CALVERT CLIFFS NUCLEAR POWER PLANT

BALTIMORE GAS & ELECTRIC COMPANY

ASME SECTION XI

PUMP AND VALVE TEST PROGRAMS - UNITS 1 AND 2

SECOND TEN-YEAR INTERVAL

Rev. 1
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INSERVICE TESTING PROGRAM FOR
PUMPS AND VALVES
CALVERT CLIFFS NUCLEAR POWER PLANT
UNITS 1 AND 2

1.0 INTRODUCTION

Under the provisions of 10CFR50.55a, inservice testing of safety related pumps and valves will be performed in accordance with Section XI of the ASME Boiler and Pressure Vessel Code and applicable Addenda. As specified in 10CFR50.55a(b), the effective edition of Section XI with regard to this program is the 1983 Edition through the Summer 1983 Addenda. This program identifies the pump and valve inservice testing that will be performed at the Calvert Cliffs Nuclear Power Plant Units 1 and 2 to comply with the requirements of 10CFR50.55a. This program applies to the Second Ten Year Inservice Inspection Interval beginning April 1, 1987.

1.1 Relationship with Technical Specifications

The ASME Section XI Pump and Valve Test Program is required by Calvert Cliffs Nuclear Power Plant Technical Specification 4.0.5 as well as 10CFR50. Based on Technical Specification requirements, in the event of any conflicts between ASME Section XI requirements and the requirements of Technical Specifications, the plant Technical Specifications shall govern. Since Calvert Cliffs may be updating its Refueling Cycle to 24 months, ASME Section XI requirements tied to the time interval of 2 years, will be tested during each refueling.

1.2 Qualification of Test Personnel

Personnel performing pump and valve testing per ASME Section XI Subsections IWP and IWV will be qualified in accordance with the Calvert Cliffs Quality Assurance Program. This is in keeping with the requirements of ASME Section XI, as clarified by ASME Code Interpretation XI-1-82-06R.

2.0 PUMP INSERVICE TESTING PROGRAM

The pump test program shall be conducted in accordance with Subsection IWP of Section XI of the 1983 Edition of the ASME Boiler and Pressure Vessel Code through Summer 1983 Addenda, except for relief requested under the provisions of 10CFR50.55a(g) (5) (iii). Appendix A details the inservice testing program for all safety related pumps at Calvert Cliffs Nuclear Power Plant Units 1 and 2. These tables list each pump required to be tested in accordance with IWP-1100 of Section XI of the Code. Each parameter to be measured, as well as specific relief requests concerning non-conformance, are also listed.

2.1 Pump Bearing Temperature/Vibration Measurement

Subsection IWP-3300 requires pump bearing temperatures be measured at least once each year. Industry experience demonstrates that bearing temperatures typically rise only minutes prior to failure. Any bearing failure predicted by a yearly recording of bearing temperature would be a random event and thus, yearly measurement of bearing temperatures does not increase the level of confidence in component reliability. The expense of adding the additional testing both in component degradation and man-hours expended is, therefore, not justified.

Further, IWP-3500(b) specifies that pumps be run until bearing temperatures stabilize as determined by three measurements at 10 minute intervals. Clearly the pump would have to be run in excess of one-half hour to obtain these readings. The pump degradation caused by this requirement does not justify the very limited assurance it might provide.

Vibration data taken on at least a quarterly basis will be used to define pump mechanical condition. This request for relief should apply for all bearings presently required to be temperature tested.

2.2 Pump Testing Ranges

Calvert Cliffs will revise the upper boundary for Alert and Action ranges of differential pressure and flow for selected pumps. This position reflects the approved relief request from the first ten year program and meets with ASME Code Requirements per IWP-3210. Pump performance will be adequately evaluated using upper differential pressure or flow range limits of 1.05 and 1.07 (times delta P/flow reference, as appropriate) for the Alert and Action ranges respectively. Normal operation of the pumps in these ranges will still meet their required safety function. As identified in the first ten year testing program NRC safety evaluation, "Small positive increases in observed delta P are most likely not significant with regard to centrifugal pumps. More over, such factors as instrument uncertainty, water density, and instrument error might lead to spurious actuation of alert and action ranges." Based on the above, these reduced range limits are felt to meet the intent and requirements of ASME Section XI.

2.3 Emergency Diesel Systems

The inservice operability testing of pumps (and valves) associated with the Emergency Diesels, including the Diesel Oil Transfer System, are excluded from the enclosed test programs. These components are considered an integral part of the Emergency Diesel System and are functionally tested at least monthly per Technical Specifications. Thus, the functional operability testing of the pumps and valves is performed at a frequency greater than that required by Section XI for either pumps or valves. Additionally, the failure of a pump or valve to perform its intended function will be identified by the failure of the associated Emergency Diesel to meet its functional requirements. Calvert Cliffs Technical Specifications and plant maintenance schedules together provide assurance of operability as well as information concerning equipment degradation over time.

2.4 Multiple Reference Values

Based on plant operating conditions and pump testing hydraulic circuit, Calvert Cliffs may choose to generate multiple sets of reference values (per IWP-3112) in order to more fully describe pump hydraulic condition. Each set of pump reference values will meet all appropriate requirements of IWP-3000.

3.0 VALVE INSERVICE TESTING PROGRAM

The valve test program for Calvert Cliffs Nuclear Power Plant Units 1 and 2 shall be conducted in accordance with Subsection IWV of Section XI of the 1983 Edition of the ASME Boiler and Pressure Vessel Code through the Summer 1983 Addenda, except for relief requested under the provisions of 10CFR50.55a(g) (5) (iii). The valve test program for Unit 1 is included as Appendix C, and Unit 2 is included as Appendix D. The codes and symbols used to abbreviate the tables in Appendices C and D are explained in Appendix B.

3.1 Category A Valves

Valve for which seat leakage is important may generally be classified as pressure isolation valves (PSIV), containment isolation valves (CIV), or both pressure and containment isolation valves. Containment isolation valves falling within the scope of ASME Section XI are tested in accordance with the Section XI requirements of IWV-3410, Category A, with the exception of the seat leakage tests (IWV-3420). The seat leakage testing performed on these valves meets the intent of Section XI, but the actual test procedures shall be conducted in accordance with the 10CFR50, Appendix J, Type C, CIV test program. For valves performing a containment isolation function, individual valve leak rates are not in themselves significant. The only pertinent leak rate criteria for CIV's is that the total leak rate for all penetrations and valves be less than 0.60 L_a. The Calvert Cliffs Nuclear Power Plant Units 1 and 2 were designed to perform the Appendix J, Type C tests, not the individual Category A leak test (i.e., some penetration test connections test more than one valve at a time). Accordingly, all CIV seat leak testing shall be performed in accordance with the requirements of 10CFR50, Appendix J, Type C, in lieu of the Category A requirements of Section XI.

