see Section 3.1.3.1).

<u>Virginia Power Response</u> An evaluation that returns a valve to service if it exceeds it's permissible leakage rate would typically include a determination of the cause for the leakage. The evaluation would also address the effect of the degradation mechanism for the valve on the ability of the valve group to maintain overall leakage to the RWST below the overall allowable leakage rate during the subsequent 24 month interval. Evaluations are documented in the plant records and are available for review.

As a point of clarification, the NRC discussion given above refers to the overall containment leakage being less than the overall RWST leakage. Relief request V-75 (V-76) does not refer to overall containment being less than the overall RWST leakage but to the summed leakages of the RWST isolation valves being less than the overall RWST leakage.

ATTACHMENT 2

SUMMARY OF CHANGES TO NORTH ANNA UNIT 1

IST PROGRAM REVISION 7

The following summary describes the changes to Revision 7 of the North Anna Unit 1 Inservice Testing (IST) Program Plan.

2.2.5 PUMP INSERVICE TESTING TABLE

UNIT 1 PUMP NUMBER

COMMENT/PROGRAM CHANGE

1-RH-P-1A 1-RH-P-1B

Program change: Test frequency was changed from every reactor refueling to every cold shutdown. Refer to relief request P-5.

2.2.6 PUMP INSERVICE TESTING RELIEF REQUESTS

UNIT 1 RELIEF REQUEST

COMMENT/STATUS

P-5

The test frequency for the RHR pumps was changed from every reactor refueling to every cold shutdown but not more frequently then every three months. Also, the hydraulic acceptance criteria will be based on a portion of the pump curve instead of a specific reference value. This change resulted from our response to Anomaly 2 in the NRC Safety Evaluation Report.

P-13

Service water pumps 1-SW-P-1A and B were deleted from this relief request. The discharge pressures are measured using gauges that meet Section XI accuracy requirements.

2.3.4 VALVE INSERVICE TESTING TABLE

Valves marked with an 'are being added to the IST Program.

UNIT 1 VALVE NUMBER

COMMENT/PROGRAM CHANGE

1-CH-649*

This check valve was installed on the header from the charging pump recirculation lines and the RCP seal water return line in response to the Westinghouse Nuclear Service Advisory Letter (NSAL) 92-012. This advisory identified the potential for leakage of contaminated sump water outside the containment via the RCP seal water heat exchanger relief valve to the volume control tank.

Program change: The valve was added to the IST program to be leak tested and tested closed every reactor refueling (refer to Relief Request V-72), and to be tested open every cold shutdown (refer to Cold Shutdown Justification CSV-38).

1-CH-MOV-1115B
1-CH-MOV-1115D
1-SI-47
1-SI-MOV-1885A
1-SI-MOV-1885B
1-SI-MOV-1885C
1-SI-MOV-1885D

Relief Request V-75 was added for the RWST isolation valves to allow for the use of an evaluation instead of repair or replacement as corrective action if a valve exceeds it's permissible leakage limit. The relief request was submitted to the NRC by letter dated April 26, 1994. Approval was granted by the NRC in the Safety Evaluation Report for the IST program dated October 18, 1994.

Program change: Relief request V-75 was added.

1-GN-229

Program change: The valve number was changed from 1-GN-451 to 1-GN-229.

1-HC-5

This non-Code class check valve is on the discharge line for the containment purge blower. The primary means of containment

hydrogen control is by operation of the recombiners. Therefore, operation of the purge blowers is not critical to accident mitigation or recovery. This valve was carried in the IST program because of a Technical Specification surveillance requirement that could be interpreted as requiring the testing of the blower. This requirement has since been clarified. There is no Technical Specification surveillance requirement.

Program change: The valve was removed from the IST program.

1-HC-62

This hydrogen analyzer discharge check valve was removed from the system along with the analyzer.

Program change: The valve was removed from the IST program.

1-MS-19 1-MS-58 1-MS-96 These decay heat release stop check isolation valves are now maintained closed with the stem on the disk. In this configuration, the valve disk does not have to change position to fulfill it's isolation function. Therefore, the Code does not require the valves to be tested.

Program change: The valves were removed from the IST program.

1-QS-MOV-102A 1-QS-MOV-102B

Testing valves quarterly presents a significant personnel hazard due to exposure to sodium hydroxide.

Program change: These valves will be tested on a cold shutdown frequency instead of quarterly. Refer to Cold Shutdown Justification CSV-44.

1-RH-7 1-RH-15 Program change: The test frequency for these RHR pump discharge check valves was changed from every reactor refueling to every cold shutdown but not more frequently then every three months. Relief Request V-74 was

replaced by Cold Shutdown Justification CSV-An engineering evaluation concluded that the 1-RH-FCV-1605 1-RH-HCV-1758 simultaneous failure of the RHR heat exchanger bypass and discharge valves to go to their fail-safe positions on loss of instrument air will not create a safety concern for achieving safe shutdown. Therefore, these valves need not be included in the IST program. Program change: The valves were removed from the IST Program. 1-SI-83 Program change: Reference to using 1-SI-86 nonintrusive techniques and a sampling plan 1-SI-89 for verifying full-stroke of the cold leg 1-SI-195 safety injection check valves was added to 1-SI-197 Relief Request V-41. 1-SI-199 1-SI-95 Program change: Reference to using nonintrusive techniques and a sampling plan 1-SI-99 1-SI-103 for verifying full-stroke of the hot leg 1-SI-209 safety injection check valves was added to 1-SI-211 Relief Request V-43. 1-SI-213 1-SI-125 Program change: Reference to using a 1-SI-127 sampling plan with nonintrusive techniques 1-SI-142 for verifying full-stroke of the safety 1-SI-144 injection accumulator discharge check valves was added to Relief Request V-42. Also, the 1-SI-159 1-SI-161 grouping of the valves was changed. 1-SI-MOV-1863B Program change: The drawing reference was changed to 11715-CBM-096A. Further evaluation has shown that these 1-SW-252 1-SW-255 service water header check valves can be full flow tested every three months. Program change: Cold shutdown Justification

months.

CSV-39 is being withdrawn and these check valves will be full flow tested every three

1-SW-1067° 1-SW-1070° 1-SW-1139°	These manual valves are normally open and are closed to isolate the service water chemical addition system from the service water system. A recent service water system review identified these valves as having to close to prevent loss of service water and recommended that they be included in the IST program.
	Program change: The valves were added to the IST Program to be tested to the full closed position every cold shutdown. Refer to Cold Shutdown Justification CSV-45.
1-SW-MOV-102A 1-SW-MOV-102B 1-SW-MOV-106A 1-SW-MOV-106B	Further evaluation resulting from the recent service water system review revealed that closing these service water cross-tie isolation valves is the preferred method for isolating an inoperable header.
	Program change: Closure testing was added to the IST program.
1-SW-MOV-108A 1-SW-MOV-108B	These isolation valves are located in series on the service water supply to the component cooling heat exchangers. Testing them every quarter creates a reduced flow condition for the service water pumps which in turn causes the pumps to experience harmful highmagnitude vibrations.
	Program change: These valves will be tested

2.3.5 VALVE INSERVICE TESTING PROGRAM RELIEF REQUESTS

Justification CSV-43.

UNIT 1 RELIEF REQUEST

COMMENT/STATUS

V-38

The basis for relief was revised to indicate that the low head safety injection system must be isolated to perform closure testing on the check valves.

on a cold shutdown frequency instead of

quarterly. Refer to Cold Shutdown

V-41

Reference to using nonintrusive techniques and a sampling plan for verifying full-stroke of the cold leg safety injection check valves was added. The alternative method described for using nonintrusive techniques described in NUREG 1482 will be followed.

According to NUREG 1482, "Relief is not required because this test method is considered an acceptable 'other positive means,' even if used on a rotating basis. However, if the recommended alternative methods of this section are implemented, the licensee must describe the implementation of this section in the IST program document." Even though relief is not required, use of the sampling plan is described in this relief request to satisfy the documentation requirement described above.

V-42

Reference to using a sampling plan with nonintrusive techniques for verifying full—stroke of the safety injection accumulator discharge check valves was added. Also, the grouping of the valves was changed from valves 1-SI-144 and 161 in one group, and 1-SI-125, 127, 142 and 159 in the other group, to 1-SI-125, 144 and 161 in one group, and 1-SI-127, 142 and 159 in the other group. This change resulted from our response to Anomaly 6 in the NRC Safety Evaluation Report. The explanation for why the grouping was changed is included in our response. As described in the discussion for V-41, relief is not required for using the sampling plan.

V-43

Reference to using nonintrusive techniques and a sampling plan for verifying full-stroke of the hot leg safety injection check valves was added. As described in the discussion for V-41, relief is not required for using the sampling plan.

V-50

Relief request is being withdrawn. The only valve (1-HC-5) in this relief request was removed from the IST program.

V-72

Check valve 1-CH-649 was installed on the header from the charging pump recirculation lines and the RCP seal water return line in response to the Westinghouse Nuclear Service Advisory Letter (NSAL) 92-012 and was added to this relief request for testing to the closed position. During normal operation, this valve cannot be isolated to perform a back pressure test because normal letdown and charging flow, and reactor coolant pump seal flow would be interrupted. Also, if the valve was isolated during normal operation, the charging pumps would have to be secured.

This valve is also subject to leak testing, which is performed every reactor refueling. Verification of closure will be performed during the leak test every reactor refueling instead of every cold shutdown because the small increase in safety gained by testing during cold shutdown does not justify the burden of performing a leak rate test.

Relief request is being replaced by Cold Shutdown Justification CSV-46.

V-75

V-74

This relief request was added to the IST program and applies to the RWST isolation valves. In addition to replacement or repair as corrective actions, an evaluation can be performed which demonstrates that even if a valve has exceeded its permissible leakage rate, the overall leakage rate to the RWST will be maintained below the overall allowable RWST leakage rate. No repair or replacement is necessary if the evaluation is performed. The relief request was submitted to the NRC by letter dated April 26, 1994. Approval was granted by the NRC in the Safety Evaluation Report for the IST program dated October 18, 1994.

2.3.6 VALVE INSERVICE TESTING PROGRAM COLD SHUTDOWN JUSTIFICATIONS

UNIT	1
COLD	SHUTDOWN
JUSTI	FICATION

COMMENT/STATUS

CSV-20

Justification is being withdrawn because valves 1-RH-FCV-1605 and 1-RH-HCV-1758 were deleted from the IST Program.

CSV-38

Check valve 1-CH-649 was installed on the header from the charging pump recirculation lines and the RCP seal water return line in response to the Westinghouse Nuclear Service Advisory Letter (NSAL) 92-012 and was added to this cold shutdown justification for testing to the open position. Full flow conditions have to be measured by using temporary ultrasonic flow instrumentation which is very labor intensive.

Also, reference to removing the ultrasonic flow instrumentation from the field after testing each valve was deleted. All four valves would be normally tested before the equipment is removed.

CSV-39

Justification is being withdrawn. Further evaluation has shown that the service water header check valves 1-SW-252 and 255 can be full flow tested every three months.

CSV-43

Justification is being added to the IST program. Valves 1-SW-MCV-108A and B are located in series on the service water supply to the component cooling heat exchangers. The component cooling heat exchangers carry a majority of the heat load for the service water system. When the heat exchangers are isolated, service water flow decreases to less than 10% of normal flow. Due to the design of the service water pumps, the pumps experience harmful high-magnitude vibrations as the service water flow decreases through a range from 7000 gpm to 6000 gpm. These pumps cannot be stopped during the valve exercise

test because they provide service water to other plant heat loads. Therefore, performing the valve exercise test as frequently as once every three months should be avoided due to the harmful affects that the testing has on the service water pumps.

The valve controllers do not allow for a partial-stroke exercise test. To reduce the harmful affects of high-magnitude vibrations on the service water pumps, the isolation valves will be full-stroke exercised on a cold shutdown frequency.

Justification is being added to the IST program. The normally closed six inch motor operated isolation valves 1-QS-MOV-102A and B are located in parallel flow paths from the refueling water chemical addition tank to the reactor water storage tank (RWST). The piping between the isolation valves and the chemical addition tank contains high concentrations of sodium hydroxide. To exercise the motor operated valves, downstream manual isolation valves must be closed to prevent the sodium hydroxide from entering the quench spray system and chemically contaminating the boric acid solution in the RWST.

After the motor operated isolation valves are stroked open and closed, the piping between the motor operated valves and the downstream manual isolation valves must be drained of sodium hydroxide. Approximately five gallons of highly caustic fluid are drained into a plastic container after each valve test. Draining the piping presents a significant personnel hazard. Sodium hydroxide causes severe burns if it comes in contact with the skin. The test personnel must wear rubber gloves, boots and face shields.

The drains are located outdoors and are near to the ground, which makes collection difficult. Any soil that is contaminated with sodium hydroxide must be neutralized by

CSV-44

the test personnel. Partial stroke testing of these valves presents the same hazards as full stroke testing.

To reduce the number of times that test personnel are exposed to sodium hydroxide, the motor operated isolation valves will be tested on a cold shutdown frequency.

CSV-45

Justification is being added to the IST program. The normally open manual 1 inch (1-SW-1067 and 1070) and 1.5 inch (1-SW-1139) valves are closed within 24 hours of the accident as required by the abnormal operating procedures to prevent loss of service water in the event that the connected non-seismic pipe fails. These valves are located in an expansion joint vault outside the service water pump house. The vault is defined as a confined space due to possible consumption resulting from an expansion joint failure. Entry into this confined space requires an entry permit, an air meter and two operators (buddy system). Also, special tools are required to remove the manhole cover which weighs in excess of 300 lbs and is a missile barrier. Closing these valves would require securing the service water addition system which could adversely affect the biological agent concentration in the service water.

These manual valves remain in the open position during normal operation and are not subject to wear. Closing these valves every three months to fulfill quarterly testing requirements creates an undue burden with no compensating benefit to quality and safety. Exercising these valves on a cold shutdown test frequency (but not more frequently then once every three months), is adequate to demonstrate that the valves can be closed in the case where service water isolation is required.

CSV-46

Justification is being added to the IST program. The RHR pump discharge check valves can only be partial-stroke or full-stroke exercised to the open position and verified closed when the RHR pumps 1-RH-P-1A and 1-RH-P-1B are running. The low pressure pumps take suction from and discharge to the reactor coolant system which operates at 2235 psig. This pressure is well above the operating pressure of the pumps, therefore, partial-stroke or full-stroke testing during normal operation is not practical.

2.3.7 ALTERNATIVE TESTING FOR NON-CODE VALVES

UNIT 1 NON-CODE ALTERNATIVE TESTING

COMMENT/STATUS

VNC-1

Valve number for 1-GN-229 was changed from 1-GN-451.

REPLACEMENT PAGES TO NORTH ANNA UNIT 1 IST PROGRAM REVISION 7

Pump /	ASME	(c) (c)	System	(1) Speed	Inlet	Differential Pressure	Flow	Vibration	Lube	Bear Temp.	Relief Request (P-)
1-FW-P-2	-	3	VAR.	0	0	0	0	0	0	N/A	1,16
1-FW-P-3A 3	N.		VAR.	N/A	0	0	0	0	O	N/A	1,16
1-FW-P-3B		3	VAR.	N/A	0	0	0	0	0	N/A	1,16
1-0S-P-1A 2 FIXED	A	2	FIXED	N/A	0	0	0	0	0	N/A	1,16
1-0S-P-1B 2 FIXED	m	2	FIXED	N/A	0	0	0	0	0	N/A	1,16
1-RH-P-1A 2	A		VAR.	N/A	SO	CS	CS	cs	CS	N/A	1,5,16
1-RH-P-1B 2	m	2	VAR.	N/A	CS	CS	CS	CS	CS	N/A	1,5,16
1-RS-P-1A	V	2	VAR.	N/A	RR	RR	RR	RR	N/A	N/A	1
1-RS-P-1B 2	B		VAR.	N/A	RR	RR	RR	RR	N/A	N/A	1
1-RS-P-2A		2	VAR.	N/A	2 X	2.7	2.7	2.Y	N/A	N/A	
1-RS-P-2B		2	VAR.	N/A	2 X	2.Y	2.7	2.Y	N/A	N/A	1
1-RS-P-3A	A	9	VAR.	N/A	0	0	0	0	0	N/A	1,16
1-RS-P-3B 3 VAR.	B	~	VAR.	N/A	0	0	0	0	0	N/A	1,16

2-11

Revision 7 August 8, 1995

RELIEF REQUEST P-5

I. IDENTIFICATION OF COMPONENTS

System : Residual Heat Removal

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

1-RH-P-1B

Class : 2

II. IMPRACTICAL CODE REQUIREMENTS

Frequency of Pump Test.

III. BASIS FOR RELIEF

The low pressure pumps take suction from and discharge to the Reactor Coolant System (RCS) which operates at 2235 psig. This pressure is well above the operating pressure of the pumps; therefore, testing during normal operation is not possible. Also, the pumps are located inside containment and are inaccessible during normal operation.

As a result of industry experience and NRC guidance (Generic Letter 88-17) concerning the loss of decay heat removal capability, North Anna Power Station practices a policy of minimizing perturbations to RHR pump flow and system configuration when decay heat must be removed during cold shutdowns and reactor refueling outages.

Therefore, to permit RHR pump testing and to minimize system perturbations during cold shutdown testing, the RHR pumps will be tested in a range of flows from approximately 2500 gpm to 4000 gpm (depending on the system flow at the time of the test), and the results will be compared to acceptance criteria based on that portion of the pump curve described above and the hydraulic acceptance criteria given in OM Part 6. The guidelines set forth in NUREG 1482, Section 5.2, "Use of Variable Reference Values for Flow Rate and Differential Pressure During Pump Testing," will be followed.

RELIEF REQUEST P-5 (Cont.)

If vibration is found to vary significantly over the range of flow rates, flow rate versus vibration velocity data for at least five points will be taken, and a curve fit for these data points will be determined. Using the fitted curve and the acceptance criteria for vibration testing in OM Part 6, acceptance criteria dependent on flow rate will be determined.

IV. ALTERNATE TESTING

These pumps will be tested every cold shutdown but not more frequently than once every three months. Acceptance criteria will be based on a portion of the pump curve and not on discreet reference values.

RELIEF REQUEST P-13

I. IDENTIFICATION OF COMPONENTS

System : Component Cooling

Chemical and Volume Control

Service Water

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

1-CH-P-1C 1-SW-P-4

Class : Class 2 for CH and Class 3 for CC and SW

II. IMPRACTICAL CODE REQUIREMENTS

Instrument Error

III. BASIS FOR REQUEST

Instruments used to measure certain pump parameters receive their signal at the equipment, which is transmitted to a process rack and then to a control room indicator. The sensor and rack accuracy can be affected by drift, temperature, and calibration accuracy. The indicator has a limit of accuracy. The total loop accuracy is found by the root sum of the squares. The only variables in this formula are the sensor calibration accuracy and the indicator accuracy. Installing new sensors and indicators to reduce the accuracy by one percent is not warranted by the increase in safety obtained.

The following instrument loops exceed the +2% tolerance listed in Table IWP 4110-1.

Instrument	Component	Parameter	Accuracy
FI-1122	1-CH-P-1A, B, C	Flow	2.34%
FI-CC-100A	1-CC-P-1A	Flow	2.69%
FI-CC-100B	1-CC-P-1B	Flow	2.69%
PI-SW-110	1-SW-P-4	Discharge Pressure	2.61%

IV. ALTERNATE TESTING

None

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VALVE NUMBER	DRAWING NUMBER	SHEET					ASME CLASS			TEST	TEST	REL REQ V-	CS JUST CSV-	NC ALT TEST VCN-
1-CH-279	11715-CBM-095B	2 OF 2	D6	CHECK	VALVE	3.000	2	c		cv	C	47	****	
	"C" CHARGING P	MP DISCH	ARGE	CHECK	VALVE									
1-CH-322	11715-C9M-095C	1 OF 2	D4	CHECK	VALVE	3.000	2	AC	CIV	CV LT	C C	10	****	****
	MAIN CHARGING !			INSI	E CONTAIN-									
1-CH-330	11715-CBM-095C	1 OF 2	A6	CHECK	VALVE	2.000	1	AC	CIV	CV	C	10	****	****
	CHARGING SUPPLY				ER, INSIDE									
1-CH-336	11715-CBM-095C	2 OF 2	B8	CHECK	VALVE	2.000	1	c	*****	cv	c	10		****
	"A" RC PLMS SE	L NATER	SUPPL	Y, IN										
1-CH-358	11715-CBM-095C	2 OF 2	в7	CHECK	VALVE	2.000	1	c c	*****	cv	c	10	****	****
	"B" RC PUMP SEA				SIDE									
1-CH-380	11715-CBM-095C	2 OF 2	B5	CHECK	VALVE	2.000	1	c		cv	c	10	****	****
	"C" RC PUMP SEA CONTAINMENT ISO				SIDE									
1-CH-402	11715-CBM-095C	2 OF 2	F4	CHECK	VALVE	.750	2	AC	CIV	CV	C	10	****	****
	RC PUMP SEAL WA		RN, I	NSIDE	CONTAINMENT									
1-CH-649	11715-CBM-0958	1 OF 2	B6	CHECK	VALVE	2.000	2	AC	*****	cv	C 0	72	38	****
										LT	С			
	CHARGING PUMP I RETURN LINE ISC				WATER									
1-CH-FCV-11	13A 11715-CBM-095B	1 OF 2	C3	AO GAT	E	1.000	3	В		EV FS ST VP	0 0 0	***		****
	ALTERNATE EMERG		MOITA	LINE	**********									
1-CH-FCV-11	14A 11715-CBM-095B	1 OF 2	D4	AO GLO)BE	1.000	3	8	*****	EV FS ST VP	C C C	***	****	
	PRIMARY GRADE	ATER FLO	W CON	TROL V	/ALVE									
1-CH-FCV-116	60 11715-CBM-095C	1 OF 2	A4	AO GLO	BE	2.000	2	AE	CIV	LT VP	C OC	•••	••••	

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VALVE NUMBER	DRAWING NUMBER	SHEET	COOR	TYPE		ASME CLASS			100	TEST	REL REQ V-	CS JUST CSV-	NC ALT TEST VCN-
	CHARGING FLOW OUTSIDE CONTAIN												
1-CH-LCV-1460A			F7	AO GLOBE	2.000	1	В		EV FS ST VP	C C C OC		5	
	LETDOWN ISOLAT												
The section of the se	11715-CBM-095C	1 OF 2	F7	AO GLOBE	2.000	1	В		EV FS ST VP	C C C OC	***	5	****
	LETDOWN ISOLAT	ON VALVE		************									
1-CH-MOV-1115B	11715-CBM-0956	2 OF 2	88	MO GATE	8.000	2	A	*****	EV LT ST	C O C C O OC	75	6 6 6	****
	CHARGING PUMP S	STORAGE	TANK										
1-CH-MOV-1115C	11715-CBM-0958	1 OF 2			4.000	2	В		EV ST VP	C C OC	***	6	****
	CHARGING PUMP S	SUPPLY IS	OLATI	ON FROM VOLUME									
1-CH-MOV-1115D	11715-CBM-095B	2 OF 2	88	°N GATE	8.000	2	A		EV LT ST	C C C C	75	6 6 6	
	CHARGING PUMP S									0.			
1-CH-MOV-1115E	11715-CBM-095B	1 OF 2	C6	MO GATE	4.000	2	В		EV ST VP	C C OC	***	6	****
	CHARGING PUMP S		DLATI	ON VALVE FROM	•								
1-CH-MOV-1267A	11715-CBM-0958	2 OF 2	C7	MO GATE	6.000	2	E	*****	VP	oc	***	****	****
	"A" CHARGING PU AND VCT	MP SUCTIO	DW IS	OLATION FROM RW	ST								
1-CH-MOV-1267B	11715-CBM-095B	******			6.000	2	E		VP	ос	***		****
**********								****					