All CIVs have been categorized as A-Active or A-Passive, and will, as a minimum, be leak tested per 10CFR50, Appendix J. Passive valves will in general have no other testing performed. Valves 1-CVC-103 and 1-CVC-105 in the Reactor Coolant Letdown Line (P&ID OM-73) have been analyzed as passively open, however, a leak test will be performed per Appendix J at refueling intervals. Valves 1-CV-518 and 1-CV-519 are also leak tested, even though the valves fail open upon loss of power. A similar situation exists on Unit 2.

3.2 <u>Pressure Isolation Valves</u>

The purpose of the Pressure System Isolation Valves (PSIV's) is to reduce the possibility of an inter-system LOCA which would pressurize low pressure systems to pressures exceeding their design limits.

At Calvert Cliffs Nuclear Power Plant Units 1 and 2, the following PSIV's are leak tested:

SI-118 (1¹A (21B) SI header check)
SI-128 (1iB (21A) SI header check)
SI-138 (12A (22B) SI header check)
SI-148 (12B (22A) SI header check)
SI-217 (11A (21B) loop inlet check)
SI-227 (11B (21A) loop inlet check)
SI-237 (12A (22B) loop inlet check)
SI-247 (12B (22A) loop inlet check)
SI-215 (11A (21B) SI tank outlet check)
SI-225 (11B (21A) SI tank outlet check)
SI-235 (12A (22B) SI tank outlet check)
SI-245 (12B (22A) SI tank outlet check)

Valves SI-118, SI-128, SI-138, and SI-148 isolate the Safety Injection Headers (LPSI and HPSI) from the Safety Injection Tank discharges. These valves are individually leak tested in accordance with IWV-3420.

For the loop inlet check valves, there is a pressure indicator that alarms on high pressure between adjacent loop inlet and tank outlet valves displayed in the control room. Using this indication, it is possible to determine the pressure between the valves (for example, SI-215 and SI-217). Thus, should reactor coolant loop inlet check valve SI-217 fail, the pressure increase between SI-217 and SI-215 would be noted in the control room. Procedures require the operator take positive measures to assess check valve leakage following receipt of an alarm. See also Relief Request SI-4.

For the tank outlet valves, these valves are leak tested by pressurizing the downstream side of the valve and then determining the valve leakage by noting the change in SI Tank level.

Calvert Cliffs feels that these testt meet the intent of leak testing per IWV-3420, and the above positions were approved by the NRC during the first ten year pump and valve program.

3.3 Thermal Relief Valves

Many safety related system, particularly those with heat exchangers, have been provided with relief valves. These relief valves are thermal relief valves (TRV) of small capacity intended to relieve pressure due to thermal expansion of fluid in a "bottled-up" condition. Experience has shown that failure of these valves will not result in failure of a system to fulfill its safety related function. Thus, thermal relief valves are not considered to perform a function important to safety and such valves have not been included in the program.

3.4 Cold Shutdown Testing

Where the test frequency in Appendices C and D is specified as "C" (Cold Shutdown) the following definition for cold shutdown testing applies:

> For unplanned or forced outages, testing will commence not later than 48 hours after cold shutdown (Mode 5) is achieved. Completion of all valve testing is not a prerequisite to subsequent startup. Any testing not completed at one cold shutdown will be performed during subsequent cold shutdowns (excluding refuelings) to meet as close as practical the specified Section XI testing frequency. For planned outages where all required testing can be completed, exception to the above start time may be taken. However, all testing must be completed consistent with Section XI requirements prior to startup.

Appendix E specifically identifies those valves tested during Cold Shutdowns, with operational justifications for each. Valves tested on a Cold Shutdown frequency may be tested in Modes 2, 3, 4, or 5 as appropriate for each specific valve (i.e., some valves may be tested during outage recovery, etc.).

3.5 Part-Stroke Testing

The goal of the Calvert Cliffs Inservice Program for valves is to perform full-stroke tests of all appropriate valves. With the exception of those valves for which specific relief has been requested, all valves will be full stroke tested whenever possible.

Part-stroke testing of power-operated valves is generally not possible, due to valve logic circuitry which only allows full-open or full-closed valve movement. Moreover, the intent of Section XI is to assess valve operability through inservice testing; while a part-stroke exercise does provide some measure of confidence in valve operability, it does not provide assurance of valve safety-related function. In addition, a part-stroke of a power-operated valve has the possibility, through human or mechanical error, to cause adverse plant consequences (isolation of cooling water, plant transients, etc.) via an inadvertent full-stroke. Based on the above, Calvert Cliffs will full-stroke test power-operated valves in accordance with the Valve Test Program (with associated relief requests as appropriate).

Check valves whose safety function is to open will be full-stroked when possible. Since disk position is not always observable, the NRC staff has stated that "verification" of the plant's safety analysis flow rate through the check valve would be an adequate demonstration of full stroke requirement. Any flow rate less than design will be considered part-stroke exercising unless it can be shown that the check valve's disk position at the lower flow rate would be equivalent to or greater than the design flow rate through the valve." Based on this position, check valves within the scope of this test program will be at least part-stroke exercised whenever any flow is passed through the valve. Check valves are considered to be full-stroke tested on at least the Code-required frequency, unless identified by Relief Request. Check valves for which a full-stroke exercise can not be confirmed, therefore, will be identified by an appropriate relief request. Calvert Cliffs feels that this position meets the intent of IWV-3522(b) regarding exercising of check valves.

3.6 Fail-Safe Actuators

All those valves which have a fail-safe actuator are exercised normally using that actuator. Thus, the fail-safe actuator is regularly tested when the valve is tested.

3.7 Valve Position Indicator Verification

Verification of valve position indicator accuracy will be performed in accordance with Section XI IWV-3300. The verification of the valve position of solenoid operated valves may be done by observation of appropriate system parameter such as pressure or flow changes.

3.8 Passive Valves

These valves, which have no Section XI operability testing requirements, are valves in safety-related system which are not required to change position in order to accomplish their required safety-function. Calvert Cliffs has categorized valves as passive which are administratively locked-open or locked-closed in their safety-related position. Due to the lack of testing requirements, B-Passive valves have been excluded from Appendices C and D.

3.9 Stroke Times

The valve stroke [illegible] entified [illegible] Appendices C and D may change due to modificatio[illegible]tenance, [illegible] ver plant lifetime. Calvert Cliffs will chang[illegible] as necessary, incorporating the requirements [illegible] without further notification.

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3.10 Shutdown Cooling Valves

Power-operated valves used for Shutdown Cooling (SDC) function will be tested in accordance with ASME Section XI. Manual valves in the system that require a position change to align the systems for SDC operation are considered to be functionally tested whenever SDC is in use (at least during each Cold Shutdown). Based on this functional test, these manual valve have been excluded from the associated Valve Test Program Tables.

3.11 Post-Maintenance Testing

Valves tested on a Cold Shutdown frequency cannot be tested during power operation due to system limitations, personnel safety, etc. Therefore, for minor maintenance on such valves during power operation which does not remove the valve from service, valve post-maintenance testing will be performed at the earliest available opportunity, i.e., in Cold Shutdown.

3.12 Relief Valve Testing

Calvert Cliffs will perform all Relief Valve Testing using POSRC-approved procedures under the requirements of the Technical Specification Surveillance Testing Program. This level of administrative control, including the requirements for Quality Assurance/Control per 10CFR50 Appendix B, ensures the overall test quality is maintained. Therefore, Calvert Cliffs feels that the intent of PTC-25.3 for relief valve testing regarding test personnel qualifications and test group makeup, are met. In addition, the test personnel are trained and qualified in accordance with Calvert Cliffs Administrative Requirements for Surveillance Test Personnel. Therefore, the requirement of PTC 25.3 to have the test witnessed by a degreed engineer is not necessary. However, all test results of relief valve testing are reviewed by appropriate supervisory and engineering personnel prior to test acceptance. See Relief Request A-3 for Units 1 & 2.

REFERENCES

- 1983 Edition with Addenda through Summer 1983 ASME Boiler and Pressure Vessel Code - Section XI: Rules for Inservice Inspection of Nuclear Power Plant Components
- Calvert Cliffs Nuclear Power Plant Units 1 & 2; Piping and Instrument Diagrams
- Calvert Cliffs Nuclear Power Plant Units 1 & 2; Operations Drawings (see Appendix F)
- Calvert Cliffs Nuclear Power Plant Units 1 & 2; Technical Specifications
- CCI-104H, Appendix 104.60 Attachment (4), Pages 1 through 28 - ASME Section XI Pump and Valve List
- STP-M-571-1 (Revision 6) of LLRT-1, Pages 1 through 13
- STP-M-571-2 (Revision 13) of LLRT-1, Pages 218 through 230
- Unit 1 Pump and Valve Inservice Test Program, 1st Ten Year Interval (see Appendix G)
- Unit 2 Pump and Valve Inservice Test Program, 1st Ten Year Interval (see Appendix G)
- M-601 (Proposed Revision 26) Piping Class Summary Sheets - March 3, 1986
- Calvert Cliffs Nuclear Power Plant Units 1 & 2; Inservice Inspection and Pump and Valve Programs Request for Relief from ASME Code Section XI Requirements Determined to be Impractical - August 30, 1982 (see Appendix H)
- Safety Evaluation and <u>Federal Register Notice</u> - December 22, 1982 (see Appendix H)
- Safety Evaluation Granting Relief From ASME Code Section XI Inservice Testing Requirements - February 8, 1982 (see Appendix H)

APPENDIX A

CALVERT CLIFFS NUCLEAR POWER PLANT UNITS 1 AND 2

PUMP INSERVICE TESTING PROGRAM

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APPENDIX A

CALVERT CLIFFS NUCLEAR POWER PLANT UNITS 1 AND 2
PUMP INSERVICE TESTING PROGRAM

Summary of Information Provided

The pump test table provides the following information on testing requirements:

- o Pump Name/No.
- o ASME Class
- o Drawing on which the pump is depicted
- o Inlet Pressure
- o Differential Pressure
- o Flow Rate
- o Vibration Amplitude
- o Observation of Lube Oil Level
- o Bearing Temperature
- o Speed

Specific Relief Requests are identified as notes in the Tables, and immediately follow each Unit's Table. Test frequency for all parameters is identified by a "Q" for Quarterly, unless revised by Relief Request.

CALVERT CLIFFS NUCLEAR POWER PLANT - UNIT 1
REQUIRED PUMP TESTS

Pump Name/Number	ASME Class	P&ID No. (OM-)	Inlet Pressure	Differential Pressure	Flowrate	Vibration	Lubricant	Bearing Temperature	Speed[a]	Remarks
High Pressure SI/11	2	74	Q	Q	7	Q	Q	3	NA	RR6
High Pressure SI/12	2	74	Q	Q	7	Q	Q	3	NA	RR6
High Pressure SI/13	2	74	Q	Q	7	Q	Q	3	NA	RR6
Low Pressure SI/11	2	74	Q	Q	7	Q	Q	3	NA	RR6
Low Pressure SI/12	2	74	Q	Q	7	Q	Q	3	NA	RR6
Containment Spray/11	2	74	Q	Q	7	Q	Q	3	NA	RR6
Containment Spray/12	2	74	Q	Q	7	Q	Q	3	NA	RR6
Boric Acid/11	2	73	Q	Q	Q	Q	Q	3	NA	RR6
Boric Acid/12	2	73	Q	Q	Q	Q	Q	3	NA	RR6
Reactor Coolant Charging/11	2	73	4	5	Q	Q	Q	3	NA	RR6
Reactor Coolant Charging/12	2	73	4	5	Q	Q	Q	3	NA	RR6
Reactor Coolant Charging/13	2	73	4	5	Q	Q	Q	3	NA	RR6

a - Other than those identified for testing, all pumps are synchronous/induction wound motors

CALVERT CLIFFS NUCLEAR POWER PLANT - UNIT 1
REQUIRED PUMP TESTS (CONT.)

Pump Name/Number	ASME Class	P&ID No. (OM-)	Inlet Pressure	Differential Pressure	Flowrate	Vibration	Lubricant	Bearing Temperature	Speed[a]	Remarks
Salt Water/11	3	49	1	Q	Q	Q	2	3	NA	RR6
Salt Water/12	3	49	1	Q	Q	Q	2	3	NA	RR6
Salt Water/13	3	49	1	Q	Q	Q	2	3	NA	RR6
Service Water/11	3	46	Q	Q	Q	Q	Q	3	NA	RR6
Service Water/12	3	46	Q	Q	Q	Q	Q	3	NA	RR6
Service Water/13	3	46	Q	Q	Q	Q	Q	3	NA	RR6
Component Cooling/11	3	51	Q	Q	Q	Q	2	3	NA	RR6
Component Cooling/12	3	51	Q	Q	Q	Q	2	3	NA	RR6
Component Cooling/13	3	51	Q	Q	Q	Q	2	3	NA	RR6
Aux. Feedwater/11	2	800	Q	Q	7	Q	Q	3	Q	RR6
Aux. Feedwater/12	2	800	Q	Q	7	Q	Q	3	Q	RR6
Aux. Feedwater/13	2	800	Q	Q	7	Q	Q	3	NA	RR6

RELIEF REQUEST NUMBER 1

System: Circulating Salt Water Cooling

P&ID: OM-49

Pumps: Salt Water Pumps Nos. 11, 12, and 13

Class: 3

Impractical Test Requirement: IWP-3100 requirement to measure inlet pressure before startup and during test.

Basis for Relief: Salt water pump suction pressure taps do not exist. The pumps take suction directly from the intake bay through two redundant suction canals. Pump suction is situated seven feet below Chesapeake Bay mean low water level; therefore, pump suction is a function of bay water level. Chesapeake Bay mean level is not considered to change during test performance.

Alternative Testing: Bay water level is recorded once during the test and used to compute pump suction pressure.

RELIEF REQUEST NUMBER 2

System: Circulating Salt Water Cooling and Component Cooling Water

P&ID: OM-49 and OM-51

Pumps: Salt Water Pumps Nos. 11, 12, and 13 and Component Cooling Water Pumps Nos. 11, 12, and 13

Class: 3

Impractical Test Requirement: IWP-3100 requirement to observe proper lubricant level or pressure.