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VALVE NUMBER	HUMBER	NUMBER		VALVE TYPE			ASME CLASS				TEST	REL REQ V-	CS JUST CSV-	NC ALT TEST VCN-
1-CH-MOV-1269A	11715-CBM-095B	2 OF 2	C5	MO GATE		6.000	2	E	*****	VP	ос	***	****	****
	"B" CHARGING PO	MP SUCTI	ON I	SOLATION	FROM RWST									
1-CH-MOV-12698	11715-CBM-095B						2		1	VP	ОС	***	****	****
	-B. CHARGING P	MP SOCII	ON I	SOLATION	PRUM LHS									
1-CH-MOV-1270A	11715-CBM-095B	2 OF 2	C3	MO GATE		6.000	2	E	*****	VP	ос	***		****
	"C" CHARGING PL	MP SUCTI	ON I	SOLATION	FROM RWST									
1-CH-MOV-12708	11715-CBM-095B	2 OF 2	C3	MO GATE		6.000	2	E		VP	ос	***	****	****
	"C" CHARGING PL	MP SUCTI	ON I	SOLATION	FROM LHSI									
1-CH-MOV-1275A	11715-CBM-095B	2 OF 2	D7	MO GATE		2.000	2	В	*****	EV	C 0	***	****	****
										ST	0			
	"A" CHARGING PU	MP MINIM	LIM RE	ECIRCULAT	ION ISO-									
1-CH-MOV-1275B	11715-CBM-0958	2 OF 2 I	05	MO GATE		2.000	2	В		EV	C O C		****	****
										VP	OC OC			
	"B" CHARGING PU LATION VALVE	MP MINIM	JM RE	CIRCULAT	ION ISO-									
1-CH-MOV-1275C	11715-CBM-095B	2 OF 2 I	04	MO GATE		2.000	2	В		EV	C	***	****	****
										ST	C O OC			
	"C" CHARGING PU	MP MINIM	JM RE	CIRCULAT	ION ISO-									
1 CH-MOV-1286A	11715-CBM-0958	2 OF 2 E	7	MO GATE		3.000	2	В	*****	EV	C	***	****	****
										ST	C O OC			
	"A" CHARGING PU VALVE	MP MAIN C	DISCH	ARGE ISO	LATION									
1-CH-MOV-12868	11715-CBM-095B	2 OF 2 E	6	MO GATE		3.000	2	8		EV	C		****	****
										ST VP	C O OC			

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VALVE NUMBER	DRAWING NUMBER	SHEET			SIZE	ASME CLASS			200	TEST	REL REQ V-	CS JUST CSV-	ALT TEST VCN-
	"B" CHARGING P												
1-CH-MOV-1286C	11715-CBM-095B	2 OF 2		MO GATE	3.000	2	В	*****	EV	C	***	****	****
									ST	0			
	"C" CHARGING PI	UMP MAIN	DISC	ARGE ISOLATIO	N								
1-CH-MOV-1287A	11715-CBM-0958	2 OF 2	D7		3.000	2	8	*****	EV	c	***	****	****
									ST	C O OC			
	"A" CHARGING PO			AND LOOP FILL	****								
1-CH-MOV-12878	11715-CBM-095B	2 OF 2	D6	MO GATE	3.000	2	В	*****	EV	C	***	****	****
									ST VP	0			
	"B" CHARGING PU			AND LOOP FILL	••••					50.			
1-CK-MOV-1287C	11715-CBM-0958	2 OF 2	D4	MO GATE	3.000	2	В	*****	EV	C		****	
									ST	0			
	"C" CHARGING PU			AND LOOP FILL	****								
1-CH-MOV-1289A	11715-CBM-095C	1 OF 2	D4	MO GATE	3.000	2	A		EV LT ST	CCC	***	7	****
	MAIN CHARGING H	HEADER IS	OLATI	ON VALVE, OUTS	SIDE				VP	ос			
1-CH-MOV-12898	11715-CBM-095C	1 OF 2	В3	MO GATE	3.000	2	8		EV ST VP	C C OC	***	7 7	****
	MAIN CHARGING H	EADER IS	OLATI	ON VALVE, OUTS	SIDE								
1-CH-MOV-1350	11715-CBM-095B	1 OF 2	B5	MO GATE	2.000	2	В		EV ST VP	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	***	4	****
	EMERGENCY BORAT	ION TO C	HARGI	NG PUMP SUCTIO	DN M					o.			
1-CH-MOV-1373	11715-CBM-095B	1 OF 2	A8 I	MO GATE	3.000	2	 E		 VP	oc		****	****

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VAL VE NUMBER	DRAWING NUMBER	SHEET DRWG		VALVE			ISO VALVE TYPE	TEST TYPE	TEST	REL REQ V-	CS JUST CSV-	ALT TEST VCN-
	CHARGING PUMP	RECIRCULATION	HEADER ISOLATIO	ON								
1-CH-MOV-1380	11715-CBM-095C	2 OF 2 F4	MO GATE	3.000	2	A	CIV	EV LT ST VP	C C C	9 59 9	****	••••
	REACTOR COOLAN											
1-CH-MOV-1381	11715-CBM-0956	1 OF 2 C8	MO GATE	3.000	2	A	CIV	EV LT ST VP	c c c	9	****	
	REACTOR COOLAN	T PUMP SEAL W	MATER RETURN, OUT									
1-CH-RV-1203	**********		RELIEF VALVE		2	c		SP	0		****	****
	DISCHARGE TO P	VLV DOWNSTRE RESSURIZER RE	AM OF REGEN HX, LIEF TANK	RV								
1-CH-RV-1382B	11715-CBM-0958	1 OF 2 C7	RELIEF VALVE	2.000	2	c	*****	SP	0	***	****	
	SEAL WATER HEAT	T EXCHANGER R	ELIEF VALVE, RV									
1-CH-TV-1204A	11715-CBM-095C	1 OF 2 E3	AO GLOSE	2.000	2	A	CIV	EV FS LT ST VP	c c c c	***	5 5	****
	CONTAINMENT IS	FROM REGEN	HX, INSIDE									
1-CH-TV-1204B	11715-CBM-095A	4 OF 4 C3	AO GLOBE	3.000	2	A	CIV	EV FS LT ST VP	C C C	***	5 5	****
	LETDOWN CONTROL	FROM REGEN	HX, OUTSIDE									
***********	*************		*******		****			*****	****	***		

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VALVE NUMBER	DRAWING NUMBER	SHEET DR	SIG VALVE OR TYPE	VALVE SIZE	ASME CLASS	CAT	TYPE	TEST	POS	REL REQ V-	CS JUST CSV-	ALT TEST VCN-
1-GN-225	11715-FM -105A	1 OF 3 E4	CHECK VALVE	.500		AC		CV	C	***	****	1
	BOTTLED NITROGE CHECK VALVE		D PORV ISOLATION									
1-GN-229	11715-FM -105A			.500	NC	AC		CV	c	***	****	1
			D PORV ISOLATION									
1-GN-RV-108A-1	11715-FM -105A	1 OF 3 E7	RELIEF VALVE	.750	NC	c		SP	0	***	****	****
	BOTTLED NITROGE	SUPPLY TO	PORV RELIEF VALVE									
1-GN-RV-108A-2	11715-FN -105A	1 OF 3 F6	RELIEF VALVE	.750	NC	c		SP SP	0	***	****	****
	BOTTLED MITROGEN	SUPPLY TO	PORV RELIEF VALVE									
1-GN-RV-108A-3			RELIEF VALVE	.750	NC I	c		SP	0	***	****	****
1-GN-RV-1080-1	11715-FM -105A											
1 W K 1008-1		********	PORV RELIEF VALVE	.750 1	NC (C		SP	0			
1.CN-DV-1080-2	1171E - PH - 10E4									***		
1-04-44-1008-2		********	PORV RELIEF VALVE	.750 1	ec (,	SP	0			
	POTTERD RITHORER	SUPPLY 10	PORT RELIEF VALVE									
1-GN-RV-1088-3	11715-FM -105A			.750	ic c		5	F	0		****	****
			PORV RELIEF VALVE									
			**************	**** *			****					

VIRGINIA POWER COMPANY NORTH ANNA UNIT 1

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		M-CAV			CHIEF THE	Photo 1		- 7		
	SE	COND	1	MSP	ECTI	ON	1	NT	ERVAL	
INSERVI	CE	TEST	1	NG	PROG	RAM			VALVE	TABLE

VALVE NUMBER	DRAWING NUMBER	SHEET DRWG			VALVE	ASME CLASS		ISO VALVE TYPE	TEST	TEST	V-	CS JUST CSV-	NC ALT TEST VCN-
1-HC-014	11715-CBM-106A	1 OF 4 E8	CHECK	VALVE	2.000	2	AC	CIV	cv	C 0	20		****
	UNIT 1 RETURN	THE EDOM UNIT	T 1 HY	DEOCEN ANA	-				LT	С			
************	LYZERS & RECOM												
1-NC-018	11715-CBM-106A	2 OF 4 E6	CHECK	VALVE	2.000	2	AC	CIV	CV	C	20 20		
	UNIT 1 RETURN I								LT	С			
1-HC-063	11715-CBM-106A	1 OF 4 C7	CHECK	VALVE	.375	NC	c		CV	0	***	****	****
	HYDROGEN ANALY	ZER DISCHARGE	CHECK	VALVE									
1-HC-TV-100A	11715-CBM-106A	1 OF 4 E8	SO GL	OBE	.375	2	Α	CIV	EV	c	***	****	****
									FS LT ST	0 0 0 0	54 54		
	INIT 1 PANDIE	THE TO INIT							VP	ос	24		
	UNIT 1 SAMPLE ! LYZERS, INSIDE												
1-HC-TV-100B	11715-C8M-106A	1 OF 4 E7	SO GL	OBE	.375	2	A	CIV	EV FS	CCC			
									ST VP	0 00	54 54		
	UNIT 1 SAMPLE L LYZERS, OUTSIDE				i.				**	OC.			
1-HC-TV-101A	11715-CBM-106A	1 OF 4 D7	SO GL	OBE	.375	2	A	CIV	EV	C	***	****	****
									FS LT ST	CCC	54		
			*****						VP	oc	24		
	RETURN ISOLATIO		TO 17 (1971)	months to the second	E								
1-HC-TV-101B	11715-CBM-106A	1 OF 4 D7	SO GLO	OBE	.375	2	A	CIV	EV	COC		•	
									FS LT ST	0	54 54		
	************								VP	ОС			
	RETURN ISOLATIO	N FROM UNIT	HYDRO	OGEN ANA- T ISOL VALV	E								
1-HC-TV-102A	11715-CBM-106A	2 OF 4 E6	SO GLO	DBE	.375	2	Α	CIV	EV	c	***	****	****

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VALVE NUMBER		SHEET I				ASME CLASS			TEST	TEST	REL REQ V-	CS JUST CSV-	NC ALT TEST VCN-
1-HC-TV-102A	11715-СВИ-106А	2 OF 4 I	E6	SO GLOSE	.375	2	A	CIV	EV FS LT ST	0 0 0	54	****	
	UNIT 1 SAMPLE I	INE TO U	NIT 2	HYDROGEN ANA-					VP	ос			
************	LYZERS, INSIDE	CONTAINM	ENT I	SOLATION VALVE									
1-HC-TV-102B	11715-CBM-106A	2 OF 4 I	E7	SO GLOBE	.375	2	A	CIV	EV FS LT ST	000000	54 54		
									VP	oc			
	UNIT 1 SAMPLE L LYZERS, OUTSIDE			HYDROGEN ANA- ISOLATION VALVE			H						
1-HC-TV-103A	11715-CBM-106A	2 OF 4 I	07	SO GLOBE	.375	2	A	CIV	EV FS LT ST	C	54 54		
	RETURN ISOLATIO LYZERS TO UNIT			HYDROGEN ANA-									
1-HC-TV-103B	11715-CBM-106A	2 OF 4 (07	SO GLOBE	.375	2	A	CIV	EV FS LT ST	C	54 54	****	
	RETURN ISOLATIO	N FROM UI	NIT 2	HYDROGEN ANA-									
1-HC-TV-104A	11715-CBM-106A	4 OF 4 I	F6	AO GLOGE	2.500	2	A	CIV	EV FS LT ST	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	54 54	••••	
				TO N1 HYDRO RE-					**	OC.			
1-HC-TV-1048	11715-CBM-106A	4 OF 4 I			2.500	2	A	CIV	FS LT ST	C 0 C C C C 0	54	****	****
									VP	oc	24		

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VALVE NUMBER	DRAWING NUMBER	SHEET DRW NUMBER COO					ISO VALVE TYPE		TEST	REL REQ V-		NC ALT TEST VCN-
	SUPPLY ISOL FRO											
1-HC-TV-105A	11715-CBM-106A	1 OF 4 E6	AC GLOSE	2.500	2	A	CIV	EV	0 0	***	****	
								LT ST VP	C C O	54 54		
	RETURN ISOLATIO											
1-HC-TV-105B	11715-C8M-106A	1 OF 4 E6	AO GLOBE	2.500	2	A	CIV	EV	C	***	****	****
								FS LT ST	C C C O	54 54		
	RETURN ISOLATIO											
1-HC-TV-106A	11715-CBM-106A	4 OF 4 F8	AO GLOBE	2.500	2	Α	CIV	EV FS LT	0 0 0	***	****	****
								ST VP	0	54 54		
	UNIT 1 SUPPLY I BLOW & N2 HYDRO											
1-HC-TV-106B	11715-CBM-106A	4 OF 4 F8	AO GLOBE	2.500	2	A	CIV	EV	COC	***		****
								ST	CCO	54 54		
	UNIT 1 SUPPLY I							VP	oc			
1-HC-TV-107A	11715-CBM-106A	2 OF 4 E7	AO GLOBE	2.500	2	Α	CIV	EV	C 0	***	****	****
								FS LT ST	0 00	54 54		
	RETURN ISOLATIO & ANAL TO UNIT1	ON FROM UNIT	2 HYDROGEN RE	COMB /ALVE								
1-HC-TV-107B	11715-CBM-106A	2 OF 4 E8	AO GLOBE	2.500	2	A		EV FS LT	COCC	***		****
								ST	C	54		

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VALVE NUMBER	DRAWING NUMBER	SHEET DRW	G VALVE R TYPE	VALVE SIZE	ASME CLASS	-	ISO VALVE TYPE	TEST	TEST POS	REL REQ V-	CS JUST CSV-	NC ALT TEST VCN-
1-HC-TV-107B	11715-CBM-106A	2 OF 4 E8	AC GLOBE	2.500	2	A	CIV	ST VP	oc	54	****	
		THE RESERVE OF THE PARTY OF THE	IDE CONT ISOL VA									
1-HC-TV-108A	11715-CBM-106A	3 OF 4 E8	SO GLOBE	.375	2	A	CIV	EV FS LT ST VP	C C C C	54	****	****
	UNIT 1 SAMPLE L											
1-HC-TV-1088	11715-CBM-106A	3 OF 4 E7	SO GLOBE	.375	2	A	CIV	EV FS LT ST VP	c c c c	54	****	****
	UNIT 1 SAMPLE L OUTSIDE CONTAIN											

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VAL VE NUMBER	DRAWING NUMBER	SHEET E	ORWG VALV			CLASS			TEST	TEST POS		CS JUST CSV-	ALT TEST VCN-
1-MS-018	11715-CBM-070B	1 OF 3 (6 MANU	AL GATE	3.000		В	*****	EV	c	***	****	
	MAIN STEAM TO LINE ISOLATION		FEEDWATE										
1-MS-057	11715-CBM-0708	2 OF 3 (6 MANU		3.000	2	В	*****	EV	c	***	****	****
	MAIN STEAM TO LINE ISOLATION	Commence of the American	FEEDWATE	R TURBINE									
1-MS-095	11715-CBM-0708	3 OF 3 C	6 MANU	AL GATE	3.000	2	8	****	EV	c	***	***	
	MAIN STEAM TO LINE ISOLATION		FEEDWATE	R TURBINE	••••								
1-MS-119	11715-CBM-070A	3 OF 3 E	7 CHEC	K VALVE	3.000	2	c	*****	cv	C 0	***	****	****
	"A" MAIN STEAM TURBINE DRIVEN				то								
1-MS-122	11715-CBM-070A	3 OF 3 F	7 CHEC	K VALVE	3.000	2	c	*****	cv	C 0	***	****	****
	"B" MAIN STEAM TURBINE DRIVEN				10								
1-MS-124	11715-CBM-070A	3 OF 3 F	7 CHEC	K VALVE	3.000	2	c		CV	C 0	***	****	****
	"C" MAIN STEAM TURBINE DRIVEN				го								
1-MS-NRV-101A	11715-CBM-070B	1 OF 3 D	3 CHEC	K VALVE	32.000	2	c		CV VP	C	•••	13	****
	"A" MAIN STEAM	HEADER NO	N-RETURN	VALVE									

1-MS-NRV-101B	11715-CBM-070B	2 OF 3 D	3 CHEC	K VALVE	32.000	2	C		CV	C		13	
	"B" MAIN STEAM												
1-MS-NRV-101C	11715-CBM-070B	3 OF 3 D	3 CHEC	K VALVE	32.000	2	c	****	CV VP	C		13	****
	"C" MAIN STEAM	HEADER NO		VALVE									
1-MS-PCV-101A	11715-CBM-070B	1 OF 3 E	5 AO AI	NGLE	6.000	2	B	*****	EV	C 0	***	****	****
									FS ST	CCO			
					***				VP	oc			
	"A" MAIN STEAM PRESSURE CONTRO		SCHARGE	TO ATMOSPH	IERE								
1-MS-PCV-101B	11715-CBM-070B	2 OF 3 E	6 AO AI	NGLE	6.000	2	В		EV	0			

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VALVE NUMBER		SHEET		TYPE	VALVE	CLASS					1000	CS JUST CSV-	NC ALT TEST VCN-
1-MS-PCV-1018		2 OF 3	E6	AO ANGLE	6.000		В	*****	ST	c o oc			****
	"B" MAIN STEAM PRESSURE CONTR		ISCH	ARGE TO ATMOSPHE	RE				**	ů.			
1-MS-PCV-101C	11715-CBM-070B	3 OF 3	D3	AO ANGLE	6.000	2	В		EV FS ST VP	c c c c	***	****	****
	"C" MAIN STEAM PRESSURE CONTR		I SCH	ARGE TO ATMOSPHE	RE								
1-MS-SV-101A	11715-CBM-070B "A" MAIN STEAM DISCHARGE TO A	HEADER S			6.000	2	c		SP	0		****	****
1-MS-SV-101B	11715-CBM-070B "B" MAIN STEAM DISCHARGE TO A	HEADER S		**********	6.000	2	c	*****	SP	0	•••	****	****
1-MS-SV-101C	11715-CBM-0706	HEADER S			6.000	2	c		SP	0	***		****
1-MS-SV-102A	11715-CBM-070B "A" MAIN STEAM DISCHARGE TO AT	HEADER S		**********	6.000	2	c		SP	0		****	****
1-MS-SV-102B	11715-CBM-070B "B" MAIN STEAM DISCHARGE TO AT	HEADER S		************	6.000	2	c	*****	SP	0	***	****	****
1-MS-SV-102C	11715-CBM-070B "C" MAIN STEAM DISCHARGE TO AT	HEADER SA			6.000	2	c		SP	0	***	****	
1-MS-SV-103A	11715-CBM-070B "A" MAIN STEAM DISCHARGE TO AT	HEADER SA			6.000	2	c		SP	0	***		****
1-MS-SV-1038	11715-CBM-070B "B" MAIN STEAM DISCHARGE TO AT	2 OF 3 E			6.000	2	c		SP	0	***	****	****
1-MS-SV-103C	11715-CBM-070B	3 OF 3 D				2	c		SP	0	***	••••	****
1-MS-SV-104A	11715-CBM-070B		6	SAFETY VALVE	6.000	2	c		SP	0	***		****

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												NC
VALVE NUMBER	DRAWING NUMBER		NG VALVE	VALVE SIZE	ASME CLASS		ISO VALVE TYPE	TEST	TEST	REQ V-	CS JUST CSV-	ALT
	*************								****	***	****	****
	"A" MAIN STEAM DISCHARGE TO AT		ETY VALVE, SV									
1-MS-SV-1048	11715-CBM-070B	2 OF 3 E6	SAFETY VALVE	6.000	2	c		SP	0	***	****	
	"B" MAIN STEAM DISCHARGE TO AT		ETY VALVE, SV	*****								
1-MS-SV-104C	11715-C6M-070B	3 OF 3 D6	SAFETY VALVE	6.000	2	c		SP	0	***	****	
	"C" MAIN STEAM DISCHARGE TO AT	ROM		*****								
1-MS-SV-105A	11715-C8M-0708		SAFETY VALVE		2	c		SP	0	***		
	"A" MAIN STEAM DISCHARGE TO AT		ETY VALVE, SV									
1-MS-SV-1058	11715-C8M-0708	2 OF 3 E5	SAFETY VALVE	6.000	2	c	*****	SP	0	***	****	
	"B" MAIN STEAM DISCHARGE TO AT		ETY VALVE, SV	****								
1-MS-SV-105C	11715-CBM-070B	3 OF 3 D5	SAFETY VALVE	6.000	2	c		SP	0	***		****
	"C" MAIN STEAM							91				
	DISCHARGE TO AT											
1 MS-TV-101A	11715-CBM-0708	1 OF 3 D4	AO DISC	32.000	2	8		EV FS ST VP	C C C		16 16 16	****
	"A" MAIN STEAM	HEADER TRI	P VALVE									

1-MS-TV-101B	11715-CBM-070B	2 OF 3 C4	AO DISC	32.000	2	В		FS ST VP	C C C		16 16 16	
	"B" MAIN STEAM	HEADER TRI	P VALVE									
		The same of the sa	******									
1-MS-TV-101C	11715-CBM-070B	3 OF 3 C4	AO DISC	32.000	2	В		EV FS ST VP	C C C	***	16 16 16	****
	"C" MAIN STEAM	WEARED TRIE	D VALVE									
	C HATE STEAM	HEADER IKII	ANTAE									
1-MS-TV-109	11715-CBM-070A	1 OF 3 A8	AO GLOBE	3.000	2	В	****	EV	c	***	14	****
								FS ST VP	C		14	
	MAIN STEAM HIGH CONDENSER	PRESSURE (DRAIN ISOLATION	то				ar.	OC.			
1-MS-TV-110	11715-CBM-070B	3 OF 3 A4	AO GLOBE	1.500	2	В		EV FS ST	C	***		
								10 T	760			

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VALVE NUMBER	DRAWING NUMBER	MUMBER	100000000000000000000000000000000000000	VALVE TYPE	VALVE SIZE	CLASS		I SO VALVE TYPE	TEST	TEST	REL REQ V-	CS JUST CSV-	NC ALT TEST VCN-
1-MS-TV-110	11715-CBM-0708	3 OF 3	A4	AO GLOBE	1.500		В		VP	ос			
	MAIN STEAM HIGH			AIN HEADER ISO- LOWDOWN SYSTEM									
1-MS-TV-111A	11715-CBM-070A	3 OF 3	E5	AO GLOBE	3.000	2	В		EV	C			
									FS	C			
									VP	oc			
	MAIN STEAM SUPP DRIVEN AUXILIAN			The state of the s									
1-MS-TV-111B	11715-CBM-070A	3 OF 3	E4	AO GLOSE	3.000	2	В		EV	C	***	****	****
									FS	0			
									ST	C			
									VP	O OC			
	************	******							VP	OC.			
	MAIN STEAM SUPP DRIVEN AUXILIAN												
1-MS-TV-113A	11715-CBM-0708	1 OF 3	D4	AO GLOBE	3.000	2	В		EV FS	C	***	33	****
									ST	C		33	
	"A" MAIN STEAM	TRIP BY	PASS	/ALVE									

1-MS-TV-1138	11715-CBM-0708	2 OF 3	D4	AO GLOBE	3.000	2	В		EV	C		33	
									FS	C		33	
									VP	oc			
	"B" MAIN STEAM		DACE I	ALVE									
	D HATE STEAM	IKIP DI	Mag I	MLAE									
4 NO. TU 4470	***************************************	******						****		****	***		
1-MS-TV-113C	11715-CBM-070B	3 OF 3	D4	AO GLOBE	3.000	2	В		EV	C		33	
									FS	C		33 33	
									VP	oc			
	"C" MAIN STEAM	TRIP BY	PASS V	/ALVE									
1-MS-TV-115	11715-CBM-070A	3 OF 3	C4	MECH TRIP VLV	3.000	3	 E		VP	ос	***		****
	MAIN STEAM SUPP DRIVEN AFW PUMP	LY TRIP		***********									
*********	*************					****							****

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VALVE DRAWING SHEET DRUG VALVE VALVE ASME IWV VALVE TEST TEST REQ JUST TEST NUMBER NUMBER COOR TYPE SIZE CLASS CAT TYPE TYPE POS V- CSV- VCN-