Basis for Relief: The salt water pumps and component cooling pumps have grease lubricated bearings. Therefore, observation of lubricant level or pressure is not appropriate.

Alternative Testing: None. The bearings are greased in accordance with the manufacturer's instructions on a regular preventative maintenance schedule.

RELIEF REQUEST NUMBER 3

Systems: Chemical and Volume Control (Both Charging and Boric Acid), Low Pressure Safety Injection, High Pressure Safety Injection, Containment Spray, Salt Water Cooling, Component Cooling, Auxiliary Feedwater, Service Water

P&ID's: Various

Pumps: All Safety Related Pumps

Class: 2/3

Impractical Test Requirement: IWP-3100 requirement to measure bearing temperature, and IWP-3000 requirements to measure vibration amplitude.

Basis for Relief: The referenced code requires bearing temperature to be recorded annually. It has been demonstrated by experience that bearing temperature rise occurs only minutes prior to bearing failure. Therefore, the detection of possible bearing failure by a yearly temperature measurement is extremely unlikely. It requires at least one half hour of pump operation to achieve stable bearing temperatures. The small probability of detecting bearing failure by temperature measurement does not justify the additional pump operating time required to obtain the measurements. As an alternative, the pump vibration testing will be expanded from one to multiple readings in two orthogonal directions.

These pumps are part of the Calvert Cliffs Vibration Testing Program, and as such, are tested at least on a quarterly basis utilizing a vibration analysis system. The results of this rigorous analysis provide much more definite information regarding pump mechanical condition than do bearing temperature measurements. Based upon this, CCNPP does not require annual bearing temperature measurements per the ASME Section XI Code in order to assess pump mechanical condition.

Alternative Testing: Results of the regular vibration evaluation will be utilized to assess pump mechanical condition at least quarterly. Results of this calculation will be maintained as a part of the Pump Record.

RELIEF REQUEST NUMBER 4

System: Chemical and Volume Control

P&ID: OM-73

Pumps: Reactor Coolant Charging Pumps Nos. 11, 12, and 13

Class: 2

Impractical Test Requirement: IWP-3100 requirement to measure pump suction pressure.

Basis for Relief: The reactor coolant charging pumps normally take their suction from the outlet of the volume control tank. The volume control tank is equipped with an automatic make-up system to prevent low level operation. If volume control tank level should decrease, a low level alarm is provided to alert the operator to the need for corrective action. If volume control tank level continues to decrease, a low-low level alarm is actuated and charging pump suction is automatically shifted to the refueling water tank. Should the charging pumps be starved for flow as the result of a piping rupture or inadvertent valve closure, a decreasing flow rate would be observed and the pump would trip on low suction pressure.

Alternative Testing: None. The system design discussed above provides adequate indication of and protection from a low suction pressure condition.

RELIEF REQUEST NUMBER 5

System: Chemical and Volume Control

P&ID: OM-73

Pumps: Reactor Coolant Charging Pumps Nos. 11, 12, and 13

Class: 2

Impractical Test Requirement: IWP-3100 requirement to measure pump differential pressure.

Basis for Relief: Due to pump design, the pump differential pressure is not indicative of pump performance. Positive displacement pump differential pressure varies across a wide spectrum, based on system conditions, without a change in flowrate.

Alternative Testing: Pump flowrate will be measured and used to assess pump hydraulic condition in lieu of pump differential pressure.

RELIEF REQUEST NUMBER 6

System: As Required, Unit 1

P&ID: Where Applicable

Pumps: As Required

Impractical Test Requirement: Table IWP-4110-1 requires the instrument accuracy of the flow instrument used in testing to be ± 2% of full scale.

Basis for Relief: Many of the pumps within the scope of IWP are tested by using ultrasonic or annubar flow meters. Due to the timeframe of construction for CCNPP, specific test flow monitoring equipment was not part of the original design basis. To install instrumentation meeting the requirement of Table IWP-4110-1 would require extensive piping re-configuration of most systems. In addition, to improve the accuracy of existing methods would result in extreme expense for continuous vendor or national labs re-calibration of instruments between every test. Current experience with the existing instrumentation provides confidence that the proposed accuracy will be adequate to determine if a pump is degrading.

Alternative Requirements: All flow measuring instruments will meet a loop accuracy of ± 4% of full scale accuracy. The repeatability of the instruments will be within the requirement of Table IWP-4110-1.

RELIEF REQUEST NUMBER 7

Systems: Auxiliary Feedwater (AFW)/High Pressure Safety Injection (HPSI)/Low Pressure Safety Injection (LPSI)/Containment Spray (CS).

P&IDs: M-800/74

Pumps: AFW; 11, 12, and 13
HPSI; 11, 12, and 13
LPSI; 11 and 12
CS; 11 and 12

Class: 2 and 3

Impractical Test Requirement: Table IWP-3100-2 requires that flow be monitored and maintained within a set allowable range.

Basis for Relief: These pumps are tested in a mini-recirculation flow loop due to the impracticability of full flow testing during power operation. The AFW, HPSI, LPSI, and CS Pumps, if full flow tested, would result in thermal shock to equipment nozzles or deluge of equipment in containment with borated water. A recirculation loop provides a relatively fixed resistance flow path. Tank level does not have a significant impact on recirculation flow for any of these pumps. Each of the pumps has a relatively flat hydraulic characteristic curve within the recirculation flow range. Monitoring flow and checking against an allowable range provides no meaningful input to pump performance.

Alternative Testing: Quarterly testing will be performed without evaluating flow. At each refueling outage a large flow test will be conducted with flowrate being evaluated along with all other pump vibration and hydraulic performance indicators.

CALVERT CLIFFS NUCLEAR POWER PLANT - UNIT 2
REQUIRED PUMP TESTS

Pump Name/Number	ASME Class	P&ID No. (OM-)	Inlet Pressure	Differential Pressure	Flowrate	Vibration	Lubricant	Bearing Temperature	Speed[a]	Remarks
High Pressure SI/21	2	462	Q	Q	7	Q	Q	3	NA	RR-6
High Pressure SI/22	2	462	Q	Q	7	Q	Q	3	NA	RR-6
High Pressure SI/23	2	462	Q	Q	7	Q	Q	3	NA	RR-6
Low Pressure SI/21	2	462	Q	Q	7	Q	Q	3	NA	RR-6
Low Pressure SI/22	2	462	Q	Q	7	Q	Q	3	NA	RR-6
Containment Spray/21	2	462	Q	Q	7	Q	Q	3	NA	RR-6
Containment Spray/22	2	462	Q	Q	7	Q	Q	3	NA	RR-6
Boric Acid/21	2	461	Q	Q	Q	Q	Q	3	NA	RR-6
Boric Acid/22	2	461	Q	Q	Q	Q	Q	3	NA	RR-6
Reactor Coolant Charging/21	2	461	4	5	Q	Q	Q	3	NA	RR-6
Reactor Coolant Charging/22	2	461	4	5	Q	Q	Q	3	NA	RR-6
Reactor Coolant Charging/23	2	461	4	5	Q	Q	Q	3	NA	RR-6

a - Other than those identified for testing, all pumps are synchronous/induction wound motors