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VALVE HUMBER		SHEET	COOR	TYPE	VAL VI SIZE	CLASS	CAT	TYPE	TEST	POS			VCH-
1-95-011	11715-CBM-091A			Mr CHECK ATA	8.000	2	AC	CIV	CV	С	67	****	
	"A" QUENCH SPH	Y PLIKP I	MSIDE	CONTAINMENT									
1-95-019	11715-CBM-091A	2 OF 4	E6	MT CHECK ATA	8.000	2	AC	CIV		C	67 67	****	
	"B" QUENCH SPRA	Y PUMP I		CONTAINMENT	**				LT	С			
1-95-MOV-100A	11715-CBM-091A	2 OF 4	A3	MO GATE	10.000	2	E	*****	VP	oc	***	••••	••••
	"A" GUENCH SPRA FROM REFLELING	WATER ST	ORAGE	TANK									
1-QS-MOV-1006	11715-CBM-091A	2 OF 4 /	A3	NO GATE	10.000	2	E	•••••	VP	oc	***	••••	****
	"E" QUENCH SPRA FROM REFUELING	Y PLANP SI	UCT 10	N ISOLATION VAL									
-QS-MOV-101A	11715-CBM-091A	2 OF 4 8	5	NO GATE	8.000	2		CIV	EV	C		****	****
									ST	0			
	"A" QUENCH SPRA VALVE, OUTSIDE	Y PUMP DI	SCHAI	RGE ISOLATION SOLATION VALVE					VP	ос			
-QS-MOV-101B	11715-CBM-091A	2 OF 4 E	5	O GATE	8.000	2	A	CIA	EV	C	***	****	
									LT ST	C			
									VP	OC OC			
	"B" QUENCH SPRAY VALVE, OUTSIDE (PUMP DI	SCHAR NT IS	CLATION VALVE									
-QS-MOV-102A	11715-CBM-091A	1 OF 4 D	5 M	O GATE	6.000	2	8		EV ST VP	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	***	44	****
	CHEMICAL ADDITION	DE TANK D	ISCKA	RGE ISOLATION									
QS-MOV-102B	11715-CBM-091A	1 OF 4 D	6 M	O GATE	6.000	2 1	В		EV ST	0 0	•••	44	****
	CHEMICAL ADDITION	N TANK D	SCHA	RGE ISOLATION	N								
		******	****	************	*****	*****				****			

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														NC
VALVE NUMBER	DRAWING NUMBER	SHEET	75.0	Control of the Control		VALVE SIZE		1000000		TEST TYPE	TEST	REL REQ V-	CS JUST CSV-	ALT TEST VCH-
1-RH-007	11715-CBM-094A	1 OF 2	£5	CHECK	VALVE	10.000	2	c	*****	cv	C	***	46	
	"B" RHR PUMP D	SCHARGE	CHECK	VALVE		***								
1-RH-015	11715-CBM-094A	1 OF 2	E7	CHECK	VALVE	10.000	2	c		cv	c 0	***	46 46	****
	"A" RHR PUMP D	SCHARGE	CHECK	VALVE		***								
			****				****				****		****	
1-RH-036	RHR SUPPLY ISOL	2 OF 2 ATION TO	REFU	EL WAT	ER STORA	6.000 GE	2	AE	CIV	LT	С			
	TANK, INSIDE CO	NTAINMEN	T 120	LATION	VALVE									
1-RH-037	11715-CBM-094A	2 OF 2	E3	MANUAL	GATE	6.000	2	AE	CIV	LT	C	***	****	****
	TANK, OUTSIDE O					GE								
1-kH-MOV-1700	11715-CBM-094A	1 OF 2	A5	MO GAT		14.000	1	В	*****	EV ST VD	0 0	***	18 18	****
	RHR PUMP SUPPLY		ON FR	OM "A"	HOT LEG	,					0.0			
1-RH-MOV-1701	11715-CBM-094A	1 OF 2	A4 I	MO GAT	E	14.000	1	6	*****	EV ST VP	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	***	18	****
	RHR PUMP SUPPLY OUTSIDE MISSILE		ON FR	OM "A"	HOT LEG									
1-RH-MOV-1720A	11715-CBM-094A	2 OF 2	C3	MO GAT	E	10.000	1	8		EV ST VP	0 0 0C		18 18	****
	RHR SETURN ISOL DISCHARGE LINE	OT MOITA	"8"	ACCUMU	LATOR									
1-RH-MOV-1720B	11715-CBM-094A	2 OF 2 I	33	MO GAT	E	10.000	1	В		EV ST VP	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	***	18	****
	RHR RETURN ISOL DISCHARGE LINE	ATION TO	"C"	ACCUMU	LATOR									
1-RH-RV-1721A	11715-CBM-094A	1 OF 2 E	6 1	RELIEF	VALVE	3.000	2	c	****	SP	0		****	****
	RHR SYSTEM RELITION, RV DISCHA													
1-RH-RV-1721B	11715-CBM-094A			RELIEF		3.000	2	c		SP	0	***		****
	RHR SYSTEM RELITION, RV DISCHA													
		******					****							

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VALVE MANBER DRAWING NUMBER

SHEET DRUG VALVE MANBER COOR TYPE

VALVE ASME INV VALVE TEST TEST REQ JUST TEST SIZE CLASS CAT TYPE TYPE POS V- CSV- VCN-

REL CS ALT

MC

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VALVE NUMBER	DRAWING NUMBER			VALVE					TEST		CS JUST CSV-	ALT TEST VCN-
1-51-001	11715-CBM-096A	1 OF 3 B7	CHECK VALVE	12.000		c	*****	CV	0	37	****	
	"A" LOW HEAD ST	The second secon	N CHECK VALVE									
1-\$1-004	11715-C8M-096A	1 OF 3 C7	CHECK VALVE	.750	2	AC	*****	CV	C	53	****	
	"A" LOW HEAD ST VALVE FROM RWST		ATER SUPPLY C	HECK								
1-\$1-009	11715-CBM-096A	2 OF 3 86	CHECK VALVE	10.000	5	c	*****	cv	C	38 38	****	****
	"A" LOW HEAD ST	PUMP DISCHA	RGE CHECK YAL	VE								
1-51-012	11715-CBM-096A	2 OF 3 B5	CHECK VALVE	2.000	2	c	*****	cv	0	***	****	****
	"A" LOW HEAD SI	The state of the s	M FLOW/TEST L	INE								
1-51-016	11715-CBM-096A	1 OF 3 B5	CHECK VALVE	12.000	2	c		cv	0	37	****	****
	"B" LOW HEAD SI CONTAINMENT SUM		N CHECK VALVE	FROM								
1-51-018	11715-CBM-096A	1 OF 3 B3	CHECK VALVE	12.000	2	С		cv	0	38		
	RWST SUPPLY CHE PUMP SUCTION	CK VALVE TO	"B" LOW HEAD	SI								
1-51-021	11715-CBM-096A	1 OF 3 C5	CHECK VALVE	.750	2	AC		CV	C	53	****	****
	"B" LOW HEAD SI VALVE	PUMP SEAL W	ATER SUPPLY C	HECK								
1-\$1-026	11715-CBM-096A	2 OF 3 B4	CHECK VALVE	10.000	2	c	*****	CV	C	38 38	****	****
	"B" LOW HEAD SI	PUMP DISCHA	RGE CHECK VAL	VE								
1-\$1-029	11715-CBM-096A	2 OF 3 B4	CHECK VALVE	2.000	2	c	*****	cv	0	***	****	****
	"B" LOW HEAD SI DISCHARGE CHECK		H FLOW/TEST L	INE								
1-51-047	11715-CBM-096A	1 OF 3 E5	CHECK VALVE	8.000	2	AC		CV	0	39 39 75	****	****
	RWST SUPPLY CHE SUCTION HEADER	CK VALVE TO	CHARGING PUMP							73		
1-51-058	11715-CBM-096A	1 OF 3 E7	MANUAL GLOBE	1.000	2	AE	CIV	LT	c	***	****	****
	ACCUMULATOR MAK ISOLATION VALVE		TSIDE CONTAIN	MENT								
1-\$1-066	11715-CBM-096A	3 OF 3 D4	CHECK VALVE	1.000	2	C	*****	CV	C	***	****	****

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VALVE NUMBER	DRAWING NUMBER	SHEET			VALVE SIZE			ISO VALVE TYPE	TYPE	TEST	REL REQ V-	CS JUST CSV-	NC ALT TEST VCN-
1-SI-HCV-1936	11715-СВМ-0968	1 OF 4	E5	AO GATE	1.000	2	A	CIV	EV FS LT ST VP	C C C C	***		****
	WASTE GAS FROM FILTERS	ACCUMUL	ATORS	TO CHARCOAL	****								
1-SI-MOV-1836	11715-CBM-096A	3 OF 3	C8	MO GATE	3.000	2	A	CIV	EV	C		23 23	
									ST VP	c o oc		23 23	
	HIGH HEAD SI FE												
1-SI-MOV-1860A	11715-CBM-096A	1 OF 3	87	MO GATE	12.000	2	8		EV	C		****	
									ST VP	C O OC			
	"A" LOW HEAD ST	4.000	JCT I ON	I ISOLATION F	ROM								
1-SI-MOV-1860B	11715-CBM-096A	1 OF 3	B5	MO GATE	12.000	2	В		EV ST	C O C			
		******							VP	OC OC			
	"B" LOW HEAD ST CONTAINMENT SUM		JCT10A	ISOLATION F	ROM								
1-SI-MOV-1862A	11715-CBM-096A	1 OF 3	A3	MO GATE	12.000	2	8		EV ST VP	C C OC			
	"A" LOW HEAD SI	PUMP SL	CTION	FROM RWST									
1-SI-MOV-1862B	11715-CBM-096A	1 OF 3	в3	MO GATE	12.000	2	В		EV ST VP	C C OC	***		****
	"B" LOW HEAD SI	PUMP SU	ICT (ON	FROM RWST									
1-SI-MOV-1863A	11715-CBM-U96A	2 OF 3	C5	MO GATE	8.000	2	В		EV ST	C O C	***	****	****
	"A" LOW HEAD SA ISOLATION TO CH			N PUMP SUPPL	Υ				VP	ОС			
1-SI-MOV-1863B	11715-CBM-096A	2 OF 3	D4	MO GATE	8.000	2	В		EV ST	C 0 C	***		

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VALVE NUMBER	DRAWING NUMBER	SHEET DRWG NUMBER COOR	The second second second	VALVE SIZE			ISO VALVE TYPE	TEST	TEST	REL REQ V-	CS JUST CSV-	NC ALT TEST VCH-
1-SI-MOV-1863B	11715-CBM-096A	2 OF 3 D4	MO GATE	8.000	2	B	*****	Vp	oc			****
	"B" LOW HEAD SA ISOLATION TO CA			Y								
1-S1-MOV-1864A	11715-CBM-096A	2 OF 3 C7	MO GATE	10.000	2	В		EV ST VP	C C C O	***	****	****
	"A" LOW HEAD ST	PUMP COLD L	EG DISCHARGE	STOP								
1-SI-MOV-1864B	11715-CBM-096A	2 OF 3 C6	MO GATE	10.000	2	В		EV ST VP	C O C O OC	***	****	****
	"B" LOW HEAD ST	PUMP COLD LI	EG DISCHARGE	STOP								
1-SI-MOV-1865A	11715-CBM-0968	1 OF 4 C7	MO GATE	12.000	2	В		EV ST VP	C O C O		24 24 24 24	****
	"A" ACCUMULATOR	DISCHARGE IS	SOLATION VALVE	E TC								
1-SI-MOV-1865B	11715-СВМ-096В	2 OF 4 C5	MO GATE	12.000	2	8		EV	0000		24 24 24 24 24	****
	"B" ACCUMULATOR	DISCHARGE IS	SOLATION VALVE	то				VP	ос			
1-SI-MOV-1865C	11715-CBM-0968	3 OF 4 C5	MO GATE	12.000	2	В		EV ST VP	C O C O	***	24 24 24 24	****
	"C" ACCUMULATOR	DISCHARGE IS	SOLATION VALVE	TO								
1-SI-MOV-1867A	11715-C8M-096A	3 OF 3 D4	MO GATE	3.000	2	В		EV ST VP	C C C O	***		****
	BORON INJECTION	TANK HIGH HE	AD SI INLET V	ALVE								
1-SI-MOV-1867B	11715-CBM-096A	3 OF 3 D4	MO GATE	3.000	2	8		EV ST	C O C O OC	***	••••	

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														NC
VALVE NUMBER	DRAWING NUMBER	SHEET D	10000	200			ASME		VALVE TYPE		TEST	REL REQ V-	CS JUST CSV-	ALT TEST VCN-
	PORON 14 (POTTO)	********	****		**********									
	BORON INJECTION	TANK HIG	H HE	AD S	I INLET VALV	E								
1-SI-MOV-1867C	11715-CBM-096A	3 OF 3 E	7	MO G	ATE	3.000	2	A	CIV	EV	C 0	***	****	****
										LT ST	CCO	59		
										VP	OC			
	BORON INJECTION OUTSIDE CONTAIN	TANK OUT MENT ISOL	LET ATIO	TO R	CS COLD LEG,									
1-SI-MOV-18670	11715-CBM-096A	3 OF 3 D	7	MO G	ATE	3.000	2	A	CIV	EV	C	***	****	****
										LT ST	C	59		
										VP	ос			
	BORON INJECTION OUTSIDE CONTAIN	TANK OUT	LET 1	TO RO	CS COLD LEG,									
1-SI-MOV-1869A	11715-CBM-096A	3 OF 3 C	8 +	40 GA	ATE	3.000	2	A	CIV	EV	C	***	23	
										LT ST	C		23	
										VP	oc		23	
	HIGH HEAD SI FRO LEGS, OUTSIDE CO	OM CHARGI	NG HE	ADER	TO RCS HOT									
1-SI-MOV-1869B	11715-CBM-096A	3 OF 3 B8	B #	O GA	TE	3.000	2	A		EV	C	***	23 23	****
										ST	0 0 0		23 23	
										VP	OC			
	HIGH HEAD SI FRO LEGS, OUTSIDE CO	M CHARGIA	I SO	ADER	TO RCS HOT ON VALVE									
1-SI-MOV-1885A	11715-CBM-096A	2 OF 3 C3	H	O GL	OBE	2.000	2	A		EV	C	***	****	****
										ST VP	C C OC	75		
	"A" LOW HEAD SI ISOLATION	PUMP MINI	MUM	FLOW	/TEST LINE									
1-SI-MOV-1885B	11715-CBM-096A	2 OF 3 B3	м	O GL	08E	2.000	2	A		EV	c	***	****	****
										LT ST VP	C C OC	75		
	"B" LOW HEAD SI	PUMP MINI	MUM	FLOW	TEST LINE									
1-SI-MOV-1885C	11715-CBM-096A	2 OF 3 D3	N	O GL	OBE	2.000	2	A		EV LT	c c	75	****	••••
										ST VP	C OC			

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VALVE NUMBER	DRAWING NUMBER	SHEET			VALVE	ASME CLASS		ISO VALVE TYPE	TEST	TEST	REL REQ V-	CS JUST CSV-	NC ALT TEST VCN-
	"A" LOW HEAD S	PUMF %	NIMU	M FLOW/TEST LINE									
1-SI-#OV-1885D	11715-CBM-096A	2 OF 3	83	MO GLOBE	2.000	2	A		EV LT ST VP	C C C	75	****	
	"B" LOW HEAD S	PUMP MI	NIMU	M FLOW/TEST LINE									
1-SI-MOV-1890A	11715-CBM-096A	2 OF 3	D7	MO GATE	10.000	2	A	CIV	EV LT ST VP	C C C C C C C C C C C C C C C C C C C	***	23 23 23 23 23	****
				G DISCHARGE STOP	,								
1-SI-MOV-1890B	117:5-CBM-096A	2 OF 3 (7	MO GATE	10.000	2	A	CIV	EV LT ST VP	C	***	23 23 23 23 23	****
	"B" LOW HEAD S! VALVE, OUTSIDE			DISCHARGE STOP									
1-SI-MOV-1890C	11715-CBM-096A	2 OF 3 (8	MO GATE	10.000	2	A	CIV	EV LT ST VP	C	59	****	****
	LOW HEAD SI PUN VALVE, OUTSIDE												
1-SI-MOV-1890D	11715-CBM-096A	2 OF 3 C	7	MO GATE	10.000	2	A		EV LT ST	C	59		****
	LOW HEAD SI PUM VALVE, OUTSIDE												
1-SI-RV-1845A	11715-CBM-096A				**	2	c	*****	SP	0	***	****	****
*******	"A" LOW HEAD ST RV DISCHARGE TO	SAFEGUAR	CHAR DS A	GE RELIEF VALVE REA SUMP	,								
1-SI-RV-1845B	11715-CBM-096A LOW HEAD SI HEA RV DISCHARGE TO	DER TO CO	LD L	EG RELIEF VALVE	.750	2	c	Taga	SP	0			
1-SI-RV-1845C	11715-CBM-096A			************	.750	2	c	*****	SP	0	•••		****

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		NOR	TM	AHNA	UNI	1 1		
	SECO	ND	INS	PECT	ON	INT	ERVAL	
INSERVI	CE T	EST	ING	PRO	GRAM	*	VALVE	TABLE

VALVE NUMBER		SHEET				VALVE SIZE					TEST	REL REQ V-	CS JUST CSV-	ALT TEST VCN-	
1-sw-0003	11715-CBM-078A	3 OF 4	07	CHECK	VALVE	20.000	3	c	*****	cv	C	63 63	****	****	
	UNIT 1 "A" SERV	ICE WATE	R PU	MP DIS	CHARGE C	HECK									
1-SW-0010	11715-CBM-078A	3 OF 4	06	CHECK	VALVE	20.000	3	c	*****	cv	C	63 63	****	****	
	UNIT 1 "B" SERV														
1-sw-0022	11715-CBM-078A					24.000			*****	cv	C 0	73	****	****	
	UNIT 1 AUXILIAN	Y SERVICE	E WA	TER PU	MP DISCH	ARGE									
1-SW-0114	11715-CBM-0788	1 OF 4	F8	CHECK	VALVE	24.000	3	c	****	CV	0	45		****	
	"A" SERVICE WAT RECIRC SPRAY HX	R HEADER	SUP	PLY CHE	ECK VALV	E TO		Ì.							
1-SW-0116	11715-CBM-0788	1 OF 4 I	F8	CHECK	VALVE	24.000	3	c		CV	0	45			
	"B" SERVICE WAT	R HEADER	SUPI	PLY CHE	ECK VALV	E TO									
1-SW-0120	11715-CBM-0788	1 OF 4 I	3	CHECK	VALVE	16,000	2		****	cv	0	45		****	
	"A" RECIRC SPRA SUPPLY CHECK VA	Y HEAT EX										*,			

1-SW-0130	11715-CBM-0788	1 OF 4 E	4	CHECK	VALVE	16.000	2	C		CV	0	45			
	"B" RECIRC SPRA SUPPLY CHECK VA		CHAI	NGER SE	RVICE W	ATER									
1-SW-0140	11715-CBM-0788	1 OF 4 E	6	CHECK	VALVE	16.000	2	C		CV	0	45			
	"C" RECIRC SPRA SUPPLY CHECK VA		(CHA)	NGER SE	RVICE W	ATER									
1-SW-0150	11715-CBM-0788	1 OF 4 E	7	CHECK	VALVE	16.000	2	c		CV	0	45	****	****	
	"D" RECIRC SPRA	Y HEAT EX			*****		9								
4 61 0054												***			
1-SW-0251	11715-СВМ-078С	2 OF 2 E		MANUAL	GATE	4.000	3	В		EV	С				
	SERVICE WATER S VALVE	UPPLY MAL			10N										
1-SW-0252	11715-CBM-078C	2 OF 2 E					3	C		CV	0				
	SERVICE WATER S	UPPLY CHE	CK	VALVE											
1-SW-0254	11715-CRM-078C	2 OF 2 E	8	MANUAL	GATE	4.000	3	В		EV	c	* * *	****		
	SERVICE WATER S														
	*******				******				****						
1-SW-0255	11715-CBM-078C	2 OF 2 B	18	CHECK	VALVE	4.000	72	C		CV	0				

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VALVE NUMBER	DRAWING NUMBER	SHEET DRWG			ASME CLASS			TEST	TEST	REL REQ V-	CS JUST CSV-	NC ALT TEST VCN-
	SERVICE WATER	SUPPLY CHECK	VALVE	****								
1-SW-0285	11715-CBM-078C SERVICE WATER	2 OF 2 B8		4.000	3	8		EV	Ċ	***	****	****
	VALVE WATER	KETUKN MAUNAL	ISOLATION									
1-SW-0286	11715-CBM-078C	2 OF 2 B8	MANUAL GATE	4.000	3	B		EV	c		****	
	SERVICE WATER	RETURN MAUNAL	ISOLATION									
1-SW-0364	11715-CBB-0400	1 OF 3 E7	CHECK VALVE	4.000	NC	c		cv	0	***		****
	SERVICE WATER CONDENSER WATE	The second secon	TROL ROOM									
1-SW-0386	11715-CBB-0400	1 OF 3 C7	CHECK VALVE	4.000	NC	c		CV	0	***	****	****
	SERVICE WATER CONDENSER WATE		TROL ROOM									
1-SW-0420	11715-C88-0400	1 OF 3 A7	CHECK VALVE	4.000	NC	c	*****	CV	0	***	****	****
	SERVICE WATER	The state of the s	TROL ROOM			ì						
1-sw-0630	11715-CBM-078G	1 OF 2 E8	CHECK VALVE	2.000	3	c	•••••	cv	0	***	35	
	SERVICE WATER		COMPANIES OF SERVER									
1-SW-0631	11715-CBM-078G	1 OF 2 E7	CHECK VALVE	2.000	3	c		cv	0		35	****
	SERVICE WATER		the state of the s									
1-SW-0641	11715-CBM-078G	1 OF 2 E6	CHECK VALVE	2.000	3	c	*****	CV	0	***	35	****
	SERVICE WATER	product of the contract of the contract of	RGING PUMP									
1-SW-0644	11715-CBM-078G	1 OF 2 E7	CHECK VALVE	2.000	3	c	****	CV	0	***	35	****
	SERVICE WATER SEAL COOLER CH		RGING PUMP									
1-SW-0647	11715-CBM-078G	1 OF 2 E6	CHECK VALVE	2.000	3	c	****	CV	0		35	****
	SERVICE WATER !		TOTAL PROPERTY OF THE PARTY.									
1-SW-0648	11715-CBM-078G	1 OF 2 E6	CHECK VALVE	2.000	3	c		CV	0		35	****
	SERVICE WATER !		CONTRACTOR OF STREET									
1-SW-0658	11715-CBM-078G	1 OF 2 E5	CHECK VALVE	2.000	3	c	****	CV	0		35	****
	SERVICE WATER SEAL COOLER CHE		RGING PUMP									
**********				*** ****	****						****	****

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VALVE NUMBER	DRAWING NUMBER	SHEET	201000	1000			ASME CLASS	100.000.00		TEST TYPE	TEST	REQ V-	CS JUST CSV-	ALT TEST VCN-
1-SW-0661	11715-CBM-078G	1 OF 2			VALVE	2.000	3	С		CV	0	***	35	
	SERVICE WATER		Tancour S	RGING P	UMP									
1-SW-0664	11715-CBM-078G			CHECK		2.000	3	С		CV	0		35	
	SERVICE WATER			RGING P	UMP									
1-SW-0665	11715-CBM-078G	1 OF 2				2.000	3	С		CV	0		35	
	SERVICE WATER !			RGING P	UMP									
1-SW-0678	11715-CBM-078G	1 OF 2		MANUAL		4.000	3	8		EV	C	-		
	SERVICE WATER I	RETURN MA	UNAL	ISOLAT	ION									
1-SW-0679		1 OF 2		MANUAL		4.000	3	В		EV	С			
	SERVICE WATER I	RETURN MA	UNAL	ISOLAT	ION									
1-SW-0681	11715-CBM-078G	1 OF 2	F3	MANUAL	GATE	4.000	3	В		EV	c		****	
	SERVICE WATER ! VALVE	SUPPLY MA	UNAL	ISOLAT	ION									
1-SW-0686	11715-CBM-078G	1 OF 2	E3	CHECK	VALVE	2.000	3	С		cv	0	***	35	****
	SERVICE WATER ! SEAL COOLER CHE		197.3.22.22	RGING PI	JMP									
1-SW-0689	11715-CBM-078G	1 OF 2	E3	CHECK	VALVE	2.000	3	С		cv	0	•••	35	
41-41	SERVICE WATER S		W 1 100 (00)	RGING PO	JMP									
1-SW-0694	11715-CBM-078G	1 OF 2	F3	MANUAL.	GATE	4.000	3	В		EV	c	***	****	****
	SERVICE WATER S	SUPPLY MA	UNAL	ISOLAT	NO									
I-SW-1067	11715-CBM-078A	3 OF 4	E7	MANUAL	GAYE	1.000	3	В	*****	EV	c	***	45	
	SERVICE WATER (ADD I 1	ION SYS	STEM									
-SW-1070	11795-CBM-078A	3 OF 4	F7	MANUAL	GATE	1.000	3	В		EV	C		45	****
	SERVICE WATER OF		TION	SYSTEM	MANUAL									
I-SW-1139	11715-CBM-078A	3 OF 4	E7	MANUAL	GATE	1.500		В		EV	c	***	45	****
	SERVICE WATER O		TION	SYSTEM	MANUAL									
-SW-MOV-101A	11715-CBM-078A	4 OF 4	83	MO BFL	(24.000	3	В		EV ST	0	***	34 34	****

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													NO
VALVE NUMBER		NUMBER	COOR	TYPE	SIZE	CLASS		VALVE		TEST	REL REQ V-		TEST
*****	******	******					***		****	****	***	****	****
	"A" SERVICE WAT RECIRC SPRAY HE				N TO								
1-SW-MOV-101B	11715-C9M-078A	4 OF 4	83	MO BFLY	24.060	3		****	EV	0	***	34 34	****
	"A" SERVICE WAT RECIRC SPRAY HE				N TO								
1-SW-MOV-101C	11715-CBM-078A	4 OF 4	83	MO BFLY	24.000	3	В		EV ST VP	0	***	34 34	
	"8" SERVICE WAT RECIRC SPRAY HE			S									
1-SW-MOV-101D	11715-CBM-078A	4 OF 4	C3		24.000		В	*****	EV ST VP	0		34 34	****
	"B" SERVICE WAT RECIRC SPRAY HE	ER HEAD	ER SU		N TO								
1-SW-MOV-102A	11715-CBM-0788	1 OF 4	F8	MO BFLY	24.000	3	В		EV ST VP	C	***	****	
	SERVICE WATER S	ANGERS		CONNECTS TO R	ECIRC					oc .			
1-SW-MOV-102B	11715-CBM-0788			MO BFLY	24.000	3	8		EV ST VP	C	***	****	****
	SERVICE WAYER S			CONNECTS TO R	ECIRC								
1-SW-MOV-103A	11715-CBM-0788	1 OF 4	E3	MO BFLY	16.000	2	A	CIV	EV LT ST	00000	***	****	****
	SERVICE WATER S	SUPPLY TO	0 "A" T 150	RECIRC SPRAY	HEAT				VP	oc			
1-SW-MOV-1038	11715-CBM-078B	1 OF 4	E4	MO BFLY	16.000	2	A	CIV	EV	C 0	***	****	****
									LT ST VP	C C O			
	SERVICE WATER SEENCHANGER, OUTS	SUPPLY TO	0 "B" T 150	RECIRC SPRAY	HEAT								
1-SW-MOV-103C	11715-CBM-078B	1 OF 4	E6	MO BFLY	16.000	2	A	CIV	EV	CO	***	****	
									ST	C			

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VAL VE NUMBER		SHEET DRWG		VALVE SIZE					TEST	REL REQ V-		100000000000000000000000000000000000000
1-SW-MOV-103C	11715-CBM-0786	1 OF 4 E6	MO BFLY	16.000	2	A	CIV	VP	oc			
	SERVICE WATER ! EXCHANGER, OUT:		The state of the s	A STORY OF T								
1-SW-MOV-1030	11715-CBM-0786	1 OF 4 E7	MO BFLY	16.000	2	A	CIV	EV LT ST VP	C C C C			
	SERVICE WATER S EXCHANGER, OUTS											
1-SW-MOV-104A	11715-CBM-0788	1 OF 4 C3	MO BFLY	16.000	2	A	CIV	EV	COC	***	****	
								ST VP	C O OC			
	SERVICE WATER &											
1-SW-MOV-1048	11715-CBM-078B	1 OF 4 C5	MO BFLY	16.000	2	A	CIV	EV LT ST	0 0 0		****	
	SERVICE WATER F	ETURN FROM "	B" RECIRC SPR	RAY /ALVE				VP	oc			
1-SW-MOV-104C	11715-CBM-078B	*********			2	A	CIV	EV LT ST	C O C C O O C		••••	****
	SERVICE WATER R HEAT EXCHANGER,											
1-SW-MOV-104D	11715-CBM-078B	1 OF 4 C7	MO BFLY	16.000	2	A	CIV	EV LT ST VP	C O C C O O C			••••
	SERVICE WATER R HEAT EXCHANGER,	ETURN FROM "OUTSIDE CON	D" RECIRC SPR T ISOLATION V	AY								
1-SW-MOV-105A	11715-CBM-078A	4 OF 4 C3	MO BFLY	24.000	3	8		EV ST VP	0 0 0C		34 34	****
	"B" SERVICE WAT FROM RECIRC SPR			N								
1-SW-MOV-1058	11715-CBM-C78A	4 OF 4 C3	MO BFLY	24.000	3	8	*****	EV ST	0	***	34 34	****

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VALVE NUMBER	DRAWING HUMBER	SHEET DRWG	TYPE	VALVE SIZE	CLASS	CAT	TYPE	TYPE	POS	V-	JUST CSV-	VCN-
1-SV-MOV-1058	11715-CBM-078A				3	В		VP	ос	***	****	****
	"B" SERVICE WA FROM RECIRC SPI	TER HEADER RE	TURN ISOLATION ANGERS									
1-SW-MOV-105C	11715-CBM-078A	4 OF 4 C3	MO BFLY	24.000	3	В		EV ST VP	-	***	34 34	
	"A" SERVICE WA' FROM RECIRC SPI											
1-SW-MOV-105D	11715-CBM-078A		MO BFLY	24.000	3	В		EV ST VP	0 0 0C	***	34 34	****
	"A" SERVICE WA' FROM RECIRC SPI	TER HEADER RE	TURN ISOLATION ANGERS									
1-SW-MOV-106A	11715-CBM-078B	1 OF 4 B8	MO BFLY	24.000	3	В		EV ST VP	C C OC	***	****	****
	SERVICE WATER I											
1-SW-MOV-1068	11715-CBM-0788	1 OF 4 A8	MO BFLY	24.000	3	8		EV ST VP	C C OC		****	Ŧ
	SERVICE WATER I											
1-SW-MOV-108A	11715-CBM-078C	1 OF 2 B3	MO BFLY	24.000	3	В	*****	EV	C		43	****
								ST	0		43	
	"A" SERVICE WAT			то								
1-SW-MOV-1088	11715-CBM-078C	1 OF 2 B3	MO BFLY	24.000	3	В		EV ST VP	C O C O O C		43 43 43 43	****
	"A" SERVICE WAT			то				VP	OC.			
1-SW-MOV-110A	11715-C8M-078A	4 OF 4 C4	MO BFLY	8.000	3	E		VP	oc		****	
	SERVICE WATER H	EADER SUPPLY	TO RECIRCULATI	ON								
1-SW-MOV-110B	11715-CBM-078A	4 OF 4 C4	MO BFLY	8.000	3	E		VP	oc	***	****	****
	SERVICE WATER H	HEADER SUPPLY	TO RECIRCULATI	ON								
1-SW-MOV-113A	11715-CBM-078A	4 OF 4 B7	MO BFLY	10.000	3	E	*****	VP	oc	***	****	••••

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VALVE NUMBER		SHEET DRW NUMBER COO		VALVE SIZE					TEST			200000
	SERVICE WATER		TION FROM FUEL	PIT								
1-SW-MOV-1138	11715-C8M-078A		MO BFLY	10.000	3	E		VP	oc	***	****	****
	SERVICE WATER	SUPPLY ISOLA	TION TO FUEL P	IT								
1-SW-MOV-114A	11715-CBM-078A	4 OF 4 C4		8.000			****	VP	oc	***		****
	SERVICE WATER		N FROM	****								
1-SW-MOV-1148	11715-CBM-078A	4 OF 4 C4	NO BFLY	8.000	3		*****		oc	***	****	****
	SERVICE WATER I		N FROM									
1-SW-MOV-115A	11715-CBM-078A	1 OF 4 E7	MO BFLY	24.000	3	8	*****	EV ST VP	0 0 0C	***	****	
	SERVICE WATER I	the second secon	a manager of a second									
1-SW-MOV-117	11715-CBM-078A	1 OF 4 C3	MO BFLY	24.000	3	В		EV ST VP	0	***	****	****
	UNIT 1 AUXILIAN		ATER PUMP DISC	HARGE				**	oc			
1-SW-MOV-118	11715-CBM-078A	1 DF 4 D4	NO BFLY	24.000	3	F	*****	VP	oc		****	• • • •
	AUXILIARY SERVI			*****								
1-SW-MOV-119	11715-CBM-078A	1 OF 4 D4	MO BFLY	8.000	3	В	*****	EV ST VP	C C OC	***		****
	MAKEUP PUMP SUF	PPLY VALVE										
1-SW-MOV-120A	11715-C8M-078A	4 OF 4 F3	MO RELY	10,000				VP	oc		****	****
	AUXILIARY SERVI							**	O.			
1-SW-MOV-1208	11715-CBM-078A	4 OF 4 F3	MO BFLY	10.000	NC	E		VP	ос			
	AUXILIARY SERVI	CE WATER RE	TURN HEADER VA	LVE								
1-SW-MOV-121A	11715-CBM-078H	1 OF 1 B5	MO BFLY	18.000	3	В		EV ST VP	0			••••
	SERVICE WATER T	O SPRAY ARR	YS STOP VALVE									

1-SW-MOV-1218	11715-CBM-078H	1 OF 1 B7	MO BFLY	18.000	3	В		EV ST	0			

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VAL VE HUMBER	DRAWING NUMBER	SHEET			VALVE SIZE		7.5			POS			
1-SW-MOV-121B	11715-СВМ-078Н	1 OF 1	87	MO BFLY	18.000	3	В	*****	VP	ос	***		****
	SERVICE WATER	TO SPRAY	ARRAY	S STOP VALVE									
1-SW-MOV-122A	11715-СВМ-078Н	1 OF 1	C5		18.000	3		*****	EV ST VP	0 00	***		
	SERVICE WATER	TO SPRAY	ARRAY	S STOP VALVE	***								
1-SW-MCV-122B	11715-CBM-078H	1 OF 1	C6	MO BFLY	18.000	3	3	*****	EV ST VP	0 0 0c	***	****	****
	SERVICE WATER	TO SPRAY	ARRAY	S STOP VALVE	***								
1-SW-MOV-123A	11715-CBM-078H	1 OF 1	E4	MO BFLY	24.000	3	B	*****	EV ST VP	C C OC	***		****
	SERVICE WATER	BYPASS VA	LVE										
	11715-CBM-078H		E8	MO BFLY	24.000	3	8		EV ST VP	C C OC		****	
	SERVICE WATER	BYPASS VA	LVE										
1-SW-RY-100A	11715-CBM-078B			RELIEF VALVE		2	c	*****	SP	0	***	****	****
*************	RELIEF VALVE, I			the second second second second		*****							
1-SW-RV-100B	11715-CBM-0788					2	С		52	0			
	"8" RECIRC SPRA			O CONT SUMP	R								
1-SW-RV-100C	"C" RECIRC SPR/ RELIEF VALVE, I	AY HEAT E	XCHAN	IG SERVICE WATER	.750		С		SP	0			
1-SW-RV-1000	11715-CBM-078B		****		.750	2	 c	****	sp	0			****
	"D" RECIRC SPRA			G SERVICE WATER									
1-SW-TCV-102A	11715-CBM-078G		****		2.000	3	8		EV FS ST	0 0 0			****
	SERVICE WATER I			PUMP LUBE CIL									
1-SW-TCV-102B	11715-CBM-078G	1 OF 2	C6	AO GATE	2.000	3	В		EV FS ST	0 0		****	****

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							ISO			REL	cs	ALT	
VALVE	DRAWING	SHEET DRY	G VALVE	VALVE	ASME		VALVE	TEST	TEST	REQ	JUST	TEST	
NUMBER	NUMBER		OR TYPE	SIZE	2.5.00.0		-	TYPE	POS	V-	CSV-	VCN-	
*****	*****	******		*****	****		****					****	

	SERVICE WATER COOLER TEMP CO		NG PUMP LUBE 01	L									
***********	************	*********		**** ****	****	***		****		***			
1-SW-TCV-102C	11715-CBM-078G	1 OF 2 C8	AO GATE	2.000	3	B		EV	0				
								FS	0				
								ST	0				
	**********		***********	****									
	SERVICE WATER COOLER TEMP CO		IG PUMP LUBE OF	L									
**********						***			****	***			
2-SW-MOV-2158	11715-CBM-078A	1 OF 4 E6	MO BFLY	24.000	3	В		EV	0				
								ST	0				
								VP	OC				
	**********			****									
	SERVICE WATER	HEADER SUPPL	Y ISOLATION										
	VALVE FROM AUX	ILIARY SERVI	CE WATER PUMPS										
	***********									***	****	****	

I. IDENTIFICATION OF COMPONENTS

System : Safety Injection

Valve(s): 1-SI-9

1-SI-18 1-SI-26

Class : 2

II. IMPRACTICAL CODE REQUIREMENTS

Exercise valves every three months

III. BASIS FOR RELIEF

Due to system design, check valves 1-SI-9 and 26 are not in the Low Head Safety Injection Pump test flowpaths. They cannot be full or inst-stroke tested during power operation because the LHSI pumps cannot overcome reactor coolant system pressure. Valve 1-SI-18 can only be partial stroked every quarter because the quarterly test loop is a mini-flow loop.

During cold shutdown, the reactor coolant system pressure still prevents full flow testing of the check valves. Partial stroke exercising the valves with flow could cause an overpressurization condition during cold shutdowns.

To verify closure of Valves 1-SI-9 and 26, the low head safety injection system must be isolated which can only be done at reactor refueling. By isolating the system, the test boundary is established to demonstrate adequate seat tightness for the discharge valve to the non-running pump.

IV. ALTERNATE TESTING

Valves 1-SI-9 and 26 will be exercised to the full open and closed position every reactor refueling (not to exceed 24 months). Valve 1-SI-18 will be partial stroke tested every quarter and full flow tested every reactor refueling.

I. IDENTIFICATION OF COMPONENTS

System : Safety Injection

Valve(s): 1-SI-83 1-SI-195 1-SI-86 1-SI-197

1-SI-89 1-SI-199

Class : 1

II. IMPRACTICAL CODE REQUIREMENTS

Exercise valves every three months

III. BASIS FOR RELIEF

These Safety Injection check valves must open and close to fulfill their safety functions. They cannot be full or part-stroke exercised to the open position during power operation because this would thermally shock the injection system and cause unnecessary plant transients. Flow cannot be established in the low head injection lines during normal plant operation.

During cold shutdown, the Reactor Coolant System pressure still prevents full design flow. Also, a partial or full stroke test could cause an overpressurization of the Reactor Coolant System and force a safety system to function.

These valves can only be tested to the closed position by draining the lines and performing a back seat leak test. They are identified as pressure isolation valves in Technical Specification Table 3.4-1 and as such are leakage tested every reactor refueling outage.

With low head pump flow, the cold leg injection valves 1-SI-83, 86, 89, 195, 197 and 199 will be nonintrusively monitored using a sampling plan every reactor refueling.

The sampling plan will follow the recommended alternative testing method described in NUREG 1482, Section 4.1.2. Per this plan, the valves will be placed into two groups with valves 1-SI-83, 86 and 89 in one group, and valves 1-SI-195, 197 and 199 in the other group. During initial testing using nonintrusive techniques, each valve in the group will be verified as operable.

RELIEF REQUEST V-41 (Cont.)

During subsequent testing, nonintrusive verification will be performed for only one valve of the group on a rotating schedule each time the testing is performed, and the balance of the group will be flow tested. If problems are found with the sample valve that are determined to affect the operational readiness of the valve, all valves in the group must be tested using nonintrusive techniques during the same outage.

IV. ALTERNATE TESTING

Exercise to the open position using nonintrusive techniques every reactor refueling. Exercise to the closed position every reactor refueling per Technical Specification 4.4.6.2.2.

I. IDENTIFICATION OF COMPONENTS

System : Safety Injection

Valve(s): 1-SI-125 1-SI-144

1-SI-127 1-SI-159 1-SI-142 1-SI-161

Class : 1

II. IMPRACTICAL CODE REQUIREMENTS

Exercise valves for operability every three months

III. BASIS FOR RELIEF

These valves cannot be partial or full flow tested during normal operation because the accumulator pressure (600 to 650 psig) is below Reactor Coolant System pressure and the injection of borated water would upset the reactor coolant chemistry.

During cold shutdown, the RCS pressure may still prevent full flow testing. Also, discharging the accumulators would challenge the Low Temperature Overpressure Protection System.

A partial flow test is not practical during cold shutdowns. The flow from the accumulator is dependent on the pressure differential between the accumulator and the RCS. The pressure differential cannot be controlled to the fine degree necessary to preclude dumping too much water into the pressurizer, thus making it difficult to control pressurizer level while pressure is being reduced during cooldown. Also, the RCS temperature is high during short cold shutdowns. Dumping cold accumulator water into the RCS could thermally shock the system.

The accumulators must be isolated to verify closure using back flow for valves 1-SI-127, 144 and 161. The small increase in safety gained by performing the back seat check valve tests every cold shutdown versus every reactor refueling does not justify the added burden of the increased test frequency.

RELIEF REQUEST V-42 (Cont.)

The use of nonintrusive monitoring techniques are being evaluated for confirming full disk movement. If nonintrusive techniques can provide a "positive means" for verifying obturator movement, a sampling program will be used as described below due to the burden of applying these techniques in the field.

IV. ALTERNATE TESTING

During the first refueling outage where nonintrusive techniques are used, all valves in the group will be tested to verify that the techniques verify valve obturator movement. During subsequent refueling outages, flow testing will be performed on all valves in the group, but the nonintrusive techniques will be applied only to one sample valve in each group, on a rotating basis, unless indications of problems are identified. In this case, all valves in the group will be subjected to the nonintrusive techniques. Valves 1-SI-127, 144 and 161 are closest to the reactor coolant system and will be in one group, and valves 1-SI-125, 142 and 159 will be in the other group. This sampling plan will follow the recommended alternative testing method described in NUREG 1482, Section 4.1.2.

The flow test will consist of discharging the accumulator from an initial pressure that is less than 600 psig. Discharging the accumulator at a lower initial pressure reduces the severity of the transient and the risk of adverse effects on the reactor coolant system. The low pressure test should provide enough flow to force the disk to the full open position.

If full disk movement cannot be confirmed using nonintrusive monitoring during the initial verification of obturator movement, these valves will be placed into two groups and one valve from each group will be disassembled and inspected every other reactor refueling. The justification for the extended disassembly and inspection schedule is available at the station.

Valves 1-SI-127, 144 and 161 will be confirmed closed every reactor refueling.

I. IDENTIFICATION OF COMPONENTS

System : Safety Injection

Valve(s): 1-SI-79 1-SI-185 1-SI-211 1-SI-90 1-SI-201 1-SI-213 1-SI-95 1-SI-206 1-SI-99 1-SI-207 1-SI-103 1-SI-209

Class : 1 for 1-SI-90, 95, 99, 103, 201, 209,

211 and 213

2 for 1-SI-79, 185, 206, 207

II. IMPRACTICAL CODE REQUIREMENTS

Exercise valves every three months

III. BASIS FOR RELIEF

These Safety Injection check valves must open and close to fulfill their safety function. They cannot be full or part-stroke exercised to the open position during power operation because this would cause safety injection flow into the Reactor Coolant System which would thermally shock the injection system and cause unnecessary plant transients. Flow cannot be established in the low head injection lines during normal plant operation.

During cold shutdown, the Reactor Coolant System pressure still prevents full design flow. Also, a partial or full stroke test could cause an overpressurization of the Reactor Coolant System and force a safety system to function.

These valves can only be tested to the closed position by a back seat leak test, which requires draining the lines.

With low head pump flow, the hot leg injection valves 1-SI-95, 99, 103, 209, 211 and 213 will be nonintrusively monitored using a sampling plan every reactor refueling. The sampling plan will follow the recommended alternative testing method described in NUREG 1482, Section 4.1.2.

RELIEF REQUEST V-43 (Cont.)

During subsequent testing, nonintrusive verification will be performed for only one valve of the group on a rotating schedule each time the testing is performed, and the balance of the group will be flow tested. If problems are found with the sample valve that are determined to affect the operational readiness of the valve, all valves in the group must be tested using nonintrusive techniques during the same outage.

IV. ALTERNATE TESTING

Exercise to the open and closed positions every reactor refueling.

2-69a

RELIEF REQUEST V-50 Relief Request Withdrawn

I. IDENTIFICATION OF COMPONENTS

System : Chemical & Volume Control System

Valve(s): 1-CH-215

1-CH-649

Class : 2

II. IMPRACTICAL CODE REQUIREMENTS

Exercise valve closed every three months

III. BASIS FOR RELIEF

Due to the plant configuration, these valves cannot be verified closed using flow. The only method to verify closure other than disassembly and inspection is to perform a leak rate/back pressure test on each valve.

During normal operation, these valves cannot be isolated to perform a back pressure test because normal letdown and charging flow, and reactor coolant pump seal flow would be interrupted. Also, if the valves were isolated during normal operation, the charging pumps would have to be secured.

These valves are also subject to leak testing, which is performed every reactor refueling. Verification of closure will be performed during the leak test every reactor refueling instead of every cold shutdown because the small increase in safety gained by testing during cold shutdown does not justify the burden of performing a leak rate test.

IV. ALTERNATE TESTING

Exercise to the closed position every reactor refueling.

Replaced by Cold Shutdown Justification CSV-46

I. IDENTIFICATION OF COMPONENTS

System : Chemical and Volume Control and

Safety Injection

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

1-CH-MOV-1115D 1-SI-MOV-1885B 1-SI-47 1-SI-MOV-1885C

1-SI-MOV-1885D

Class : 2

II. IMPRACTICAL CODE REQUIREMENTS

IWV-3427 (a) - Valves with leakage rates exceeding either the values specified by the Owner or those rates given in IWV-3426 shall be replaced or repaired.

III. BASIS FOR RELIEF

Valves 1-CH-MOV-1115B and D, and 1-SI-47 are in the supply line to the charging pumps from the RWST. Valves 1-SI-MOV-1885A, B, C and D are on test lines that run from the discharge of the low head SI pumps to the RWST. During recirculation mode transfer, the RWST is isolated and the low head SI pumps recirculate highly contaminated water from the containment sump to the reactor vessel.

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

IV. ALTERNATE TESTING

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

COLD SHUTDOWN JUSTIFICATION CSV-20 Cold Shutdown Justification withdrawn

I. IDENTIFICATION OF COMPONENTS

System : Chemical and Volume Control

Valve(s): 1-CH-252

1-CH-264 1-CH-277 1-CH-649

Class : 2

II. COLD SHUTDOWN JUSTIFICATION

These check valves must open to allow charging pump recirculation. There is no permanently mounted instrumentation to measure full flow in the recirculation flow path. Therefore, full flow conditions will have to be measured by using temporary ultrasonic flow instrumentation. The ultrasonic flow transducers and their mounting carriages must be installed and the transducers referenced to a no flow condition before each test. After each test, the equipment must be removed from the field and decontaminated if necessary. Therefore, use of the ultrasonic flow instrumentation is very labor intensive and not practical for quarterly testing.

Test experience has shown that the discharge pressure drop is undetectable when flow through the recirculation line is established in conjunction with normal charging. Therefore, quarterly partial flow testing is not verifiable.

2-135

Cold Shutdown Justification Withdrawn

I. IDENTIFICATION OF COMPONENTS

System : Service Water

Valve(s): 1-SW-MOV-108A

1-SW-MOV-108B

Class : 3

II. COLD SHUTDOWN JUSTIFICATION

These isolation valves are located in series on service water supply to the component cooling heat exchangers. The component cooling heat exchangers carry a majority of the heat load for the service water system. When the heat exchangers are isolated, service water flow decreases to less than 10% of normal flow. Due to the design of the service water pumps, the pumps experience harmful high-magnitude vibrations as the service water flow decreases through a range from 7000 gpm to 6000 gpm. These pumps cannot be stopped during the valve exercise test because they provide service water to other plant heat loads. Therefore, performing the valve exercise test as frequently as once every three months should be avoided due to the harmful affects that the testing has on the service water pumps.

The valve controllers do not allow for a partial-stroke exercise test. To reduce the harmful affects of high-magnitude vibrations on the service water pumps, the isolation valves will be full-stroke exercised on a cold shutdown frequency.