Pump Name/Number	ASME Class	P&ID No. (OM-)	Inlet Pressure	Differential Pressure	Flowrate	Vibration	Lubricant	Bearing Temperature	Speed[a]	Remarks
Salt Water/21	3	450	1	Q	Q	Q	2	3	NA	RR-6
Salt Water/22	3	450	1	Q	Q	Q	2	3	NA	RR-6
Salt Water/23	3	450	1	Q	Q	Q	2	3	NA	RR-6
Service Water/21	3	47	Q	Q	Q	Q	Q	3	NA	RR-6
Service Water/22	3	47	Q	Q	Q	Q	Q	3	NA	RR-6
Service Water/23	3	47	Q	Q	Q	Q	Q	3	NA	RR-6
Component Cooling/21	3	47	Q	Q	Q	Q	2	3	NA	RR-6
Component Cooling/22	3	452	Q	Q	Q	Q	2	3	NA	RR-6
Component Cooling/23	3	452	Q	Q	Q	Q	2	3	NA	RR-6
Aux. Feedwater/21	2	801	Q	Q	7	Q	Q	3	Q	RR-6
Aux. Feedwater/22	2	801	Q	Q	7	Q	Q	3	Q	RR-6
Aux. Feedwater/23	2	801	C	Q	7	Q	Q	3	NA	RR-6

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RELIEF REQUEST NUMBER 1

System: Circulating Salt Water Cooling

P&ID: OM-450

Pumps: Salt Water Pumps Nos. 21, 22, and 23

Class: 3

Impractical Test Requirement: IWP-3100 requirement to measure inlet pressure before pump start and during test.

Basis for Relief: Salt water pump suction pressure taps do not exist. The pumps take suction directly from the intake bay through two redundant suction canals. Pump suction is situated seven feet below Chesapeake Bay mean low water level; therefore, pump suction is a function of bay water level. Chesapeake Bay water level is not considered to change during the test.

Alternative Testing: Bay water level is recorded once during the test and used to compute pump suction pressure.

RELIEF REQUEST NUMBER 2

System: Circulating Salt Water Cooling and Component Cooling Water

P&ID: OM-450 and OM-452

Pumps: Salt Water Pumps Nos. 21, 22, and 23 and Component Cooling Water Pumps Nos. 21, 22, and 23

Class: 3

Impractical Test Requirement: IWP-3100 requirement to observe proper lubricant level or pressure.

Basis for Relief: The salt water pumps and component cooling pumps have grease lubricated bearings. Therefore, observation of lubricant level or pressure is not appropriate.

Alternative Testing: None. The bearings are greased in accordance with the manufacturer's instructions on a regular preventative maintenance schedule.

RELIEF REQUEST NUMBER 3

Systems: Chemical and Volume Control (both Charging and Boric Acid), Low Pressure Safety Injection, High Pressure Safety Injection, Containment Spray, Salt Water Cooling, Component Cooling, Auxiliary Feedwater, Service Water

P&ID's: Various

Pumps: All Safety Related Pumps

Class: 2/3

Impractical Test Requirement: IWP-3100 requirement to measure bearing temperature.

Basis for Relief: The referenced code requires bearing temperature to be recorded annually. it has been demonstrated by experience that bearing temperature rise occurs only minutes prior to bearing failure. Therefore, the detection of possible bearing failure by a yearly temperature measurement is extremely unlikely. It requires at least one half hour of pump operation to achieve stable bearing temperatures. The small probability of detecting bearing failure by temperature measurement does not justify the additional pump operating time required to obtain the measurements. As an alternative, the pump vibration testing will be expanded from one to multiple readings in two orthogonal directions.

These pumps are part of the Calvert Cliffs Vibration Testing Program, and as such, are tested at least on a quarterly basis utilizing a vibration analysis system. The results of this rigorous analysis provide much more definite information regarding pump mechanical condition than do bearing temperature measurements. Based upon this, CCNPP does not require annual bearing temperature measurements per the ASME Section XI Code in order to assess pump mechanical condition.

Alternative Testing: Results of the regular vibration analysis evaluation will be utilized to assess pump mechanical condition at least quarterly. Results of this evaluation will be maintained as a part of the Pump Record.

RELIEF REQUEST NUMBER 4

System: Chemical and Volume Control

P&ID: OM-461

Pumps: Reactor Coolant Charging Pumps Nos. 21, 22, and 23

Class: 2

Impractical Test Requirement: IWP-3100 requirement to measure pump suction pressure

Basis for Relief: The reactor coolant charging pumps normally take their suction from the outlet of the volume control tank. The volume control tank is equipped with an automatic make-up system to prevent low level operation. If volume control tank level should decrease, a low level alarm is provided to alert the operator to the need for corrective action. If volume control tank level continues to decrease, a low-low level alarm is actuated and charging pump suction is automatically shifted to the refueling water tank. Should the charging pumps be starved for flow as the result of a piping rupture or inadvertent valve closure, a decreasing flow rate would be observed and the pump would trip on low suction pressure.

Alternative Testing: None. The system design discussed above provides adequate indication of and protection from a low suction pressure condition.

RELIEF REQUEST NUMBER 5

System: Chemical and Volume Control

P&ID: OM-461

Pumps: Reactor Coolant Charging Pumps Nos. 21, 22, and 23

Class: 2

Impractical Test Requirement: IWP-3100 requirement to measure pump differential pressure.

Basis for Relief: Due to pump design, the pump differential pressure is not indicative of pump performance. Positive displacement pump differential pressure varies across a wide spectrum based on system condition, without a change in flowrate.

Alternative Testing: Pump flowrate will be measured and used to assess pump hydraulic condition in lieu of pump differential pressure.

RELIEF REQUEST NUMBER 6

System: As Required, Unit 2

P&ID: Where Applicable

Pumps: As Required

Impractical Test Requirement: Table IWP-4110-1 requires the instrument accuracy of the flow instrument used in testing to be ± 2% of full scale.

Basis for Relief: Many of the pumps within the scope of IWP are tested by using ultrasonic or annubar flow meters. Due to the timeframe of construction for CCNPP, specific test flow monitoring equipment was not part of the original design basis. To install instrumentation meeting the requirement of Table IWP-4110-1 would require extensive piping re-configuration of most systems. In addition, to improve the accuracy of existing methods would result in extreme expense for continuous vendor or national labs re-calibration of instruments between every test. Current experience with the existing instrumentation provides confidence that the proposed accuracy will be adequate to determine if a pump is degrading.

Alternative Requirement: All flow measuring instruments will meet a loop accuracy of ± 4% of full scale accuracy. The repeatability of the instruments will be within the requirement of Table IWP-4110-1.

RELIEF REQUEST NUMBER 7

Systems: Auxiliary Feedwater (AFW)/High Pressure Safety Injection (HPSI)/Low Pressure Safety Injection (LPSI)/Containment Spray (CS).