I. IDENTIFICATION OF COMPONENTS

System : Quench Spray

Valve(s): 1-QS-MOV-102A

1-QS-MOV-102B

Class : 2

II. COLD SHUTDOWN JUSTIFICATION

These normally closed six inch motor operated isolation valves are located in parallel flow paths from the refueling water chemical addition tank to the reactor water storage tank (RWST). The piping between the isolation valves and the chemical addition tank contains high concentrations of sodium hydroxide. To exercise the motor operated valves, downstream manual isolation valves must be closed to prevent the sodium hydroxide from entering the quench spray system and chemically contaminating the boric acid solution in the RWST.

After the motor operated isolation valves are stroked open and closed, the piping between the motor operated valves and the downstream manual isolation valves must be drained of sodium hydroxide. Approximately five gallons of highly caustic fluid are drained into a plastic container after each valve test. Draining the piping presents a significant personnel hazard. Sodium hydroxide causes severe burns if it comes in contact with the skin. The test personnel must wear rubber gloves, boots and face shields.

The drains are located outdoors and are near to the ground, which makes collection difficult. Any soil that is contaminated with sodium hydroxide must be neutralized by the test personnel. Partial stroke testing of these valves presents the same hazards as full stroke testing.

To reduce the number of times that test personnel are exposed to sodium hydroxide, the motor operated isolation valves will be tested on a cold shutdown frequency.

I. IDENTIFICATION OF COMPONENTS

System : Service Water

Valve(s): 1-SW-1067

1-SW-1070 1-SW-1139

Class : 3

II. COLD SHUTDOWN JUSTIFICATION

These normally open manual 1 inch (1-SW-1067 and 1070) and 1.5 inch (1-SW-1139) valves are closed within 24 hours of the accident as required by the abnormal operating procedures to prevent loss of service water in the event that the connected non-seismic pipe fails. These valves are located in an expansion joint vault outside the service water pump house. The vault is defined as a confined space due to possible consumption resulting from an expansion joint failure. Entry into this confined space requires an entry permit, an air meter and two operators (buddy system). Also, special tools are required to remove the manhole cover which weighs in excess of 300 lbs and is a missile barrier. Closing these valves would require securing the service water addition system which could adversely affect the biological agent concentration in the service water.

These manual valves remain in the open position during normal operation and are not subject to wear. Closing these valves every three months to fulfill quarterly testing requirements creates an undue burden with no compensating benefit to quality and safety. Exercising these valves on a cold shutdown test frequency (but not more frequently then once every three months), is adequate to demonstrate that the valves can be closed in the case where service water isolation is required.

I. IDENTIFICATION OF COMPONENTS

System : Residual Heat Removal

Valve(s): 1-RH-7

1-RH-15

Class : 2

II. COLD SHUTDOWN JUSTIFICATION

These RHR pump discharge check valves can only be partial-stroke or full-stroke exercised to the open position and verified closed when the RHR pumps 1-RH-P-1A and 1-RH-P-1B are running. The low pressure pumps take suction from and discharge to the reactor coolant system which operates at 2235 psig. This pressure is well above the operating pressure of the pumps, therefore, partial-stroke or full-stroke testing during normal operation is not practical. These valves will be full-stroke exercised every cold shutdown but not more frequently then every three months.

NON-CODE ALTERNATIVE TESTING VNC-1

I. IDENTIFICATION OF COMPONENTS

System : Service Air

Valve(s): 1-GN-225 1-IA-2152

1-GN-229 1-IA-2153

1-IA-2154 1-IA-2155

Class : NC

II. IMPRACTICAL CODE REQUIREMENTS

Exercise valves to the closed position every three months

Exercise each valve individually

III. BASIS FOR ALTERNATE TESTING

Due to the plant configuration, these valves cannot be verified closed using flow.

The only method to verify closure other than disassembly and inspection is to perform a local leak rate/back pressure test. To perform the leak rate/back pressure test, the normal instrument air and nitrogen supplies to the PORVs must be isolated. The PORVs are required to be operable during normal operation. Also, these valves are located inside containment and are inaccessible during normal operation.

These valves are also subject to leak testing, which is performed every reactor refueling. Verification of closure will be performed during the leak test every reactor refueling instead of every cold shutdown because the small increase in safety gained by testing during cold shutdown does not justify the burden of performing a back pressure test.

Valves 1-IA-2152 and 2153 are in series and valves 1-IA-2154 and 2155 are in series. There are no vents in between the two sets of valves; therefore, these valves cannot be individually back pressure tested or leak tested.

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

IV. ALTERNATE TESTING

Exercise to the closed position every reactor refueling.

Valves 1-IA-2152 and 2153, and valves 1-IA-2154 and 2155 will be back pressure/leak tested in groups. If the group of valves fails the test, both valves in the group will be subject to repair or replacement.

The leak test for valves 1-IA-2152, 2153, 2154 and 2155, and 1-GN-225 and 229 will consist of recording the nitrogen bottle pressure, waiting a given period of time and then recording the bottle pressure again. The results will be compared to appropriate acceptance criteria.

ATTACHMENT 3

SUMMARY OF CHANGES TO NORTH ANNA UNIT 2

IST PROGRAM REVISION 7

The following summary describes the changes to Revision 7 of the North Anna Unit 2 Inservice Testing (IST) Program Plan.

2.2.5 PUMP INSERVICE TESTING TABLE

UNIT 2 PUMP NUMBER

COMMENT/PROGRAM CHANGE

2-RH-P-1A 2-RH-P-1B

Program change: Test frequency was changed from every reactor refueling to every cold shutdown. Refer to relief request P-5.

2.2.6 PUMP INSERVICE TESTING RELIEF REQUESTS

UNIT 2 RELIEF REQUEST

COMMENT/STATUS

P-5

The test frequency for the RHR pumps was changed from every reactor refueling to every cold shutdown but not more frequently then every three months. Also, the hydraulic acceptance criteria will be based on a portion of the pump curve instead of a specific reference value. This change resulted from our response to Anomaly 2 in the NRC Safety Evaluation Report.

P-13

Service water pumps 2-SW-P-1A and B were deleted from this relief request. The discharge pressures are measured using gauges that meet Section XI accuracy requirements.

2.3.4 VALVE INSERVICE TESTING TABLE

Valves marked with an ' are being added to the IST Program.

UNIT 2 VALVE NUMBER

COMMENT/PROGRAM CHANGE

2-CH-495°

This check valve was installed on the header from the charging pump recirculation lines and the RCP seal water return line in response to the Westinghouse Nuclear Service Advisory Letter (NSAL) 92-012. This advisory identified the potential for leakage of contaminated sump water outside the containment via the RCP seal water heat exchanger relief valve to the volume control tank.

Program change: The valve was added to the IST program to be leak tested and tested closed every reactor refueling (refer to Relief Request V-73), and to be tested open every cold shutdown (refer to Cold Shutdown Justification CSV-39).

2-CH-MOV-2115B 2-CH-MOV-2115D 2-SI-18 2-SI-MOV-2885A 2-SI-MOV-2885B 2-SI-MOV-2885C 2-SI-MOV-2885D Relief Request V-76 was added for the RWST isolation valves to allow for the use of an evaluation instead of repair or replacement as corrective action if a valve exceeds it's permissible leakage limit.

Program change: Relief request V-76 was added.

2-HC-7

This non-Code class check valve is on the discharge line for the containment purge blower. The primary means of containment hydrogen control is by operation of the recombiners. Therefore, operation of the purge blowers is not critical to accident mitigation or recovery. This valve was carried in the IST program because of a Technical Specification surveillance requirement that could be interpreted as requiring the testing of the blower. This

requirement has since been clarified. There is no Technical Specification surveillance requirement. Deletion of this valve was approved by SNSOC on June 28, 1995.

Program change: The valve was removed from the IST program.

2-HC-69 This hydrogen analyzer discharge check valve was removed from the system along with the

analyzer.

Program change: The valve was removed from the IST program.

2-MS-19 These decay heat release stop

These decay heat release stop check isolation valves are now maintained closed with the stem on the disk. In this configuration, the valve disk does not have to change position to fulfill it's isolation function.

Therefore, the Code does not require the

valves to be tested.

Program change: The valves were removed from the IST program.

2-QS-MOV-202A 2-QS-MOV-202B

2-MS-58

2-MS-96

Testing valves quarterly presents a significant personnel hazard due to exposure to sodium hydroxide.

Program change: These valves will be tested on a cold shutdown frequency instead of quarterly. Refer to Cold Shutdown Justification CSV-44.

2-RH-7 2-RH-15 Program change: The test frequency for these RHR pump discharge check valves was changed from every reactor refueling to every cold shutdown but not more frequently then every three months. Relief Request V-75 was replaced by Cold Shutdown Justification CSV-45.

2-RH-FCV-2605 2-RH-HCV-2758 An engineering evaluation concluded that the simultaneous failure of the RHR heat exchanger bypass and discharge valves to go to their fail-safe positions on loss of

instrument air will not create a safety concern for achieving safe shutdown. Therefore, these valves need not be included in the IST program.

Program change: The valves were removed from the IST Program.

2-SI-91 2-SI-99 2-SI-105	Program change: Reference to using nonintrusive techniques and a sampling plan for verifying full-stroke of the cold leg safety injection check valves was added to Relief Request V-42.
2-SI-92 2-SI-100 2-SI-106	Program change: Reference to using nonintrusive techniques and a sampling plan for verifying full-stroke of the cold leg safety injection check valves was added to Relief Request V-44.
2-SI-112 2-SI-113 2-SI-117 2-SI-118 2-SI-124 2-SI-125	Program change: Reference to using nonintrusive techniques and a sampling plan for verifying full-stroke of the hot leg safety injection check valves was added to Relief Request V-45.
2-SI-151 2-SI-153 2-SI-168 2-SI-170 2-SI-185 2-SI-187	Program change: Reference to using a sampling plan with nonintrusive techniques for verifying full-stroke of the safety injection accumulator discharge check valves was added to Relief Request V-43. Also, the grouping of the valves was changed.
2-SI-MOV-2863B	Program change: The drawing reference was changed to 12050-CBM-096A.
2-SW-MOV-202A 2-SW-MOV-202B 2-SW-MOV-206A 2-SW-MOV-206B	Further evaluation resulting from the recent service water system review revealed that closing these service water cross-tie isolation valves is the preferred method for isolating an inoperable header.

Program change: Closure testing was added to the IST program.

2-SW-MOV-208A 2-SW-MOV-208B These isolation valves are located in series on the service water supply to the component cooling heat exchangers. Testing them every quarter creates a reduced flow condition for the service water pumps which in turn causes the pumps to experience harmful highmagnitude vibrations.

Program change: These valves will be tested on a cold shutdown frequency instead of quarterly. Refer to Cold Shutdown Justification CSV-43.

2.3.5 VALVE INSERVICE TESTING PROGRAM RELIEF REQUESTS

UNIT 2 RELIEF REQUEST

COMMENT/STATUS

V-39

The basis for relief was revised to indicate that the low head safety injection system must be isolated to perform closure testing on the check valves.

V-42

Reference to using nonintrusive techniques and a sampling plan for verifying full-stroke of the cold leg safety injection check valves was added. The alternative method described for using nonintrusive techniques described in NUREG 1482 will be followed.

According to NUREG 1482, "Relief is not required because this test method is considered an acceptable 'other positive means,' even if used on a rotating basis. However, if the recommended alternative methods of this section are implemented, the licensee must describe the implementation of this section in the IST program document." Even though relief is not required, use of the sampling plan is described in this relief request to satisfy the documentation requirement described above.

V-43

Reference to using a sampling plan with nonintrusive techniques for verifying full-

stroke of the safety injection accumulator discharge check valves was added. Also, the grouping of the valves was changed from valves 2-SI-170 and 187 in one group, and 2-SI-151, 153, 168 and 185 in the other group, to 2-SI-153, 170 and 187 in one group, and 2-SI-151, 168 and 185 in the other group. This change resulted from our response to Anomaly 6 in the NRC Safety Evaluation Report. The explanation for why the grouping was changed is included in our response. As described in the discussion for V-42, relief is not required for using the sampling plan.

V-44

Reference to using nonintrusive techniques and a sampling plan for verifying full-stroke of the cold leg safety injection check valves was added. As described in the discussion for V-42, relief is not required for using the sampling plan.

V-45

Reference to using nonintrusive techniques and a sampling plan for verifying full-stroke of the hot leg safety injection check valves was added. As described in the discussion for V-42, relief is not required for using the sampling plan.

V-51

Relief request is being withdrawn. The only valve (2-HC-7) in this relief request was removed from the IST program.

V-73

Check valve 2-CH-495 was installed on the header from the charging pump recirculation lines and the RCP seal water return line in response to the Westinghouse Nuclear Service Advisory Letter (NSAL) 92-012 and was added to this relief request for testing to the closed position. During normal operation, this valve cannot be isolated to perform a back pressure test because normal letdown and charging flow, and reactor coolant pump seal flow would be interrupted. Also, if the valve was isolated during normal operation, the charging pumps would have to be secured.

This valve is also subject to leak testing,

which is performed every reactor refueling. Verification of closure will be performed during the leak test every reactor refueling instead of every cold shutdown because the small increase in safety gained by testing during cold shutdown does not justify the burden of performing a leak rate test.

V-75

Relief request is being replaced by Cold Shutdown Justification CSV-45.

V-76

INTT 2

This relief request was added to the IST program and applies to the RWST isolation valves. In addition to replacement or repair as corrective actions, an evaluation can be performed which demonstrates that even if a valve has exceeded its permissible leakage rate, the overall leakage rate to the RWST will be maintained below the overall allowable RWST leakage rate. No repair or replacement is necessary if the evaluation is performed. The relief request was submitted to the NRC by letter dated April 26, 1994. Approval was granted by the NRC in the Safety Evaluation Report for the IST program dated October 18, 1994.

2.3.6 VALVE INSERVICE TESTING PROGRAM COLD SHUTDOWN JUSTIFICATIONS

COLD SHUTDOWN JUSTIFICATION	COMMENT/STATUS
CSV-20	Justification is being withdrawn because valves 2-RH-FCV-2605 and 2-RH-HCV-2758 were deleted from the IST Program.
CSV-39	Check valve 2-CH-495 was installed on the header from the charging pump recirculation lines and the RCP seal water return line in response to the Westinghouse Nuclear Service Advisory Letter (NSAL) 92-012 and was added to this cold shutdown justification for testing to the open position. Full flow conditions have to be measured by using

temporary ultrasonic flow instrumentation which is very labor intensive.

CSV-43

Justification is being added to the IST program. Valves 2-SW-MOV-208A and B are located in series on the service water supply to the component cooling heat exchangers. The component cooling heat exchangers carry a majority of the heat load for the service water system. When the heat exchangers are isolated, service water flow decreases to less than 10% of normal flow. Due to the design of the service water pumps, the pumps experience harmful high-magnitude vibrations as the service water flow decreases through a range from 7000 gpm to 6000 gpm. These pumps cannot be stopped during the valve exercise test because they provide service water to other plant heat loads. Therefore, performing the valve exercise test as frequently as once every three months should be avoided due to the harmful affects that the testing has on the service water pumps.

The valve controllers do not allow for a partial-stroke exercise test. To reduce the harmful affects of high-magnitude vibrations on the service water pumps, the isolation valves will be full-stroke exercised on a cold shutdown frequency.

CSV-44

Justification is being added to the IST program. The normally closed six inch motor operated isolation valves 2-QS-MOV-202A and B are located in parallel flow paths from the refueling water chemical addition tank to the reactor water storage tank (RWST). The piping between the isolation valves and the chemical addition tank contains high concentrations of sodium hydroxide. To exercise the motor operated valves, downstream manual isolation valves must be closed to prevent the sodium hydroxide from entering the quench spray system and chemically contaminating the boric acid solution in the RWST.

After the motor operated isolation valves are stroked open and closed, the piping between the motor operated valves and the downstream manual isolation valves must be drained of sodium hydroxide. Approximately five gallons of highly caustic fluid are drained into a plastic container after each valve test. Draining the piping presents a significant personnel hazard. Sodium hydroxide causes severe burns if it comes in contact with the skin. The test personnel must wear rubber gloves, boots and face shields.

The drains are located outdoors and are near to the ground, which makes collection difficult. Any soil that is contaminated with sodium hydroxide must be neutralized by the test personnel. Partial stroke testing of these valves presents the same hazards as full stroke testing.

To reduce the number of times that test personnel are exposed to sodium hydroxide, the motor operated isolation valves will be tested on a cold shutdown frequency.

Justification is being added to the IST

program. The RHR pump discharge check valves can only be partial-stroke or full-stroke exercised to the open position and verified closed when the RHR pumps 2-RH-P-1A and 2-RH-P-1B are running. The low pressure pumps take suction from and discharge to the reactor coolant system which operates at 2235 psig. This pressure is well above the

operating pressure of the pumps, therefore, partial-stroke or full-stroke testing during normal operation is not practical.

CSV-45

REPLACEMENT PAGES TO NORTH ANNA UNIT 2 IST PROGRAM REVISION 7

Pump	ASME	田 8 8	System	(1) Speed	Inlet	Differential Pressure	Flow	Vibration	Lube 0i1	Bear Temp.	Relief Request (P-)
2-FW-P-2	2	3	VAR.	0	0	0	0	0	0	N/A	1,16
2-FW-P-3A 3	34	0	VAR.	N/A	0	0	0	0	0	N/A	1,16
2-FW-P-3B 3	38	3	VAR.	N/A	0	0	0	0	0	N/A	1,16
2-0S-P-1A 2	1A	2	FIXED	N/A	0	0	0	0	0	N/A	1,16
2-0S-P-1B 2	118	2	FIXED	N/A	0	0	0	0	0	N/A	1,10
2-RH-P-1A 2	114	2	VAR.	N/A	CS	SO	CS	cs	CS	N/A	1,5,16
2-RH-P-1B		2	VAR.	N/A	CS	cs	CS	CS	CS	N/A	1,5,16
2-RS-P-1A 2	11		VAR.	N/A	RR	RR	RR	RK	N/A	N/A	1
2-RS-P-1B		2	VAR.	N/A	RR	RR	RR	RR	N/A	N/A	1
2-RS-P-2A		2	VAR.	N/A	2.X	2Y	2.Y	2Y	N/A	N/A	
2-RS-P-2B 2	28	2	VAR.	N/A	2Y	2 X	2.7	2 X	N/A	N/A	1
2-RS-P-3A	3A	3	VAR.	N/A	0	0	0	0	0	N/A	1,16
2-RS-P-3B 3 VAR.	38	9	VAR.	N/A	0	0	0	0	0	N/A	1,16

2-11

Revision 7 August 8, 1995

RELIEF REQUEST P-5

I. IDENTIFICATION OF COMPONENTS

System: Residual Heat Removal

Pump(s): 2-RH-P-1A

2-RH-P-1B

Class : 2

II. IMPRACTICAL CODE REQUIREMENTS

Frequency of Pump Test.

III. BASIS FOR RELIEF

The low pressure pumps take suction from and discharge to the Reactor Coolant System (RCS) which operates at 2235 psig. This pressure is well above the operating pressure of the pumps; therefore, testing during normal operation is not possible. Also, the pumps are located inside containment and are inaccessible during normal operation.

As a result of industry experience and NRC guidance (Generic Letter 88-17) concerning the loss of decay heat removal capability, North Anna Power Station practices a policy of minimizing perturbations to RHR pump flow and system configuration when decay heat must be removed during cold shutdowns and reactor refueling outages.

Therefore, to permit RHR pump testing and to minimize system perturbations during cold shutdown testing, the RHR pumps will be tested in a range of flows from approximately 2500 gpm to 4000 gpm (depending on the system flow at the time of the test), and the results will be compared to acceptance criteria based on that portion of the pump curve described above and the hydraulic acceptance criteria given in OM Part 6. The guidelines set forth in NUREG 1482, Section 5.2, "Use of Variable Reference Values for Flow Rate and Differential Pressure During Pump Testing," will be followed.

RELIEF REQUEST P-5 (Cont.)

If vibration is found to vary significantly over the range of flow rates, flow rate versus vibration velocity data for at least five points will be taken, and a curve fit for these data points will be determined. Using the fitted curve and the acceptance criteria for vibration testing in OM Part 6, acceptance criteria dependent on flow rate will be determined.

IV. ALTERNATE TESTING

These pumps will be tested every cold shutdown but not more frequently than once every three months. Acceptance criteria will be based on a portion of the pump curve and not on discreet reference values.

RELIEF REQUEST P-13

I. IDENTIFICATION OF COMPONENTS

System : Component Cooling

Chemical and Volume Control

Service Water

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

1-CH-P-1B 1-CC-P-1B 1-CH-P-1C 1-SW-P-4

Class : Class 2 for CH and Class 3 for CC and SW

II. IMPRACTICAL CODE REQUIREMENTS

Instrument Error

III. BASIS FOR REQUEST

Instruments used to measure certain pump parameters receive their signal at the equipment, which is transmitted to a process rack and then to a control room indicator. The sensor and rack accuracy can be affected by drift, temperature, and calibration accuracy. The indicator has a limit of accuracy. The total loop accuracy is found by the root sum of the squares. The only variables in this formula are the sensor calibration accuracy and the indicator accuracy. Installing new sensors and indicators to reduce the accuracy by one percent is not warranted by the increase in safety obtained.

The following instrument loops exceed the $\pm 2\%$ tolerance listed in Table IWP 4110-1.