P&IDs: M-801/462

Pumps: AFW; 21, 22, and 23
HPSI; 21, 22, and 23
LPSI; 21 and 22

Class: 2 and 3

Impractical Test Requirement: Table IWP-3100-2 requires that flow be monitored and maintained within a set allowable range.

Basis for Relief: These pumps are tested in a mini-recirculation flow loop due to the impracticability of full flow testing during power operation. The AFW, HPSI, LPSI, and CS Pumps, if full flow tested, would result in thermal shock to equipment nozzles or deluge of equipment in containment with borated water. A recirculation loop provides a relatively fixed resistance flow path. Tank level does not have a significant impact on recirculation flow for any of these pumps. Each of the pumps has a relatively flat hydraulic characteristic curve within the recirculation flow range. Monitoring flow and checking against an allowable range provides no meaningful input to pump performance.

Alternative Testing: Quarterly testing will be performed without evaluating flow. At each refueling outage a large flow test will be conducted with flowrate being evaluated along with all other pump vibration and hydraulic performance indicators.

APPENDIX B

EXPLANATION OF CODES AND SYMBOLS USED IN THE CALVERT CLIFFS VALVE INSERVICE TESTING PROGRAM

This appendix defires the meaning of all codes and symbols used in the valve test program presented in Appendices C & D.

TABLE B-1

SYMBOLS USED TO DESIGNATE VALVE TYPE

VALVE TYPES

SYMBOL	MEANING
C	Check Valves
B	Butterfly Valve
G	Gate Valve
GL	Globe Valve
RV	Pressure Relief Valve
RD	Rupture Disk
A	Angle Valve

TABLE B-2

SYMBOLS USED TO DESIGNATE VALVE ACTUATOR TYPE

VALVE ACTUATOR TYPES

SYMBOL	MEANING
M	Motor
A	Air
S	Solenoid
H	Hand (manual)
E/H	Electro Hydraulic
-	None (self actuating)
P/H	Pneumatic Hydraulic

TABLE B-3

SYMBOLS USED TO DESIGNATE VALVE POSITION

VALVE POSITIONS

SYMBOLS	MEANING
O	Open
C	Shut

NOTE: Calvert Cliffs may revise the identified positions listed in "Normal Position" and "Required Position" based on changes in valve function.

TABLE B-4

SYMBOLS USED TO DESIGNATE TESTING REQUIREMENT

TEST

SYMBOL	MEANING
F	Stroke Test per IWV-3400
L	Leak Test per 10CFR50, App. J
V	Stroke Test of check valves per IWV-3520
S	Set Point Test per IWV-3510
I	Isolation Test per IWV-3420 (see Section 3.2 of the program)
RR	See Relief Request for testing

The symbols shown on Tables B-4 and B-5 will be arranged in the following manner:

- A two-letter designation will show Test Method (first letter) and Test Frequency (second letter). Thus the designation "FQ" relates to a full-stroke test (with timing, as appropriate) per IWV-3400 performed quarterly. A designation of "VC" relates to a check valve exercise test per IWV-3520 performed during Cold Shutdowns.

These symbols will appear in the "Reg. Test" column as well as the "Alt. Test" column, as appropriate.

TABLE B-5

SYMBOLS USED TO DESIGNATE TEST FREQUENCY

FREQUENCY

SYMBOL	MEANING
Q	Quarterly
R	Refueling
T	Per Table IWV-3510-1
C	Cold Shutdown* (Plant in Modes 2,3,4,5,6)

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* Frequency of Cold Shutdown is considered to be whenever the plant achieves a Mode 5 condition. Specific valves may be tested in Modes 2, 3, 4, or 5 as appropriate for each valve, (i.e., valves may be tested while achieving or recovering from a Mode 5 condition).

TABLE B-6

SYMBOLS USED TO DESIGNATE SECTION XI VALVE CATEGORY

SECTION XI VALVE CATEGORY

SYMBOL	MEANING
A	Valves with specified maximum leakage rate (pressure system isolation valves (PSIVs) and containment isolation valves (CIVs)).
B	Valves with no specific maximum leakage rate.
C	Self-actuating (check, relief valves)
D	Actuated by energy source capable of only one operation (rupture disks, explosive valves).

TABLE B-7

SYMBOLS USED TO DESIGNATE ACTIVE AND PASSING VALVES

ACTIVE & PASSIVE VALVES

SYMBOL	MEANING
1	Active - valves which are required to change position to accomplish a specific function.
2	Passive - valves which are not required to change position to accomplish a specific function.

APPENDIX C

CALVERT CLIFFS UNIT 1

SECOND TEN YEAR VALVE TESTING PROGRAM

UNIT NO. 1 SYSTEM NAME: Main Steam and Reheat P&ID NO. OM-35 SHEET 1

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
1-RV-3992	2	E-6	C-1	6	RV	-	-	-	C	O	ST			
1-RV-3993	2	E-6	C-1	6	RV	-	-	-	C	O	ST			
1-RV-3994	2	E-6	C-1	6	RV	-	-	-	C	O	ST			
1-RV-3995	2	E-5	C-1	6	RV	-	-	-	C	O	ST			
1-RV-3996	2	E-5	C-1	6	RV	-	-	-	C	O	ST			
1-RV-3997	2	E-4	C-1	6	RV	-	-	-	C	O	ST			
1-RV-3998	2	E-4	C-1	6	RV	-	-	-	C	O	ST			
1-RV-3999	2	E-4	C-1	6	RV	-	-	-	C	O	ST			
1-RV-4000	2	B-6	C-1	6	RV	-	-	-	C	O	ST			
1-RV-4001	2	B-6	C-1	6	RV	-	-	-	C	O	ST			
1-RV-4002	2	B-6	C-1	6	RV	-	-	-	C	O	ST			
1-RV-4003	2	B-5	C-1	6	RV	-	-	-	C	O	ST			
1-RV-4004	2	B-5	C-1	6	RV	-	-	-	C	O	ST			
1-RV-4005	2	B-4	C-1	6	RV	-	-	-	C	O	ST			
1-RV-4006	2	B-4	C-1	6	RV	-	-	-	C	O	ST			
1-RV-4007	2	B-4	C-1	6	RV	-	-	-	C	O	ST			
1-CV-4043	2	E-3	B-1	36	GL	P/H	X	6	O	C	FC			
1-CV-4048	2	B-3	B-1	36	GL	P/H	X	6	O	C	FC			

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UNIT NO. 1 SYSTEM NAME: Condensate and Feedwater System P&ID NO. OM-39 SHEET 4

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
1-FW-130	2	F-7	C-1	16	C	-	-	-	O	C	VC			
1-FW-133	2	B-7	C-1	16	C	-	-	-	O	C	VC			
1-MOV-4516	2	B-8	B-1	16	GL	M	X	70	O	C	FC			
1-MOV-4517	2	F-8	B-1	16	GL	M	X	70	O	C	FC			