Instrument	Component	Parameter	Accuracy
FI-1122	1-CH-P-1A,B,C	Flow	2.34%
FI-CC-100A	1-CC-P-1A	Flow	2.69%
FI-CC-100B	1-CC-P-1B	Flow	2.69%
PI-SW-110	1-SW-P-4	Discharge Pressure	2.61%

IV. ALTERNATE TESTING

None

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VALVE NUMBER	DRAWING NUMBER	SHEET		-			ASME CLASS			TEST	TEST	V-	CS JUST CSV-	ALT TEST VCN-
2-CH-208	12050-CBM-095B	2 OF 2	D7	CHECK	VALVE	3.000	2	c		CV	C	48 48	****	****
	"C" CHARGING P	UMP DISC	HARGE	CHECK	VALVE									
2-CH-260	12050-CBM-095C	2 OF 2	88	CHECK	VALVE	2.000	1	c	*****	cv	c	10	****	
	MAN RC PUMP SE				SIDE									
2-CH-284	12050-CBM-095C	2 OF 2	В7	CHECK	VALVE	2.000	1	c		cv	c	10	****	
	"B" RC PUMP SEA CONTAINMENT IS				SIDE									
2-CH-308	12050-CBM-095C					2.000	1	С		cv	С	10		
	"C" RC PUMP SEA CONTAINMENT ISC				SIDE									
2-CH-331	12050-CBM-095C	2 OF 2	F4	CHECK	VALVE	.750	2	AC	CIV	CV LT	C	10 59		****
	RC PUMP SEAL WA		JRN,	INSIDE	CONTAINMENT									
2-CH-332	12050-CBM-095C	1 OF 2	A5	CHECK	VALVE	2.000	1	AC	CIV	CV	C	10		****
	CHARGING SUPPLY				ER, INSIDE									
2-CH-335	12050-CBM-095C	1 OF 2	D4	CHECK	VALVE	3.000	2	AC	CIV	CV	C	10		****
	MAIN CHARGING S			INSI	DE CONTAIN-									
2-CH-495	12050-CBM-095B	1 OF 2	B6	CHECK	VALVE	2.000	2	AC	*****	cv	C	73	39	****
	CHARGING PUMP R				WATER									
2-CH-FCV-2113A	12050-CBM-095B	1 OF 2	C3	AO GA		1.000	3	В		EV FS ST VP	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	***		****
	ALTERNATE EMERG		MOITA	LINE										
2-CH-FCV-2114A	12050-СВМ-095В	1 OF 2	D4	AO GLO	DBE	1.000	3	В		EV FS ST VP	C C C		****	****
	PRIMARY GRADE W	ATER FLO	W CON	TROL V	/ALVE									
2-CH-FCV-2160	12050-CBM 095C	1 OF 2	A4	AO GLO)P"	2.000	2	AE	CIV	LT VP	C	•••	****	****

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VALVE NUMBER	DRAWING NUMBER	SHEET	COOR		SIZE	ASME				TEST	REL REQ V-	CS JUST CSV-	TEST VCN-
	CHARGING FLOW (R,								
2-CH-LCV-2460A	12050-CBM-095C	1 OF 2	F7	AO GLOBE	2.000	1	В		EV FS ST VP	C C C OC	***	5 5 5	****
	LETDOWN ISOLAT	ON VALVE											
2-CH-LCV-2460B	12050-CBM-095C	1 OF 2	F7	AO GLOBE	2.000	1	8	*****	EV FS ST VP	C C C C		5 5 5	****
	LETDOWN ISOLAT												
2-CH-MOV-2115B	12050-CBM-095B	2 OF 2	88	MO GATE	8.000	2	A	*****	EV LT ST	C C C C C C C C C C C C C C C C C C C	76	6 6 6	****
	CHARGING PUMP :			(
2-CH-MOV-2115C	12050-CBM-0958	1 OF 2	C6		4.000	2	В		EV ST VP	c c oc	***	6	****
	CHARGING PUMP S	SUPPLY 15	OLAT	ON FROM VOLUE	ME								
2-CH-MOV-2115D	12050-CBM-0958	2 OF 2	88	MO GATE	8.000	2	A		EV LT ST VP	C O C C O O O C	76	6 6 6	****
	CHARGING PUMP S				4								
2-CH-MOV-2115E	12050-CBM-095B	1 OF 2	C6	MO GATE	4.000	2	В		EV ST VP	C C OC	***	6	
	CHARGING PUMP S		OLAT	ON VALVE FROM	4								
2-CH-MOV-2267A	12050-CBM-095B "A" CHARGING PL AND VCT				6.000 RWST	2	E	*****	VP	ос	***	****	****
2-CH-MOV-2267B	12050-C8M-095B			**********	6.000 LHSI	2	E	****	VP	oc		****	****

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VALVE NUMBER	NUMBER		WG VALVE	VAL VE SIZE					POS	REL REQ V-	CS JUST CSV-	NC ALT TEST VCN-
2-CH-MOV-2269A	12050-CBM-0958	2 OF 2 C5	MO GATE	6.000	2	E		VP	ос	~**	****	****
	"B" CHARGING PU											
2-CH-MOV-22698	12050-CBM-0958		MO GATE	6.000		E		VP	ос		****	
	"B" CHARGING PU	MP SUCTION	ISOLATION FRO	M LHSI								
2-CH-MOV-2270A	12050-CBM-095B	2 OF 2 C7	MO GATE	6.000	2	Ε	*****	VP	oc			****
	"C" CHARGING PU	MP SUCTION	ISOLATION FRO	M RWST								
2-CH-MOV-2270B	12050-CBM-095B	2 OF 2 C7	MO GATE	6.000	2	F	*****	VP	oc	***	***	****
	"C" CHARGING PU					ē						
2 60 400 22764	12050 004 0050								****	***	****	****
2-CH-MOV-22/3A	12050-CBM-095B	2 OF 2 D4	MO GATE	2.000	2	B		EV	0			
								ST	C			
	************							VP	oc			
	"A" CHARGING PU LATION VALVE	MP MININUM	RECIRCULATION	180-								
2-CH-MOV-22758	12050-CBM-095B	2 OF 2 D5	NO GATE	2.000	2	8	*****	EV	C	***	****	
								ST	0 0			
								VP	oc			
	"B" CHARGING PU	MP MINIMUM	RECIRCULATION	180-								
2-CH-MOV-2275C	12050-CBM-095B	2 OF 2 D7	MO GAYE	2.000	2	8		EV	C	***	****	****
								ST	O			
								VP	0			
	****************	*********							00			
	"C" CHARGING PUR LATION VALVE	MP MINIMUM	RECIRCULATION	150-								
2-CH-MOV-2286A	12050-CBM-095B	2 OF 2 E4	MO GATE	3.000	2	В		EV	C	***	****	****
								ST	C			
								VP	OC			
	"A" CHARGING PU	MP MAIN DIS	CHARGE ISOLATI	ION								
2.CK-MOV-22840	12050-CBM-095B	2 05 2 54	WO 04**	7 000				****			****	****
E CH HOY EZOOB	15030-CBM-0328	E UF Z E6	MO GATE	3.000	2	8		EV	0			
								ST	0			
								VP	OC			

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VALVE NUMBER	DRAWING NUMBER	SHEET			VALVE	CLASS	7.37	ISO VALVE TYPE	TEST	TEST	REL REQ V-	CS JUST CSV-	ALT TEST VCN-
	"B" CHARGING PU	MP MAIN	DISCH	MARGE ISOLATION	***								
2-CH-MOV-2286C	12050-CBM-0958	2 OF 2	E7	MO GATE	3.000	2	В		EV	C	***		****
									ST VP	0			
	"C" CHARGING PU	MP MAIN	DISCH	ARGE ISOLATION	**								
2-CH-MOV-2287A	12050-CBM-095B	5 UE 3	n4	MO GATE	3.000	2	8	*****	EV ST	C O C	***	****	****
	"A" CHARGING PU			AND LOOP FILL					VP	ос			
2-CH-MOV-22878	12050-CBM-095B	2 OF 2 I	06	MO GATE	3.000	2	В	*****	EV ST	0 0	***	****	****
	************								VP	OC			
	"B" CHARGING PU DISCHARGE ISOLA			AND LOOP FILL									
2-CH-MOV-2287C	12050-CBM-095B	2 OF 2 I	07	MO GATE	3.000	2	В		EV ST VP	C O C O		****	****
	"C" CHARGING PU DISCHARGE ISOLA			AND LOOP FILL	••								
2-CH-MOV-2289A	12050-CBM-095C	1 OF 2 (04	MO GATE	3.000	2	A	CIV	EV LT ST VP	C C C C	***	7	****
	MAIN CHARGING H CONTAINMENT ISO	EADER ISO	DLATI	ON VALVE, OUTSI	DE								
2-CH-MOV-2289B	12050-CBM-095C	1 OF 2 E	33	MO GATE	3.000	2	В		EV ST VP	C C OC	***	7	****
	MAIN CHARGING H	EADER ISC	DLATI	ON VALVE, OUTSI	DE								
2-CH-MOV-2350	12050-CBM-0958	1 OF 2 E	35	MC GATE	2.000	2	В		EV ST VP	0 00	***	4	****
	EMERGENCY BORAT	ON TO CH	ARGI	NG PUMP SUCTION	**								
2-CH-MOV-2373	12050-CBM-0958	1 OF 2 A	8	MO GATE	3.000	2	 E		VP	OC	***	****	****

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VALVE NUMBER	DRAWING NUMBER	SHEET DRWG NUMBER COCR		VALVE SIZE		CAT			TEST	REQ	CS JUST CSV-	NC ALT TEST VCN-
	CHARGING PUMP I	RECIRCULATION	HEADER ISOLATIO	N								
2-CH-MOV-2380	12050-C8M-095C	2 OF 2 F4	MC GATE	3.000	2	A	CIV	EV LT ST VP	C C C OC	9 59 9		
	REACTOR COOLANT											
2-CH-MOV-2381	12050-CBM-095B	1 OF 2 C8	MO GATE	3.000	2	A	CIV	EV LT ST VP	C C C OC	9	****	****
	REACTOR COOLANT		ATER RETURN, OUT									
2-CH-RV-2203	12050-CBM-095C	1 OF 2 F3	RELIEF VALVE	2.000	2	c		SP	0	***	****	****
	DISCHARGE TO PE		AM OF REGEN HX, I LIEF TANK	RV								
2-CH-RV-23828	12050-CBM-0958	1 OF 2 C7	RELIEF VALVE	2.000	2	С		SP	0	***	****	****
	SEAL WATER HEAT DISCHARGE TO VO											
2-CH-TV-2204A	12050-CBM-095C	1 OF 2 E3		2.000		A	CIV	EV FS LT ST VP	C C C C	***	5 5 5	****
	CONTAINMENT ISC											
2-CH-TV-2204B	12050-CBM-095A	2 OF 2 C3	AO GLOBE	3.000	2	A	CIV	EV FS LT ST VP	c c c c	***	5 5 5	****
	LETDOWN CONTROL											

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VALVE HUMBER	DRAWING NUMBER	SHEET DRWG	G VALVE		ASME CLASS				TEST	REL REQ V-	CS JUST CSV-	ALT TEST VCN-
2-HC-015	11715-CBM-106A	1 OF 4 E3	CHECK VALVE	2.000	2	AC	CIV	CV	0 0	20		
			IT 1 HYDROGEN ANA									
2-HC-020	11715-CBM-106A	2 OF 4 E4	CHECK VALVE	2.000	2	AC	CIV	CV	C	20	****	
			T 2 HYDROGEN ANA									
2-HC-068	11715-CBM-106A	2 OF 4 C5	CHECK VALVE	.375	NC	c	*****	CV	0		****	****
	HYDROGEN ANALY	ZER DISCHARGE	CHECK VALVE									
2-HC-TV-200A	11715-CBM-106A	1 OF 4 E3	SO GLOBE	.375	2	A	CIV	EV FS LT ST	C C C C C C C C C C C C C C C C C C C	55 55	****	****
			1 HYDROGEN ANA- ISOLATION VALVE									
2-HC-TV-200B	11715-CBM-106A	1 OF 4 E4	SO GLOBE	.375	2	A	CIV	EV FS LT ST	00000	55	****	****
			1 HYDROGEN ANA- ISOLATION VALVE					VP	OC			
2-HC-TV-201A	11715-CBM-106A	1 OF 4 D4	SO GLOBE	.375	2	A	CIV	EV FS LT ST	C C C C C C C C C C C C C C C C C C C	55 55	****	****
	RETURN ISOLATIO		1 HYDROGEN ANA- DE CONT ISOL VALV	Æ								
2-HC-TV-2018	11715-CBM-106A	1 OF 4 D4	SO GLOBE	.375	2	A		EV FS LT ST	00000	55	****	****
	***********	*********						VP	o oc	55		
	RETURN ISOLATIO LYZERS TO UNIT	N FROM UNIT 2 CONT, OUTSI	1 HYDROGEN ANA- DE CONT ISOL VALV	E								
2-HC-TV-202A	11715-CBM-106A	2 OF 4 E4	SO GLOBE	.375	2	A	CIV	EV	C			

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VALVE NUMBER	DRAWING NUMBER	SHEET (ASME CLASS		I SO VAL VE TYPE	TEST	TEST	REL REQ V-	CS JUST CSV-	ALT TEST VCN-
2-HC-TV-202A	11715-CBM-106A	2 OF 4 I	E4	SO GLOSE	.375	2	A	CIA	EV FS LT ST	0 C C C O	55 55		
	UNIT 2 SAMPLE I				**								
2-HC-TV-2028	11715-CBM-106A	2 OF 4 I	E4	SO GLOSE	.375	2	A	CIV	EV FS LT ST	000000000000000000000000000000000000000	55 55	****	****
	UNIT 2 SAMPLE L LYZERS, OUTSIDE			HYDROGEN ANA- ISOLATION VALVE									
2-HC-TV-203A	11715-CBM-106A	2 OF 4 (03	SO GLOBE	.375	2	A	CIV	FS LT ST	C	55 55		
	RETURN ISOLATIO			HYDROGEN ANA- DE CG#T ISOL VAL	VE								
2-HC-TV-203B	11715-CBM-106A	2 OF 4 I	03	SO GLOBE	.375	2	A	CIV	EV FS LT ST	C	55	****	
	RETURN ISOLATION LYZERS TO UNIT			HYDROGEN ANA-	VE								
2-HC-TV-204A	11715-CBM-106A	4 OF 4 I	F4	AO GLOBE	2.500	2	A	CIV	EV FS LT ST	C	55	••••	****
				TO N1 HYDRO RE-									
2-HC-TV-204B	11715-CBM-106A	4 OF 4 I	F5	AO GLOBE	2.500	2	A	CIV	EV FS LT ST	000000000000000000000000000000000000000	55 55		

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VALVE NUMBER	DRAWING NUMBER	SHEET DRW		VALVE	ASME CLASS		1000		TEST	REL REQ V-	The second second	
			NT TO N1 HYDRO RE									
2-HC-TV-205A	11715-CBM-106A	1 OF 4 E4	AO GLOBE	2.500	2	A	CIV	EV FS LT ST	00000	55	****	
	RETURN ISOLATIO	ON FROM UNIT	1 HYDROGEN RECOM	 B				VP	oc	55		
			DE CONT ISOL VAL									
2-HC-TV-2058	11715-CBM-106A	1 OF 4 E5	AC GLOBE	2.500	2	A	CIV	FS LT ST VP	000000000000000000000000000000000000000	55 55		
			1 HYDROGEN RECOM DE CONT ISOL VAL									
2-HC-TV-206A	11715-CBM-106A	4 OF 4 F3	AO GLOBE	2.500	2	A	CIV	EV FS LT ST	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	55 55	****	****
			N1 CONT ATMO PUR SIDE CONT ISOL V									
2-HC-TV-206B	11715-CBM-106A	4 OF 4 F3	AO GLOBE	2.500	2	A	CIV	EV FS LT ST	C C C C C C C C C C C C C C C C C C C	55 55	••••	****
	UNIT 1 SUPPLY I BLOW & N2 HYDRO	SOLATION TO RECOMB, OUT	N1 CONT ATMO PUR SIDE CONT ISOL V	GE LV								
2-HC-TV-207A	11715-CBM-106A	2 OF 4 E3	AO GLOBE	2.500	2	A		EV FS LT ST VP	C	55 55	****	****
***********	RETURN ISOLATIO & ANAL TO UNIT2	N FROM UNIT	2 HYDROGEN RECORDE CONT ISOL VALV	AB VE								
2-HC-TV-207B	11715-CBM-106A	2 OF 4 E3	AO GLOBE	2.500	2	A		EV FS LT ST	0 0 0		••••	****

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													NC	
VALVE NUMBER	DRAWING NUMBER	SHEET DR	MG VALVE		ALVE IZE	ASME CLASS	-		TEST TYPE	TEST	REL REQ V-	CS JUST CSV-	ALT TEST VCN-	
2-HC-TV-207B	11715-CBM-106A	2 OF 4 E3	AO GLOS	E 2	.500	2	A	CIA	ST VP	O OC	55	****	****	
	RETURN ISOLATIO & ANAL TO UNIT2													
2-HC-TV-208A	11715-CBM-106A	3 OF 4 E3	SO GLOS	E	.375	2	A	CIV	EV FS LT ST VP	C C C C	55	****	****	
	UNIT 2 SAMPLE L INSIDE CONTAINM			WEL,										
2-HC-TV-2088	11715-CBM-106A	3 OF 4 E4	SO GLOS	E	.375	2	A	CIV	EV FS LT ST VP	C C C C	55	****	****	
	UNIT 2 SAMPLE L OUTSIDE CONTAIN													
							***	*****	****	****	***	****	****	

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VALVE NUMBER	NUMBER	NUMBER COO	G MALVE R TYPE	VALVE	CLASS	CAT	TYPE	TYPE		REL REQ V-	CS JUST CSV-	NC ALT TEST VCN-
2-MS-018	12050-C8M-0708	1 OF 3 B7	MANUAL GATE		2	8		EV	c	***	****	****
	MAIN STEAM TO LINE ISOLATION		EDWAYER TURBINE									
2-MS-057	12050-CBM-0708	2 OF 3 B7	MANUAL GATE	3.000	2	8	*****	EV	c	***	****	***
	MAIN STEAM TO LINE ISOLATION		EDWATER TURBINE									
2-MS-095	12050-CBM-070B	3 OF 3 B7	MANUAL GATE	3.000	2	8	*****	EV	c	***	****	****
	MAIN STEAM TO LINE ISOLATION		EDWATER TURBINE									
2-MS-117	12050-CBM-070A	3 OF 3 F7	CHECK VALVE	3.000	2	c	*****	cv	c 0	***	****	****
	"C" MAIN STEAM TURBINE DRIVEN	HEADER SUPPL	Y CHECK VALVE TO)								
2-MS-119	12050-CBM-070A	3 OF 3 F7	CHECK VALVE	3.000	2	С	****	cv	C 0	***	****	****
	"B" MAIN STEAM TURBINE DRIVEN		Y CHECK VALVE TO)								
2-MS-121	12050-CBM-070A	3 OF 3 E7	CHECK VALVE	3.000	2	c	*****	cv	C	***		****
	"A" MAIN STEAM TURBINE DRIVEN	HEADER SUPPL AUXILIARY FE	Y CHECK VALVE TO									
2-MS-NRV-201A	12050-CBM-070B	1 OF 3 D3	CHECK VALVE	32.000	2	c	****	CV VP	C	•••	13	****
	"A" MAIN STEAM	HEADER NON-R	ETURN VALVE	**								
2-MS-NRV-201B	12050-CBM-070B	2 OF 3 D3	CHECK VALVE	32.000	2	c			c	•••	13	
	"B" MAIN STEAM	WEADED NON-D	ETIIDA VALVE					VP	oc			
	D PANTA DIEAM	HEADER NON-K	ETORN VALVE									
2-MS-NRV-201C	12050-CBM-0708	3 OF 3 D3			2	c		CV	C	***	13	****
	"C" MAIN STEAM	HEADER NON-R	ETURN VALVE									
2-MS-PCV-201A	12050-CBM-070B	1 OF 3 E5	AO ANGLE	6.000	2	В		EV	c 0	***	****	****
								FS	000			
		***********					- 1	VP	oc			
	"A" MAIN STEAM PRESSURE CONTRO	HEADER DISCH	ARGE TO ATMOSPHE									
2-MS-PCV-2018	12050-CBM-070B	2 OF 3 E6	AO ANGLE	6.000	2	В		EV	C	***	****	****

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VAL VE NUMBER	DRAWING NUMBER	SHEET DR		SIZE	E ASME CLASS				POS	REL REQ V-	JUST CSV-	1000
2-MS-PCV-201B		2 OF 3 E6	AO ANGLE	6.00		В	*****	ST	C	* - *	****	****
	**********	*********						VP	OC			
	"B" MAIN STEAM PRESSURE CONTR		CHARGE TO	ATMOSPHERE								
2-MS-PCV-201C	12050-CBM-070B	3 OF 3 D5	AO ANGLE	6.00	2	В	*****		c 0	***	****	****
								FS	C			
								VP	OC			
	"C" MAIN STEAM PRESSURE CONTRO		HARGE TO A	TMOSPHERE								
2-MS-SV-201A	12050-CBM-0708	1 OF 3 E6	SAFETY V	ALVE 6.000	2	C	*****	SP	0		****	****
	"A" MAIN STEAM DISCHARGE TO AT		TY VALVE,	sv								
2-MS-SV-201B	12050-CBM-0708	2 OF 3 D6	SAFETY V	ALVE 6.000	2	· · · ·	****	SP	0	***	****	****
	"B" MAIN STEAM DISCHARGE TO AT	HEADER SAFE		*******				ar .				
2-MS-SV-201C	12050-CBM-G708			*******	2	С		SP	0			
	DISCHARGE TO AT		IT VALVE,	50								
2-MS-SV-202A	12050-CBM-0708	1 OF 3 E5	SAFETY V	ALVE 6.000	2	C		SP	0	***	****	****
	"A" MAIN STEAM DISCHARGE TO AT		TY VALVE,	SV								
2-MS-SV-2028	12050-CBM-070B	2 OF 3 D5	SAFETY V	ALVE 6.000	2	c		SP	0		****	
	"B" MAIN STEAM DISCHARGE TO AT		TY VALVE,	sv								
2-MS-SV-202C	12050-CBM-0708	3 OF 3 D6	SAFETY V	ALVE 6.000	2	c		SP	0	***	****	
	"C" MAIN STEAM DISCHARGE TO AT		TY VALVE,	sv								
2-MS-SV-203A	12050-CBM-0708	1 OF 3 E6	SAFETY V	ALVE 6.000	2	c		SP	0			****
	"A" MAIN STEAM DISCHARGE TO AT		TY VALVE,	sv								
2-MS-SV-203B	12050-CBM-070B	2 OF 3 D5	SAFETY V	ALVE 6.000	2	c		SP	0		****	****
	"B" MAIN STEAM DISCHARGE TO AT	HEADER SAFE	Y VALVE, S	SV								
2-MS-SV-203C	12050-CBM-070B	3 OF 3 D6	SAFETY VA	ALVE 6.000	2	c		SP	0		****	
	"C" MAIN STEAM DISCHARGE TO AT		Y VALVE, S	SV								
2-MS-SV-204A	12050-CBM-0708	1 OF 3 F6	SAFETY V	UVF 6 000	2						****	
			A	0.000			-	31	0			

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VALVE NUMBER	DRAWING NUMBER	SHEET DRW		VALVE SIZE	ASME CLASS		ISO VALVE TYPE	TEST TYPE	TEST	REL REQ V-	CS JUST CSV-	NC ALT TEST VCM-
	"A" MAIN STEAM DISCHARGE TO A		TY VALVE, SV									
2-MS-SV-2048	12050-CBM-070B	2 OF 3 D6	SAFETY VALVE	6.000	2	c	*****	SP	0	***	****	****
	"B" MAIN STEAM DISCHARGE TO A	TMOS										
2-MS-SV-204C	12050-ÇBM-0708		SAFETY VALVE	6.000	2	C	*****	SP	0	***	****	****
	"C" MAIN STEAM DISCHARGE TO A		TY VALVE, SV									
2-MS-SV-205A	12050-CBM-0708	1 OF 3 E5	SAFETY VALVE	6.000	2	c		SP	0		****	****
	"A" MAIN STEAM DISCHARGE TO A	Transfer of the Control of the Contr	TY VALVE, SV									
2-MS-SV-2058	12050-CBM-0708	2 OF 3 D5	SAFETY VALVE	6.000	2	c	*****	SP	0	***	****	****
	"B" MAIN STEAM DISCHARGE TO A		TY VALVE, SV									
2-MS-SV-205C	12050-CBM-0708	3 OF 3 D5	SAFETY VALVE	6.000	2	c		SP	0	***	****	****
	"C" MAIN STEAM DISCHARGE TO A		TY VALVE, SV									
2-MS-TV-201A	12050-CBM-070B	1 OF 3 D4	AO DISC	32.000	2	В		EV FS ST VP	C C C	***	16 16 16	****
	"A" MAIN STEAM	HEADER TRIP	V/ .VE	****								
2-MS-TV-201B	12050-CBM-070B	2 OF 3 C4	AO DISC	32.000	2	В		EV FS ST VP	C C C	***	16 16 16	****
	"B" MAIN STEAM	HEADER TRIP	VALVE	****								
2-MS-TV-201C	12050-CBM-0708	3 OF 3 C4	AO DISC	32.000	2	8	*****	EV FS ST VP	C C C C		16 16 16	****
	"C" MAIN STEAM	HEADEN TRIP	VALVE									
2-MS-TV-209	12750-CBM-070A	3 OF 3 D3	AO GLOBE	3.000	2	8		EV FS ST VP	c c c		14 14 14	
	MAIN STEAM HIGH CONDENSER	PRESSURE DA	AIN ISOLATION	то								
2-MS-TV-210	12050-CBM-0706	3 OF 3 A4	AO GLOSE	1.500	2	В		EV FS	C	***	****	