UNIT NO. 1 SYSTEM NAME: Service Water Cooling System P&ID NO. OM-46 SHEET 2

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
1-SRW-314	3	E-3	C-1	14	C	-	-	-	O/C	O/C	VQ			
1-SRW-315	3	F-3	C-1	14	C	-	-	-	O/C	O/C	VQ			
1-SRW-316	3	G-3	C-1	14	C	-	-	-	O/C	O/C	VQ			
1-SRW-317	2	F-6	C-1	8	C	-	-	-	O/C	O	VQ			
1-SRW-318	2	E-10	C-1	8	C	-	-	-	O/C	O	VQ			
1-SRW-319	2	H-5	C-1	8	C	-	-	-	O/C	O	VQ			
1-SRW-320	2	H-8	C-1	8	C	-	-	-	O/C	O	VQ			
1-SRW-321	3	F-8	C-1	6	C	-	-	-	C	O	VQ			
1-SRW-322	3	D-8	C-1	6	C	-	-	-	C	O	VQ			
1-SRW-323	3	H-2	C-1	18	C	-	-	-	O	C	VC			
1-SRW-324	3	H-2	C-1	18	C	-	-	-	O	C	VC			
1-SRW-325	3	H-2	C-1	18	C	-	-	-	O	C	VC			
1-CV-1582	2	E-6	B-1	8	B	A	X	60	C	O	FQ			
1-CV-1585	2	E-11	B-1	8	B	A	X	60	C	O	FQ			
1-CV-1590	2	H-6	B-1	8	B	A	X	60	C	O	FQ			
1-CV-1593	2	F-11	B-1	8	B	A	X	60	C	O	FQ			
1-CV-1596	3	B-7	B-1	8	B	A	X	15	O	C	FQ			

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UNIT NO. 1 SYSTEM NAME: Service Water Cooling System P&ID NO. OM-46 SHEET 2

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
1-CV-1597	3	C-8	B-1	8	B	A	X	18	O	C	FQ			
1-CV-1600	3	B-9	B-1	14	B	A	X	30	O	C	FC			
1-CV-1637	3	B-9	B-1	10	B	A	X	30	O	C	FC			

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UNIT NO. 1 SYSTEM NAME: Service Water Cooling System P&ID NO. OM-46 SHEET 2

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
1-CV-1638	3	B-10	B-1	14	B	A	X	30	O	C	FC			
1-CV-1639	3	B-10	B-1	10	B	A	X	30	O	C	FC			
1-CV-1645	3	F-8	B-1	6	B	A	X	20	O	[illegible]	FQ			
1-CV-1646	3	D-9	B-1	6	B	A	X	20	O	O	FQ			

UNIT NO. 1 SYSTEM NAME: Circulating Salt Water Cooling System P&ID NO. OM-49 SHEET 1

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
1-MOV-5250	3	A-2	B-1	6	B	M	X	30	O	C	FQ			
1-MOV-5251	3	A-3	B-1	6	B	M	X	30	O	C	FQ			

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UNIT NO. 1 SYSTEM NAME: Circulating Salt Water Cooling System P&ID NO. OM-49 SHEET 2

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
1-SW-103	3	C-11	C-1	30	C	-	-	-	O/C	O/C	VQ			
1-SW-107	3	C-9	C-1	30	C	-	-	-	O/C	O/C	VQ			
1-SW-111	3	C-6	C-1	30	C	-	-	-	O/C	O/C	VQ			
1-CV-5160	3	E-5	B-1	24	B	A	X	15	O/C	O/C	FQ			
1-CV-5162	3	G-5	B-1	24	B	A	X	20	O/C	O/C	FQ			
1-CV-5163	3	H-6	B-1	24	B	A	X	24	O/C	O/C	FQ			
1-CV-5170	3	E-3	B-1	8	B	A	X	12	O/C	O	FQ			
1-CV-5171	3	G-3	B-1	8	B	A	X	12	O/C	O	FQ			
1-CV-5173	3	D-3	B-1	8	B	A	X	21	O/C	O	FQ			
1-CV-5206	3	J-7	B-1	24	B	A	X	140	O/C	O/C	FQ			
1-CV-5208	3	H-4	B-1	24	B	A	X	148	O/C	O/C	FQ			
1-CV-5210	3	F-10	B-1	30	B	A	X	240	O/C	O	FQ			
1-CV-5212	3	H-10	B-1	30	B	A	X	254	O/C	O	FQ			

UNIT NO. 1 SYSTEM NAME: Component Cooling System P&ID NO. OM-51 SHEET 1

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
1-CC-115	3	E-4	C-1	16	C	-	-	-	O/C	O/C	VQ			
1-CC-120	3	G-4	C-1	16	C	-	-	-	O/C	O/C	VQ			
1-CC-125	3	J-4	C-1	16	C	-	-	-	O/C	O/C	VQ			

UNIT NO. 1 SYSTEM NAME: Component Cooling System P&ID NO. OM-51 SHEET 2

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
1-CV-3824	3	D-6	B-1	16	B	A	X	27	O/C	O	FQ			
1-CV-3826	3	B-6	B-1	16	B	A	X	24	O/C	O	FQ			
1-CV-3828	3	H-9	B-1	16	B	A	X	25	C	O	FQ			
1-CV-3830	3	E-9	B-1	16	B	A	X	28	C	O	FQ			
1-CV-3832	2	B-1	A-1	10	B	A	X	18	C	C	FC,LR	A-4		CIV
1-CV-3833	2	J-3	A-1	10	B	A	X	18	O	C	FC,LR	A-4		CIV
1-CV-3840	3	B-7	B-1	10	B	A	X	15	O	C	FQ			
1-CV-3842	3	B-8	B-1	10	B	A	X	15	O	C	FQ			

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UNIT NO. 1 SYSTEM NAME: Compressed Air System Instrument & Plant P&ID NO. OM-53 SHEET 1

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
1-IA-337	3	B-10	AC-1	2	C	-	-	-	O/C	C	LR,VC	A-4		CIV Valve no. previously 1-IA-175

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UNIT NO. 1 SYSTEM NAME: Compressed Air System Instrument & Plant P&ID NO. OM-53 SHEET 3

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
1-MOV-2080	2	F-1	A-1	2	G	M	X	13	O	C	LR,FC	A-4		CIV

UNIT NO. 1 SYSTEM NAME: Plant Fire Protection System P&ID NO. OM-56 SHEET 1

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
1-FP-141A	2	C-2	AC-2	6	C	-	-	-	C	C	LR	A-4		CIV
1-FP-141B	2	C-3	AC-2	6	C	-	-	-	C	C	LR	A-4		CIV
1-MOV-6200	3	C-3	A-2	6	G	M	X	-	C	C	LR	A-4		CIV

UNIT NO. 1 & 2 SYSTEM NAME: Spent Fuel Pool Cooling System P&ID NO. OM-58 SHEET 2