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2-MS-TV-210 12050-CBM-070B 3 OF 3 A4 A0 GLOBE 1,500 2 B VP OC MAIN STEAM HIGH PRESSURE DRAIN HEADER ISO- LATION ITO STEAM GENERATOR BLOADDONN SYSTEM 2-MS-TV-211A 12050-CBM-070A 3 OF 3 E5 A0 GLOBE 3.000 2 B EV C	VALVE NUMBER	DRAWING NUMBER	SHEET DE	OOR TYPE	VALVE	CLASS		ISO VALVE TYPE	TEST	TEST	REQ V-	CS JUST CSV-	NC ALT TEST VCN-
2-MS-TV-211A 12050-CBM-070A 3 OF 3 E5 AO GLOGE 3.000 2 B EV C O ST C C WP OC ST C C WP OC ST C C WP OC ST C C C ST C C WP OC ST C C C ST C C	2-MS-TV-210				***	2	В		VP	ОС			
FS 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		MAIN STEAM HIGH LATION TO STEAM	H PRESSURE H GENERATOR	DRAIN HEADER ISO- BLOWDOWN SYSTEM									
MAIN STEAM SUPPLY TRIP VALVE TO TURBINE 2-MS-TV-2118 12050-CBM-070A 3 OF 3 E4 AO GLOBE 3.000 2 B EV C MAIN STEAM SUPPLY TRIP VALVE TO TURBINE DRIVEN AUXILIARY FEEDMATER PUMP 2-MS-TV-213A 12050-CBM-070B 1 OF 3 D4 AO GLOBE 3.000 2 B EV C 34 ST C 34 ST C 34 VP OC "A" MAIN STEAM TRIP BYPASS VALVE 2-MS-TV-213B 12050-CBM-070B 2 OF 3 D4 AO GLOBE 3.000 2 B EV C 34 ST C 34 VP OC "B" MAIN STEAM TRIP BYPASS VALVE 2-MS-TV-213C 12050-CBM-070B 3 OF 3 D4 AO GLOBE 3.000 2 B EV C 34 VP OC "B" MAIN STEAM TRIP BYPASS VALVE 2-MS-TV-213C 12050-CBM-070B 3 OF 3 D4 AO GLOBE 3.000 2 B EV C 34 ST C 34 VP OC "C" MAIN STEAM TRIP BYPASS VALVE	2-MS-TV-211A	12050-CBM-070A	3 OF 3 E	AO GLOBE	3.000	2	В		FS	0 0 0	***	****	****
2-MS-TV-213B 12050-CBM-070B 1 OF 3 D4 AO GLOBE 3.000 2 B EV C ST C VP OC ST C S									VP	OC			
### MAIN STEAM TRIP BYPASS VALVE 2-MS-TV-213C 12050-CBM-070B 3 OF 3 D4 AO GLOBE 3.000 2 B EV C 34 "B" MAIN STEAM TRIP BYPASS VALVE 2-MS-TV-213C 12050-CBM-070B 3 OF 3 D4 AO GLOBE 3.000 2 B EV C 34 "B" MAIN STEAM TRIP BYPASS VALVE 2-MS-TV-213C 12050-CBM-070B 3 OF 3 D4 AO GLOBE 3.000 2 B EV C 34 "B" MAIN STEAM TRIP BYPASS VALVE 2-MS-TV-213C 12050-CBM-070B 3 OF 3 D4 AO GLOBE 3.000 2 B EV C 34 "B" MAIN STEAM TRIP BYPASS VALVE 2-MS-TV-213C 12050-CBM-070B 3 OF 3 D4 AO GLOBE 3.000 2 B EV C 34 "C" MAIN STEAM TRIP BYPASS VALVE													
ST C OVP OC	2-MS-TV-2118	12050-CBM-070A	3 OF 3 E4	AO GLOBE	3.000	2	8	*****	EV			****	****
MAIN STEAM SUPPLY TRIP VALVE TO TURBINE DRIVEM AUXILIARY FEEDMATER PUMP 2-MS-TV-213A 12050-CBM-070B 1 OF 3 D4 AO GLOBE 3.000 2 B EV C 34 ST C 34 VP OC "A" MAIN STEAM TRIP BYPASS VALVE 2-MS-TV-213B 12050-CBM-070B 2 OF 3 D4 AO GLOBE 3.000 2 B EV C 34 ST C 34 ST C 34 VP OC "B" MAIN STEAM TRIP BYPASS VALVE 2-MS-TV-213C 12050-CBM-070B 3 OF 3 D4 AO GLOBE 3.000 2 B EV C 34 FS C 34 ST C 34 VP OC "B" MAIN STEAM TRIP BYPASS VALVE 2-MS-TV-213C 12050-CBM-070B 3 OF 3 D4 AO GLOBE 3.000 2 B EV C 34 FS C 3										C			
2-MS-TV-213A 12050-CBM-070B 1 OF 3 D4 AO GLOBE 3.000 2 B EV C 34 ST C 34 VP OC									VP	20			
ST C 34 ST C					•••								
"A" MAIN STEAM TRIP BYPASS VALVE 2-MS-TV-213B 12050-CBM-070B 2 OF 3 D4 AO GLOBE 3.000 2 B EV C 34 FS C 34 VP OC "B" MAIN STEAM TRIP BYPASS VALVE 2-MS-TV-213C 12050-CBM-070B 3 OF 3 D4 AO GLOBE 3.000 2 B EV C 34 FS C 34 ST C 34 FS C 34 ST C 34 S	2-MS-TV-213A	12050-CBM-070B	1 OF 3 D4	AO GLOSE	3.000	2	В	*****	FS ST	C		34	****
2-MS-TV-213B 12050-CBM-070B 2 OF 3 D4 AO GLOBE 3.000 2 B EV C 34 ST C 34 ST C 34 VP OC "B" MAIN STEAM TRIP BYPASS VALVE 2-MS-TV-213C 12050-CBM-070B 3 OF 3 D4 AO GLOBE 3.000 2 B EV C 34 ST C 35 ST C 36 ST C ST		***********							VP.	OC.			
2-MS-TV-213B 12050-CBM-070B 2 OF 3 D4 AO GLOBE 3.000 2 B EV C 34 ST C 34 VP OC		MAN MAIN STEAM	TRIP BYPAS	S VALVE									
2-MS-TV-213C 12050-CBM-070B 3 OF 3 D4 AO GLOBE 3.000 2 B EV C 34 FS C 34 ST C 34 ST C 34 VP OC	2-MS-TV-213B	12050-CBM-070B	2 OF 3 D4	AO GLOBE	3.000	2	В	*****	FS ST	C	***	34 34	
2-MS-TV-213C 12050-CBM-070B 3 OF 3 D4 AO GLOBE 3.000 2 B EV C 34 FS C 34 ST C 34 ST C 34 VP OC		HOR WALL OTTAK	**************************************		***								
FS C 34 ST C 34 VP OC "C" MAIN STEAM TRIP BYPASS VALVE 2-MS-TV-215 12050-CBM-070A 3 OF 3 C4 MECH TRIP VLV 3.000 3 E VP OC HAIN STEAM SUPPLY TRIP VALVE TO TURBINE		"B" MAIN STEAM	TRIP BYPAS	S VALVE									
"C" MAIN STEAM TRIP BYPASS VALVE 2-MS-TV-215 12050-CBM-070A 3 OF 3 C4 MECH TRIP VLV 3.000 3 E VP OC MAIN STEAM SUPPLY TRIP VALVE TO TURBINE	2-MS-TV-213C	12050-CBM-070B	3 OF 3 D4	AO GLOSE	3.000	2	8	*****	FS	C		34	****
MAIN STEAM SUPPLY TRIP VALVE TO TURBINE		"C" MAIN STEAM	TRIP BYPAS	S VALVE									
MAIN STEAM SUPPLY TRIP VALVE TO TURBINE	******										***		
DRIVEN AFW PUMP	2-MS-TV-215	MAIN STEAM SUPP	PLY TRIP VA		3.000	3	E		VP	ос			
***************************************		DKIVEN AFW PUMP											

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NC

VALVE NUMBER DRAWING NUMBER

ISO SHEET DRWG VALVE VALVE ASME INV VALVE TEST TEST REQ JUST TEST WIMBER COOR TYPE SIZE CLASS CAT TYPE TYPE POS V- CSV- VCN-

REL CS ALT

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VALVE NUMBER	DRAWING NUMBER	NUMBER COO	R TYPE	VALVE	CLASS	CAT	TYPE	TEST	TEST	RED	CS JUST CSV-	ALT TEST VCH-
	12050-CBM-091A	2 OF 4 D6	Mr CHECK ATA				A	cv	c	68		****
								LT	C			
	"A" QUENCH SPR ISOLATION CHEC	AY PLMP INSI										
2-95-022	12050-CBM-091A	2 OF 4 E6	AT CHECK ATA	8.000	2	AC	CIV	CV	C	68 68	****	****
	"8" QUENCH SPR/ ISOLATION CHECK		DE CONTAINMENT	•••				LT	С			
2-98-MOV-200A	12050-C84-091A	2 OF 4 A3	MO GATE	10.00	2	E		VP	oc	***	****	
		AY PUMP SUCT	ION ISOLATION VAL	VE								
2-QS-MOV-200B	12050-CBM-091A	2 OF 4 A3	NO G/	10.000	2	E		VP	oc		****	****
		Y PUMP SUCT										
2-QS-MOV-201A	12050-CBM-091A	2 OF 4 D5	MO ATE	8.000	2	Α	CIV	EV	c		****	****
								ST	C			
	MAN DUENCH SPRA	Y PUMP DISCH	ARGE ISOLATION	**				VP	oc			
			ISOLATION VALVE									
2-95-MOV-2018	12050-CB4-091A	2 OF 4 E5	MO GATE	8.000	2	A	CIV	EV	C			****
								LT ST	C			
								VP	OC.			
	"B" QUENCH SPRA VALVE, OUTSIDE	CONTAINMENT	ISOLATION VALVE									
-RS-MOV-202A			MO GATE	6.000	2	8		EV ST VP	0 0	***	44	****
	CHEMICAL ADDITI	ON TANK DISC	HARGE ISOLATION									
- QS - MOV - 2028	12050-CBM-091A	1 OF 4 D6	MO GATE	6.000	2	В		EV ST	0	***	44	****
	CHEMICAL ADDITION	ON TANK DISC	MARGE ISOLATION					VP	ОС			

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VALVE NUMBER		SHEET D			VALVE SIZE					TEST		CS JUST CSV-	ALT TEST VCN-
2-RH-007	12050-CBM-094A	1 OF 2 E	7	CHECK VALV	E 10.000	2	c		cv	c	***	45	****
	"A" RHR PUNP DI	SCHARGE C	HECK	VALVE	******					0		45	
2-RH-015	12050-CBM-094.\	1 OF 2 E	5	CHECK VALV	E 10.000	2	c	*****	cv	c	***	45 45	****
	"B" RHR PUMP D											42	
≥·RH-037	12050-CBM-094A	2 OF 2 C	4	MANUAL GAT	E 6.000	2	AE	CIV	LT	c		****	
	RHR SUPPLY ISOL												
2-RH-038	12050-CBM-094A	2 OF 2 D	3	MANUAL GAT	E 6.000	2	AE	CIV	LT	c	***	****	****
	RHR SUPPLY ISOL TANK, OUTSIDE D												
2-RH-MOV-2700	12050-CBM-094A	1 OF 2 A	5	MO GATE	14.000	1	A	PIV	EV LT ST VP	0 C 0 OC		18	****
	RHR PUMP SUPPLY INSIDE MISSILE		N FR	OH "A" HOT	LEG,								
2-RH-MOV-2701	12050-CBM-094A	1 OF 2 A	4	MO GATE	14.000	1	A	PIV	EV LT ST VP	0 0		18	****
	RHR PUMP SUPPLY OUTSIDE MISSILE		N FR	OM "A" HOT	LEG,				**				
2-RH-MOV-2720A	12050-CBM-094A	2 OF 2 C	3	MO GATE	10.000	1	A	PIV	EV LT ST VP	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	***	18	
	RHR RETURN ISOL DISCHARGE LINE	OT WOLTA	nB»	ACCUMULATOR	3								
2-RH-MOV-2720B	12050-CBM-094A	2 OF 2 B	3	MO GATE	10.000	1	A		EV LT ST VP	0 C 0 OC	***	18	****
	RHR RETURN ISOL DISCHARGE LINE	ATION TO	кСн '	ACCUMULATOR	1								
2-RH-RV-2.721A	12050-CBM-094A	1 OF 2 E	6 1	RELIEF VAL	Æ 3.000	2	c		SP	0	•••		****
	RHR SYSTEM RELI TION, RV DISCHA	EF MALVE A	AT "	A" RHR PUMP	SUC-								
2-RH-RV-2721B	12050-CBM-094A RHR SYSTEM RELI TION, RV DISCHA	1 OF 2 E	4 I	RELIEF VALV	/E 3.000	2	c	*****	SP	0	***		****

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VALVE MUMBER MUNICLE

DRAWING SHEET DRUG VALVE VALVE ASME INV VALVE TEST TEST REG JUST TEST MUNICER NUMBER COOR TYPE SIZE CLASS CAT TYPE TYPE POS V- CSV- VCN-

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VALVE NUMBER	DRAWING NUMBER			VALVE						REL REQ V-		NC ALT TEST VCN-
2-\$1-001	12050-CBM-096A	1 OF 3 B6	CHECK VALVE	12.000	2	c		CV	0	38		1
	"A" LOW HEAD SI		ON CHECK VALVE	*****								
2-\$1-006	12050-CBM-096A	1 OF 3 C7	CHECK VALVE	.750	2	AC	*****	CV	C	54	****	****
	"A" LOW HEAD SI VALVE FROM RWST	The second second	MATER SUPPLY C	HECK								
2-51-009	12050-CBM-096A	2 OF 3 B6	CHECK VALVE	10.000	2	С		CV	C	39 39	****	****
	"A" LOW HEAD S	PUMP DISCHA	ARGE CHECK VAL	VE								
2-\$1-012	12050-CBM-096A	2 OF 3 B5	CHECK VALVE	2.000	2	c		cv	0	***	****	
	"A" LOW HEAD ST DISCHARGE CHECK		JM FLOW/TEST L	INE								
2-\$1-018	12050-CBM-096A	1 OF 3 E5	CHECK VALVE	8.000	2	AC		CV	0	40 40 76		
	RWST SUPPLY CHE	CK VALVE TO	CHARGING PUMP									
2-51-019	12050-CBM-096A	1 OF 3 83	CHECK VALVE	12.000	2	c		CV	0	39	****	****
	RWST SUPPLY CHE	CK VALVE TO	"B" LOW HEAD	SI								
2-\$1-021	12050-CBM-096A "B" LOW HEAD SI	PUMP SUCTIO			2	c	*****	CV	0	38		****
	CONTAINMENT SUM	(P										
2-\$1-029	12050-CBM-096A	1 OF 3 C5	CHECK VALVE	.750	2	AC		CV		54		
	"B" LOW HEAD ST	PUMP SEAL N	ATER SUPPLY CH	HECK								
2-\$1-032	12050-CBM-096A				2	С		cv	C	39 39	****	
	"B" LOW HEAD SI		ARGE CHECK VAL									
2-\$1-035	12050-CBM-096A	2 OF 3 B4	CHECK VALVE	2.000	2	c	•••••	cv	0	•••		****
	"B" LOW HEAD SI DISCHARGE CHECK	PUMP MINIMU VALVE	M FLOW/TEST LI	INE		H						
2-51-047	12050-CBM-096A	1 OF 3 E7	MANUAL GLOBE	1.000	2	AE	CIV	LT	c	***		
	ACCUMULATOR MAK ISOLATION VALVE		TSIDE CONTAINS	MENT								
2-\$1-070	12050-CHM-096A	3 OF 3 D4	CHECK VALVE	1.000	2	c	*****	cv	c	***	****	****

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VALVE NUMBER	DRAWING NUMBER	100000000000000000000000000000000000000		VALVE TYPE		ASME CLASS			10.	POS	REQ V-	CS JUST CSV-	NC ALT TEST VCN-
******	******				*****			*****		****	***	****	
	"B" LOW HEAD S	PUMP SI	JCT I O	FROM RWST									
************					****								
2-SI-MOV-2863A	12050-CBM-096A	2 OF 3	C5	MO GATE	8.000	2	8		EV ST	0 0			
									VP	000			
	"A" LOW HEAD SA			ON PUMP SUPPL	Y								
2-01-MOV-28630	12050-CBM-096A	2 05 7	D/	MO GATE	B 000				*****	****	***		****
2-31-HOV-2003B	12030-CBA-096A	2 OF 3	04	MU GATE	8.000	2	В		EV ST	0			
									VP	O OC			
	"B" LOW HEAD SA			ON PUMP SUPPL	Υ					0.0			
2-S1-MOV-2864A	12050-CBM-096A	2 OF 3	c7	MO GATE	10,000	2	B		EV	c		***	****
E VI HOT ESSAN	TEOSO CON OYON	2 01 3	u,	HO WATE	10.000	-	В		ST	0			
									VP	OC			
	************									00			
	"A" LOW HEAD ST	PUMP CO	DLD LE	G DISCHARGE	STOP								
2-S1-MOV-2864B	12050-CBM-096A	2 OF 3	C6	MO GATE	10.000	2	В		EV	c	•••		****
									ST	0			
									VP	OC OC			
	"B" LOW HEAD SI	PUMP CO	OLD LE	G DISCHARGE	STOP								
	VALVE												
2-SI-MOV-2865A	12050-CBM-0968	1 OF 4	C7	MO GATE	12.000	2	В		EV	C		24	
									ST	C		24	
									VP	OC OC		24	
	"A" ACCUMULATOR	DISCHAR	GE 18	OLATION VALV	E TO								
2-S1-MOV-2865B	12050-CBM-096B	2 OF 4	C5	MO GATE	12.000	2	В.					2/	****
	12020 001 0700	2 0, 4	-	NO WATE	12.000	-	В		EV	0 0		24 24 24	
										0		24	
									VP	OC			
	"B" ACCUMULATOR RCS COLD LEG	DISCHAR	GE IS	OLATION VALV	E TO								
2-S1-MOV-2865C	12050-CBM-0968	3 OF 4	C5	MO GATE	12.000	2	В		EV	С	***	24	****
									ST	C		24 24	
									VP	OC OC		24	

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VALYE NUMBER	NUMBER	SHEET DRI NUMBER COX		VALVE SIZE	CLASS	CAT			TEST	70000	CS JUST CSV-	ALT TEST VCN-
******	******	*******			*****		****	***	****	***	****	
	"C" ACCUMULATOR		ISOLATION VALVE 1	то								
2-S1-MOV-2867A	12050-CBM-096A	3 OF 3 D4	MO GATE	3.000	2	В	*****	EV	C	***		****
								ST	C			
								VP	oc			
	BORON INJECTION	N TANK HIGH	HEAD ST INLET VAL	LVE								
2-51-MOV-28678	12050-CBM-096A	3 OF 3 DA	MO CATE	3.000	2	B					****	***
E DI HOT EGGT	TEODO COM OTOM	3 07 3 04	HO WATE	3.000				EV	0			
								ST	C			
	************							VP	OC			
	BOROW INJECTION	N TANK HIGH	HEAD SI INLET VAL	.VE								
2-\$1-MOV-2867C	12050-CBM-096A	3 OF 3 E7	MO GATE	3.000	2	A	C&P	EV	c	37		****
								LT	C	37 59		
								ST	C	37		
								VP	OC	37		
	BORON INJECTION	TANK OUTLE	T TO RCS COLD LEG	3,								
	OUTSIDE CONTAIN	MENT ISOLAT										
2-SI-MOV-2867D	12050-CBM-096A	3 OF 3 D7				A	C&P	EV	С	37		
								LT	C	37 59		
								ST		37		
			******					VP	oc			
	BOROW INJECTION OUTSIDE CONTAIN	TANK OUTLE	T TO RCS COLD LEG	,								
2-SI-MOV-2869A	12050-CBM-096A	3 OF 3 C8	MO GATE	3.000	2	A	C&P	EV	c	35		
								LT	C	35		
								ST	C	35 35		
								VP	oc	35		
	HIGH HEAD SI FR		HEADER TO RCS HO	T								
2-S1-MOV-28698	12050-CBM-096A	3 OF 3 88	MO GATE	3.000	2	A	C&P	EV	c	35		
								LT	0	35		
								ST	C	35		
								VP	OC OC	35		
	HIGH HEAD SI FR		HEADER TO RCS HO ISOLATION VALVE	T								
2-SI-MOV-2885A	12050-CBM-096A	2 OF 3 C3	MO GLOSE	2.000	2	A	*****	EV	c	***	****	****
								LT	C	76		

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	relation to		44.1.	Jane L				150			REL	CS	NC.
NUMBER NUMBER	DRAWING NUMBER	TARREST SALES AND ADDRESS OF THE PARTY OF TH		TYPE	SIZE			TYPE		POS	REQ V-	JUST CSV-	VCN-
2-S1-MOV-2885A	12050-CBM-096A	2 OF 3	C3	MO GLOBE	2.000	2	A		ST	C			
	"A" LOW HEAD ST	PLMP M	NIML										
2-\$1-MOV-2885B	12050-CBM-096A	2 OF 3	в3	MO GLOBE	2.000	2	A		EV LT ST VP	C C C OC	76	****	****
	"B" LOW HEAD ST	PUMP MI	NIMUR										
2-S1-MOV-2885C	12050-CBM-096A	2 OF 3	D3	MO GLOBE	2.000	2	A	*****	EV LT ST VP	C C C C	76	****	
	"A" LOW HEAD SI	PUMP MI	NIMUN	FLOW/TEST LI	NE								
2-\$1-MOV-2885D	12050-CBM-096A	2 OF 3	83	MO GLOBE	2.000	2	A		EV LT ST VP	C C C OC	76	****	****
	"B" LOW HEAD SI	PUMP MI	NIHUM	FLOW/TEST LI	NE								
2-SI-MOV-2890A	12050-CBM-096A	2 OF 3	D7	MO GATE	10.000	2	A	C&P	EV LT ST VP	C O C C O OC	35 35 35 35		****
	"A" LOW HEAD SI VALVE, OUTSIDE			SOLATION VALV	E								
2-SI-MOV-2890B	12050-CBM-096A	2 OF 3	07	MO GATE	10.000	2	Α		EV LT ST	C O C C C O O C	35 35 35 35		****
	"B" LOW HEAD SI VALVE, OUTSIDE									O.			
2-SI-MOV-2890C	12050-CBM-096A	2 OF 3	C8 I	MO GATE	10.000	2	A		EV LT ST	C C C C C C C C C C C C C C C C C C C	37 37 59 37 37	****	••••
	LOW HEAD SI PUMP VALVE, OUTSIDE (S COLD I	LEG D	ISCHARGE STOP									
2-SI-MOV-28900	12050-CBM-096A	2 OF 3 (C7 I	40 GATE	10.000	2	A 1		EV LT ST	C O C C	37 37 59 37		

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VALVE NUMBER	NUMBER	SHEET I		VALVE TYPE	VALVE SIZE						REL REQ V-	CS JUST CSV-	
2-SW-627	11715-CBM-078G	2 OF 2	E3	CHECK VALVE	2.000	3	C		CV	0		36	****
	SERVICE WATER !		300 7 300 100	RGING PUMP									
2-SW-MOV-201A	11715-CBM-078A	4 OF 4 I	E7	MO BFLY	24.000	3	В	****	EV ST VP	0 00	***	35 35	****
	"A" SERVICE WAT RECIRC SPRAY HE				N TO								
2-SW-MOV-201B	11715-CBM-078A	4 OF 4 I	7	MO BFLY	24.000	3	8	*****	EV ST VP	0	***	35 35	
	"A" SERVICE WAT RECIRC SPRAY HE												
2-SW-MCV-201C	11715-CBM-078A	4 OF 4 E	7		24.000		В		EV ST VP	0 0	***	35 35	
	"B" SERVICE WAT RECIRC SPRAY HE		SUF		N TO								
2-SW-MOV-201D	11715-CBM-078A	4 OF 4 E	7	NO BFLY	24.000	3	8		EV ST VP	0 0 0C		35 35	
	"B" SERVICE WAT RECIRC SPRAY HE				N TO								
2-SW-MOV-202A	11715-CBM-078B	3 OF 4 F	8	MO BFLY	24.000	3	8		EV ST VP	C C OC			
	SERVICE WATER S		SS C	ONNECTS TO RE									
2-SW-MOV-202B	11715-CBM-0788	3 OF 4 F	8	MO BFLY	24.000	3	8	••••	EV ST	C C	***	****	****
	SERVICE WATER S		oss c	ONNECTS TO RE						O.			
2-SW-MOV-203A	11715-CBM-078B	3 OF 4 E	7	MO BFLY	16.000	2	Α	CIV	EV	c 0	•••	****	****
									ST	CCO			
	SERVICE WATER S	SUPPLY TO	"A" I SOL	RECIRC SPRAY ATION VALVE	HEAT				VP	oc			
2-SW-MOV-203B	11715-CBM-0788				16.000	2	A		EV LT ST	0000	***		****
									VP	oc			

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VALVE NUMBER	DRAWING NUMBER			VALVE TYPE	VALVE	ASME				TEST	REL REQ V-	CS JUST CSV-	1
	SERVICE WATER												
2-SW-MOV-203C	11715-CBM-0788	3 OF 4	E4	MO BFLY	16.000	2	A	CIV	EV	C	***		****
									ST	0 0			
	***********								VP	ос			
	SERVICE WATER ! EXCHANGER, OUT!												
2-SW-MOV-203D	11715-CBM-0788	3 OF 4	E3	MO BFLY	16.000	2	A	CIV	EV	C	***	****	
									LT	C			
									VP	0			
	SERVICE WATER !								"	oc			
2-SW-MOV-204A	11715-CBM-0788	3 OF 4	C7	MO BFLY	16.000	2	A	CIV	EV	c	•••	****	
									LT	0			
									ST	C			
									VP	OC			
	SERVICE WATER I HEAT EXCHANGER												
2-SW-MOV-2048	11715-CBM-0788	3 OF 4	C6	MO BFLY	16.000	2	A	CIV	EV	c	***	****	
									LT	C			
									ST VP	0			
	SERVICE WATER I								VP	oc			
2-SW-MOV-204C	11715-CBM-0788	3 OF 4	C5	MO BFLY	16.000	2	A	CIV	EV	C	***	****	****
									LT	C			
									ST	C			
									VP	ос			
************	SERVICE WATER I	OUTSIDE	CON'	" RECIRC SP	RAY VALVE								
2-SW-MOV-2040	11715-CBM-0788	3 OF 4	C3	MO BFLY	16.000	2	A	CIA	EV	c	***	****	
									LT	C			
									VP	oc			
	SERVICE WATER	ETURN FR	KOM HE	H RECIRC SP	RAY								
	HEAT EXCHANGER	OUTSIDE	COM	ISOLATION	VALVE								

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VALVE NUMBER	NUMBER	SHEET	COOR	TYPE	VALVE SIZE	CLASS	CAT		TYPE		REQ	CSV-	NC ALT TEST VCN-
2-SW-MOV-205A	11715-CBM-078A	4 OF 4	E/	MO BFLY	24.000	3	В		ST VP	0 0C		35 35	
	"B" SERVICE WAT FROM RECIRC SPI												
2-SW-MOV-2058	11715-CBM-078A	4 OF 4	E7	MO BFLY	24.000	3	В		EV ST VP	0	***	35 35	****
	"B" SERVICE WAT FROM RECIRC SPI	RAY HEAT	EXCH	NGERS	•••								
-sw-MOV-205C	11715-CBM-078A			MO BFLY			8		EV ST VP		***	35 35	****
	"A" SERVICE WAT FROM RECIRC SPE	ER HEADE	R RET		•								
- SW-MOV-205D	11715-CBM-078A	4 OF 4	E7	MO BFLY	24.000	3	В			0 00		35 35	****
	"A" SERVICE WAT	The second secon											
-SW-MOV-206A	11715-CBM-078B	3 OF 4	83	MO BFLY	24.000	3	В		EV ST VP	C	•••		****
	SERVICE WATER A												
- SW-MOV-2068	11715-CBM-0788	3 OF 4	A3	MO BFLY	24.000	3	В		EV ST	C C OC	***		****
	SERVICE WATER F			Contraction of the Contract	i.								
-SW-MOV-208A	11715-CBM-078C	1 OF 2	83	MO BFLY	24.000	3	В		EV ST VP	C O C O		43 43 43 43	
	"A" SERVICE WAT				TO								
-SW-MOV-2088	11715-CBM-078C	1 OF 2 I	в3	MO BFLY	24.000	3	8		EV ST	C 0 C 0	***	43 43 43 43	****
	"A" SERVICE WAT				то				VP	ос			
2-SW-MOV-210A	11715-CBM-078A	*****		**********	8.000	3	E	****	VP	oc	***		

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VALVE NUMBER	DRAWING NUMBER	SHEET DRY NUMBER COX	G VALVE OR TYPE	VALVE SIZE					POS		CS JUST CSV-	VCH-
	SERVICE WATER AIR COOLERS	HEADER SUPPL								***		****
2-SW-MOV-2108	11715-CBM-078A	4 OF 4 F8		8.000			****	VP	ос	***	****	
	SERVICE WATER AIR COOLERS	HEADER SUPPL	Y TO RECIRCUL	ATION								
2-SW-MOV-213A	11715-CBM-078A	4 OF 4 B7	MO BFLY	10.000	3	E		VP	oc	***	****	
	SERVICE WATER	RETURN ISOLA	TION FROM FUE	L PIT								
2-SW-MOV-2138	11715-CBM-078A	4 OF 4 B5	MO BFLY	10.000	3	E		VP	ос	***	****	****
	SERVICE WATER	SUPPLY ISOLA	TION TO FUEL	PIT								
2-SW-MOV-214A	11715-CBM-078A	4 OF 4 F8	MO BFLY	8.000	3	E	*****	VP	oc	***		****
	SERVICE WATER RECIRCULATION	HEADER RETUR										
2-SW-MOV-2148	11715-CBM-078A	4 OF 4 F8	MO BFLY	8.000	3	E	*****	VP	oc	***		****
	SERVICE WATER RECIRCULATION	HEADER RETUR				ľ						
2-SW-MOV-215A	11715-CBM-078A	1 OF 4 D7	MO BFLY	24.000	3	В	*****	EV ST	0	***	****	****
	SERVICE WATER VALVE FROM AUX			s				VP	ос			
2-SW-MOV-217	11715-CBM-078A	1 OF 4 D6	MO BFLY	24.000	3	В		EV ST VP	0 0	***	****	****
	UNIT 2 AUXILIA		MATER PUMP DIS	CHARGE								
2-SW-MOV-219	11715-CBM-078A	1 OF 4 D5	MO BFLY	8.000	3	В		EV ST VP	C C OC		••••	****
	MAKEUP PLIMP SL	IPPLY VALVE		*****								
		********	**********					*****	****		****	
2-SW-MOV-220A	11715-CBM-078A	4 OF 4 F3	MO BFLY	10.000	NC	E		VP	ОС			
	AUXILIARY SERV	ICE WATER RE	TURN HEADER V	ALVE								
2-SW-MOV-2208	11715-CBM-078A	4 OF 4 F3	MO BFLY	10.000	NC	E		VP	oc	***	***	****
	AUXILIARY SERV	TICE WATER RE	TURN HEADER V	ALVE								
2-SW-MOV-221A	11715-CBM-078H	1 OF 1 C8	MO BFLY	18.000	3	8		EV ST	0	***	••••	****
								VP	oc			

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VALVE NUMBER	NUMBER	SHEET	-		VALVE SIZE	CLASS			TEST	TEST	REL REQ V-	CS JUST CSV-	NC ALT TEST VCM-
******							***		****				****
	SERVICE WATER	TO SPRAY	ARRA	YS STOP VALVE									
2-SW-MOV-221B	11715-CBM-078H	1 OF 1	C4	MO BFLY	18.000	3	8	****	EV ST	0	***	****	
	SERVICE WATER	TO SPRAY	ARRA	YS STOP VALVE					VP	ос			
2-SW-MOV-222A	11715-CBM-078H	1 OF 1	C7	MO BFLY	18.000	3	в		EV ST	0	***		
									VP	ос			
	SERVICE WATER	YAP is OT	ARRAY	S STOP VALVE									
2-SW-MOV-2228	11715-СВМ-078Н	1 OF 1	C4		18.000	3	В	*****	EV ST VP	0 0 0C	***	****	****
	SERVICE WATER	TO SPRAY	ARRAY	S STOP VALVE									
2-SW-MOV-223A	11715-C8M-078H	1 OF 1	D8	MO BFLY	24.000	3	8	*****	EV ST VP	C C OC	•••	****	****
	SERVICE WATER I	BYPASS VA	LVE		•••								
2-SW-MOV-2238	11715-CBM-078H	1 OF 1	D4	MO BFLY	24.000	3	В		EV ST VP	C C OC	•••	****	****
	SERVICE WATER	YPASS VA	LVE		***								
2-SW-RV-200A	11715-CBM-0788	3 OF 4		RELIEF VALVE	.750	2	c		sp	0	***		****
	"A" RECIRC SPRA				R								
2-SW-RV-200B	11715-CBM-0788	3 OF 4	E6	RELIEF VALVE	.750	2	c	*****	SP	0	•••	***	****
	"B" RECIRC SPRA RELIEF VALVE, A	Y HEAT E	XCHAN RGE T	G SERVICE WATE O CONT SUMP	R								
2-SW-RV-200C	11715-CBM-0788	3 OF 4	E4	RELIEF VALVE	.750	2	c	*****	SP	0	***	****	****
	"C" RECIRC SPRA				R								
2-SW-RV-2000	11715-C8M-0788				.750	2	c		SP	0	***	****	****
	"D" RECIRC SPRA RELIEF VALVE, R	Y HEAT E	XCHAN RGE T	G SERVICE WATE O CONT SUMP	R								
2-SW-TCV-202A	11715-CBM-078G	2 OF 2	C4	AO GATE	2.000	3	В		EV FS	0			

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												LL T	NC	
*****								180		Taxable or the	REL	CS	ALT	
VALVE	DRAWING	SHEET	A to be a	VALVE	VALVE	ASME	IWV	VALVE	TEST	TEST	REQ	JUST	TEST	
NUMBER	NLMBER	NUMBER	COOR	TYPE	SIZE	CLASS	CAT	TYPE	TYPE	POS	V-	CSV-	VCN-	
*****	******	*****	****				***	****		****		****	****	

	SERVICE WATER COOLER TEMP CO		AND DESCRIPTIONS	PUMP LUBE OIL										
**********	***********	********		****** ********	****	****	***		****	****		****		
2-SW-TCV-2028	11715-CBM-078G	2 OF 2	C6	AO GATE	2.000	3	8		EV	0				
									FS	0				
									ST	0				
	**********									~				
	SERVICE WATER COOLER TEMP CO			PUMP LUBE OIL										
**********					****	***	***	****	****			***		
2-SW-TCV-202C	11715-CBM-078G	2 OF 2	C8	AO GATE	2.000	3	8		EV	0				
									FS	0				
									ST	0				
	**********	*******								-				
	SERVICE WATER COOLER TEMP CO			PUMP LUBE OIL										
***********					****	****							****	

I. IDENTIFICATION OF COMPONENTS

System : Safety Injection

Valve(s): 2-SI-9

2-SI-19 2-SI-32

Class : 2

II. IMPRACTICAL CODE REQUIREMENTS

Exercise valves every three months

III. BASIS FOR RELIEF

Due to system design, check valves 2-SI-9 and 32 are not in the Low Head Safety Injection Pump test flowpaths. They cannot be full or part-stroke tested during power operation because the LHSI pumps cannot overcome reactor coolant system pressure. Valve 2-SI-19 can only be partial stroked every quarter because the quarterly test loop is a mini-flow loop.

During cold shutdown, the reactor coolant system pressure still prevents full flow testing of the check valves. Partial stroke exercising the valves with flow could cause an overpressurization condition during cold shutdowns.

To verify closure of Valves 2-SI-9 and 32, the low head safety injection system must be isolated which can only be done at reactor refueling. By isolating the system, the test boundary is established to demonstrate adequate seat tightness for the discharge valve to the non-running pump.

IV. ALTERNATE TESTING

Valves 2-SI-9 and 32 will be exercised to the full open and closed position every reactor refueling (not to exceed 24 months). Valve 2-SI-19 will be partial stroke tested every quarter and full flow tested every reactor refueling.

I. IDENTIFICATION OF COMPONENTS

System : Safety Injection

Valve(s): 2-SI-85 2-SI-107 2-SI-91 2-SI-119 2-SI-93 2-SI-126 2-SI-99 2-SI-128

2-SI-105

Class : 1 for 2-SI-91, 99, 105, 107 and 119

2 for 2-SI-85, 93, 126 and 128

II. IMPRACTICAL CODE REQUIREMENTS

Exercise valves every three months

III. BASIS FOR RELIEF

These Safety Injection check valves must open and close to fulfill their safety functions. They cannot be full or part-stroke exercised to the open position during power operation because this would thermally shock the injection system and cause unnecessary plant transients. Flow cannot be established in the low head injection lines during normal plant operation.

During cold shutdown, the Reactor Coolant System pressure still prevents full design flow. Also, a partial or full stroke test could cause an overpressurization of the Reactor Coolant System and force a safety system to function.

These valves can only be tested to the closed position by draining the lines and performing a back seat leak test. They are identified as pressure isolation valves in Technical Specification Table 3.4-1 and as such are leakage tested every reactor refueling outage.

With low head pump flow, the cold leg injection valves 2-SI-91, 99, and 105 will be nonintrusively monitored using a sampling plan every reactor refueling. The sampling plan will follow the recommended alternative testing method described in NUREG 1482, Section 4.1.2. Per this plan, the valves will be placed into one group. During initial testing using nonintrusive techniques, each valve will be verified as operable.

RELIEF REQUEST V-42 (Cont.)

During subsequent testing, nonintrusive verification will be performed for only one valve of the group on a rotating schedule each time the testing is performed, and the balance of the group will be flow tested. If problems are found with the sample valve that are determined to affect the operational readiness of the valve, all valves in the group must be tested using nonintrusive techniques during the same outage. The flow rate can be measured for the remaining valves in this relief request.

IV. ALTERNATE TESTING

Exercise to the open position every reactor refueling. Exercise to the closed position every reactor refueling per Technical Specification 4.4.6.2.2.

I. IDENTIFICATION OF COMPONENTS

System : Safety Injection

Valve(s): 2-SI-151 2-SI-170

2-SI-153 2-SI-185 2-SI-168 2-SI-187

Class : 1

II. IMPRACTICAL CODE REQUIREMENTS

Exercise valves for operability every three months

III. BASIS FOR RELIEF

These valves cannot be partial or full flow tested during normal operation because the accumulator pressure (600 to 650 psig) is below Reactor Coolant System pressure and the injection of borated water would upset the reactor coolant chemistry.

During cold shutdown, the RCS pressure may still prevent full flow testing. Also, discharging the accumulators would challenge the Low Temperature Overpressure Protection System.

A partial flow test is not practical during cold shutdowns. The flow from the accumulator is dependent on the pressure differential between the accumulator and the RCS. The pressure differential cannot be controlled to the fine degree necessary to preclude dumping too much water into the pressurizer, thus making it difficult to control pressurizer level while pressure is being reduced during cooldown. Also, the RCS temperature is high during short cold shutdowns. Dumping cold accumulator water into the RCS could thermally shock the system.

The accumulators must be isolated to verify closure using back flow for valves 2-SI-153, 170 and 187. The small increase in safety gained by performing the back seat check valve tests every cold shutdown versus every reactor refueling does not justify the added burden of the increased test frequency.

RELIEF REQUEST V-43 (Cont.)

The use of nonintrusive monitoring techniques are being evaluated for confirming full disk movement. If nonintrusive techniques can provide a "positive means" for verifying obturator movement, a sampling program will be used as described below due to the burden of applying these techniques in the field.

IV. ALTERNATE TESTING

During the first refueling outage where nonintrusive techniques are used, all valves in the group will be tested to verify that the techniques verify valve obturator movement. During subsequent refueling outages, flow testing will be performed on all valves in the group, but the nonintrusive techniques need be applied only to one valve in each group, on a rotating basis, unless indications of problems are identified. In this case, all valves in the group will be subjected to the nonintrusive techniques. Valves 2-SI-153, 170 and 187 are closest to the reactor coolant system and will be in one group, and valves 2-SI-151, 168 and 185 will be in the other group. This sampling plan will follow the recommended alternative testing method described in NUREG 1482, Section 4.1.2.

The flow test will consist of discharging the accumulator from an initial pressure that is less than 600 psig. Discharging the accumulator at a lower initial pressure reduces the severity of the transient and the risk of adverse effects on the reactor coolant system. The low pressure test should provide enough flow to force the disk to the full open position.

If full disk movement cannot be confirmed using nonintrusive monitoring, these valves will be placed into two groups and one valve from each group will be disassembled and inspected every other reactor refueling. The justification for the stended disassembly and inspection schedule vailable at the station.

Valves 2-SI-153, 170 and 187 will be confirmed closed every reactor refueling.

I. IDENTIFICATION OF COMPONENTS

System : Safety Injection

Valve(s): 2-SI-92

2-SI-100 2-SI-106

Class : 1

II. IMPRACTICAL CODE REQUIREMENTS

Exercise valves every three months

III. BASIS FOR RELIEF

These Safety Injection check valves must open and close to fulfill their safety function. They cannot be full or part-stroke exercised to the open position during power operation because this would cause safety injection flow into the Reactor Coolant System which would thermally shock the injection system and cause unnecessary plant transients. Flow cannot be established in the low head injection lines during normal plant operation.

During cold shutdown, the Reactor Coolant System pressure still prevents full design flow. Also, a partial or full stroke test could cause an overpressurization of the Reactor Coolant System and force a safety system to function.

These valves can only be tested to the closed position by a back seat leak test, which requires draining the lines.

With low head pump flow, these cold leg injection valves will be nonintrusively monitored using a sampling plan every reactor refueling. The sampling plan will follow the recommended alternative testing method described in NUREG 1482, Section 4.1.2. Per this plan, the valves will be placed into one group. During initial testing using nonintrusive techniques, each valve will be verified as operable.

RELIEF REQUEST V-44 (Cont.)

During subsequent testing, nonintrusive verification will be performed for only one valve of the group on a rotating schedule each time the testing is performed, and the balance of the group will be flow tested. If problems are found with the sample valve that are determined to affect the operational readiness of the valve, all valves in the group must be tested using nonintrusive techniques during the same outage.

IV. ALTERNATE TESTING

Exercise to the open and closed positions every reactor refueling.

I. IDENTIFICATION OF COMPONENTS

System : Safety Injection

Valve(s): 2-SI-90 2-SI-117 2-SI-98 2-SI-118 2-SI-104 2-SI-124 2-SI-112 2-SI-125 2-SI-113

Class : 1

II. IMPRACTICAL CODE REQUIREMENTS

Exercise valves every three months

III. BASIS FOR RELIEF

These Safety Injection check valves must open and close to fulfill their safety function. They cannot be full or part-stroke exercised to the open position during power operation because this would thermally shock the injection system and cause unnecessary plant transients.

During cold shutdown, the Reactor Coolant System pressure still prevents full design flow. Also, a partial or full stroke test could cause an overpressurization of the Reactor Coolant System and force a safety system to function.

The only test methods to individually back seat these valves are to perform leak tests or to use downstream pressure provided by the low head safety injection pump tests. Either test can only be performed during reactor refueling.

With low head pump flow, the hot leg injection valves 2-SI-112, 113, 117, 118, 124 and 125 will be nonintrusively monitored using a sampling plan every reactor refueling. The sampling plan will follow the recommended alternative testing method described in NUREG 1482, Section 4.1.2.

RELIEF REQUEST V-45 (Cont.)

Per this plan, the valves will be placed into two groups with valves 2-SI-113, 118 and 125 in one group, and valves 2-SI-112, 117 and 124 in the other group. During initial testing using nonintrusive techniques, each valve in the group will be verified as operable.

During subsequent testing, nonintrusive verification will be performed for only one valve of the group on a rotating schedule each time the testing is performed, and the balance of the group will be flow tested. If problems are found with the sample valve that are determined to affect the operational readiness of the valve, all valves in the group must be tested using nonintrusive techniques during the same outage.

IV. ALTERNATE TESTING

Exercise to the open and closed positions every reactor refueling.

RELIEF REQUEST V-51 Relief Request Withdrawn

I. IDENTIFICATION OF COMPONENTS

System : Chemical & Volume Control System

Valve(s): 2-CH-153

2-CH-495

Class : 2

II. IMPRACTICAL CODE REQUIREMENTS

Exercise valve closed every three months

III. BASIS FOR RELIEF

Due to the plant configuration, these valves cannot be verified closed using flow. The only method to verify closure other than disassembly and inspection is to perform a leak rate/back pressure test on each valve.

During normal operation, these valves cannot be isolated to perform a back pressure test because normal letdown and charging flow, and reactor coolant pump seal flow would be interrupted. Also, if the valves were isolated during normal operation, the charging pumps would have to be secured.

These valves are also subject to leak testing, which is performed every reactor refueling. Verification of closure will be performed during the leak test every reactor refueling instead of every cold shutdown because the small increase in safety gained by testing during cold shutdown does not justify the burden of performing a leak rate test.

IV. ALTERNATE TESTING

Exercise to the closed position every reactor refueling.

Replaced by Cold Shutdown Justification CSV-45

I. IDENTIFICATION OF COMPONENTS

System : Chemical and Volume Control and

Safety Injection

Valve(s): 2-CH-MOV-2115B 2-SI-MOV-2885A

2-CH-MOV-2115D 2-SI-MOV-2885B 2-SI-18 2-SI-MOV-2885C 2-SI-MOV-2885D

Class : 2

II. IMPRACTICAL CODE REQUIREMENTS

IWV-3427 (a) - Valves with leakage rates exceeding either the values specified by the Owner or those rates given in IWV-3426 shall be replaced or repaired.

III. BASIS FOR RELIEF

Valves 2-CH-MOV-2115B and D, and 2-SI-18 are in the supply line to the charging pumps from the RWST. Valves 2-SI-MOV-2885A, B, C and D are on test lines that run from the discharge of the low head SI pumps to the RWST. During recirculation mode transfer, the RWST is isolated and the low head SI pumps recirculate highly contaminated water from the containment sump to the reactor vessel.

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

IV. ALTERNATE TESTING

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

COLD SHUTDOWN JUSTIFICATION CSV-20 Cold Shutdown Justification withdrawn

2-124

N2PVR7

Revision 7 January 10, 1995

I. IDENTIFICATION OF COMPONENTS

System : Chemical and Volume Control

Valve(s): 2-CH-176

2-CH-191 2-CH-206 2-CH-495

Class : 2

II. COLD SHUTDOWN JUSTIFICATION

These check valves must open to allow charging pump recirculation. There is no permanently mounted instrumentation to measure full flow in the recirculation flow path. Therefore, full flow conditions will have to be measured by using temporary ultrasonic flow instrumentation. The ultrasonic flow transducers and their mounting carriages must be installed and the transducers referenced to a no flow condition before each test. After each test, the equipment must be removed from the field and decontaminated if necessary. Therefore, use of the ultrasonic flow instrumentation is very labor intensive and not practical for quarterly testing.

Test experience has shown that the discharge pressure drop is undetectable when flow through the recirculation line is established in conjunction with normal charging. Therefore, quarterly partial flow testing is not verifiable.

I. IDENTIFICATION OF COMPONENTS

System : Service Water

Valve(s): 2-SW-MOV-208A

2-SW-MOV-208B

Class : 3

II. COLD SHUTDOWN JUSTIFICATION

These isolation valves are located in series on service water supply to the component cooling heat exchangers. The component cooling heat exchangers carry a majority of the heat load for the service water system. When the heat exchangers are isolated, service water flow decreases to less than 10% of normal flow. Due to the design of the service water pumps, the pumps experience harmful high-magnitude vibrations as the service water flow decreases through a range from 7000 gpm to 6000 gpm. These pumps cannot be stopped during the valve exercise test because they provide service water to other plant heat loads. Therefore, performing the valve exercise test as frequently as once every three months should be avoided due to the harmful affects that the testing has on the service water pumps.

The valve controllers do not allow for a partial-stroke exercise test. To reduce the harmful affects of high-magnitude vibrations on the service water pumps, the isolation valves will be full-stroke exercised on a cold shutdown frequency.

I. IDENTIFICATION OF COMPONENTS

System : Quench Spray

Valve(s): 2-QS-MOV-202A

2-QS-MOV-202B

Class : 2

II. COLD SHUTDOWN JUSTIFICATION

These normally closed six inch motor operated isolation valves are located in parallel flow paths from the refueling water chemical addition tank to the reactor water storage tank (RWST). The piping between the isolation valves and the chemical addition tank contains high concentrations of sodium hydroxide. To exercise the motor operated valves, downstream manual isolation valves must be closed to prevent the sodium hydroxide from entering the quench spray system and chemically contaminating the boric acid solution in the RWST.

After the motor operated isolation valves are stroked open and closed, the piping between the motor operated valves and the downstream manual isolation valves must be drained of sodium hydroxide. Approximately five gallons of highly caustic fluid are drained into a plastic container after each valve test. Draining the piping presents a significant personnel hazard. Sodium hydroxide causes severe burns if it comes in contact with the skin. The test personnel must wear rubber gloves, boots and face shields.

The drains are located outdoors and are near to the ground, which makes collection difficult. Any soil that is contaminated with sodium hydroxide must be neutralized by the test personnel. Partial stroke testing of these valves presents the same hazards as full stroke testing.

To reduce the number of times that test personnel are exposed to sodium hydroxide, the motor operated isolation valves will be tested on a cold shutdown frequency.

I. IDENTIFICATION OF COMPONENTS

System : Residual Heat Removal

Valve(s): 2-RH-7

2-RH-15

Class : 2

II. COLD SHUTDOWN JUSTIFICATION

These RHR pump discharge check valves can only be partial-stroke or full-stroke exercised to the open position and verified closed when the RHR pumps 2-RH-P-1A and 2-RH-P-1B are running. The low pressure pumps take suction from and discharge to the reactor coolant system which operates at 2235 psig. This pressure is well above the operating pressure of the pumps, therefore, partial-stroke or full-stroke testing during normal operation is not practical. These valves will be full-stroke exercised every cold shutdown but not more frequently then every three months.