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
0-SFP-170	3	B-1	A-2	8	G	H	-	-	C	C	LR	A-4		CIV
0-SFP-171	3	B-1	A-2	8	G	H	-	-	C	C	LR	A-4		CIV
0-SFP-172	3	C-1	A-2	8	G	H	-	-	C	C	LR	A-4		CIV
0-SFP-174	3	C-2	A-2	8	G	H	-	-	C	C	LR	A-4		CIV
0-SFP-176	3	C-2	A-2	2	G	H	-	-	C	C	LR	A-4		CIV
0-SFP-178	3	B-11	A-2	8	G	H	-	-	C	C	LR	A-4		CIV
0-SFP-179	3	B-11	A-2	8	G	H	-	-	C	C	LR	A-4		CIV
0-SFP-180	3	C-10	A-2	8	G	H	-	-	C	C	LR	A-4		CIV
0-SFP-182	3	C-9	A-2	8	G	H	-	-	C	C	LR	A-4		CIV
0-SFP-184	3	C-9	A-2	2	G	H	-	-	C	C	LR	A-4		CIV
0-SFP-186	3	D-9	A-2	8	G	H	-	-	C	C	LR	A-4		CIV
0-SFP-189	3	D-2	A-2	8	G	H	-	-	C	C	LR	A-4		CIV

UNIT NO. 1 SYSTEM NAME: Ventilation Systems P&ID NO. OM-65 SHEET 1

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
1-CV-1410	2	B-11	A-1	48	B	A	X	7	C	C	LR,FQ	VS-1,A-4	RR	CIV
1-CV-1411	2	B-11	A-1	48	B	A	X	7	C	C	LR,FQ	VS-1,A-4	RR	CIV
1-CV-1412	2	C-11	A-1	48	B	A	X	7	C	C	LR,FQ	VS-1,A-4	RR	CIV
1-CV-1413	2	C-11	A-1	48	B	A	X	7	C	C	LR,FQ	VS-1,A-4	RR	CIV

UNIT NO. 1 SYSTEM NAME: Ventilation System P&ID NO. UM-65 SHEET 2

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
1-HP-104	2	F-4	AC-2	4	C	-	-	-	C	C	LR	A-4		CIV
1-HP-6900	2	G-5	A-1	4	G	M	X	-	C	C	FC,LR	A-4		CIV
1-HP-6901	2	G-5	A-1	4	G	M	X	-	C	C	FC,LR	A-4		CIV
1-HP-6903	2	G-5	A-1	4	G	M	X	-	C	C	LR	A-4		CIV

UNIT NO. 1 SYSTEM NAME: Reactor Coolant & Water Process Sample System Post Accident Sample System P&ID No. OM-66 SHEET 1

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
1-SV-105	1	A-3	B-1	3/4	G	S	X	3	C	O	FC	A-1	RR	
1-SV-106	1	A-3	B-1	3/4	G	S	X	3	C	O	FC	A-1	RR	
1-CV-5464	1	C-4	A-1	3/4	G	A	X	7	C	C	LR,FQ	A-4		CIV
1-CV-5465	1	B-2	A-1	3/4	G	A	X	7	C	C	LR,FQ	A-4		CIV
1-CV-5466	1	B-2	A-1	3/4	G	A	X	7	C	C	LR,FQ	A-4		CIV
1-CV-5467	1	C-2	A-1	3/4	G	A	X	7	C	C	LR,FQ	A-4		CIV

UNIT NO. 1 SYSTEM NAME: Reactor Coolant & Water Process Sample System Post Accident Sample System P&ID NO. OM-66 SHEET 3

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
1-SV-6529	1	F-11	A-2		GL	S	X	7	C	C	LR	A-4		CIV

UNIT NO. 1 & 2   SYSTEM NAME: Nitrogen Generating - Blanketing System   P&ID NO. OM-68   SHEET 1

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
$0\text{-}N_2\text{-}344$	2	H-7	AC-1	1	C	-	-	-	C	C	VQ,LR	NG-1,A-4	RR	CIV
$0\text{-}N_2\text{-}345$	2	H-7	AC-1	1	C	-	-	-	C	C	VQ,LR	NG-1,A-4	RR	CIV
$0\text{-}N_2\text{-}346$	2	H-7	AC-1	1	C	-	-	-	C	C	VQ,LR	NG-1,A-4	RR	CIV
$0\text{-}N_2\text{-}347$	2	H-7	AC-1	1	C	-	-	-	C	C	VQ,LR	NG-1,A-4	RR	CIV
$0\text{-}N_2\text{-}348$	2	H-7	AC-1	1	C	-	-	-	C	C	VQ,LR	NG-1,A-4	RR	CIV
$0\text{-}N_2\text{-}349$	2	H-7	AC-1	1	C	-	-	-	C	C	VQ,LR	NG-1,A-4	RR	CIV
$0\text{-}N_2\text{-}389$	2	H-7	AC-1	1	C	-	-	-	C	C	VQ,LR	NG-1,A-4	RR	CIV
$0\text{-}N_2\text{-}392$	2	H-7	AC-1	1	C	-	-	-	C	C	VQ,LR	NG-1,A-4	RR	CIV
$0\text{-}N_2\text{-}395$	2	H-7	AC-1	1	C	-	-	-	C	C	VQ,LR	NG-1,A-4	RR	CIV
$0\text{-}N_2\text{-}398$	2	E-7	AC-1	1	C	-	-	-	C	C	VQ,LR	NG-1,A-4	RR	CIV

UNIT NO. 1 SYSTEM NAME: Plant Heating System P... NO. OM-71 SHEET 2

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
0-PH-376	2	A-2	AC-2	3	C	-	-	-	C	C	LR	A-4		CIV
1-MOV-6579	2	B-2	A-2	3	G	M	X	13	C	C	LR	A-4		CIV

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UNIT NO. 1 SYSTEM NAME: Reactor Coolant System P&ID NO. OM-72 SHEET 1

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
1-SV-103	1	[illegible]-7	B-1	3/4	G	S	X	3	C	O	FC	A-1		
1-SV-104	1	J-6	B-1	3/4	G	S	X	3	C	O	FC	A-1		
1-RV-200	1	B-4	C-1	2 1/2	RV	-	-	-	C	O	ST			
1-RV-201	1	[illegible]-8	C-1	2 1/2	RV	-	-	-	C	O	ST			
1-ERV-402	1	A-5	C-1	2 1/2	RV	*	-	-	C	O	ST	RC-1	RR	*Electromatic Relief Valve
1-MOV-403	1	B-5	B-1	4	G	M	X	45	O	O	FQ			
1-ERV-404	1	A-[illegible]	C-1	2 1/2	RV	*	-	-	C	O	ST	RC-1	RR	*Electromatic Relief Valve
1-MOV-405	1	B-7	B-1	4	G	M	X	45	O	O	FQ			
1-DW-5460-CV	2	A-11	A-1	2	GL	A	-	7.5	O/C	C	FQ,LR	A-4		CIV

UNIT NO. 1 SYSTEM NAME: CVCS P&ID NO. OM-73 SHEET 1

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
1-CVC-162	2	F-2	C-1	4	C	-	-	-	O	C	VC			
1-CVC-217	2	G-8	C-1	3	C	-	-	-	O/C	O/C	VQ			
1-CVC-222	2	H-10	C-1	3	C	-	-	-	O/C	O/C	VQ			
1-CVC-228	2	H-2	C-1	3	C	-	-	-	C	O	VC			
1-CVC-235	2	F-6	C-1	3	C	-	-	-	C	O	VC			
1-MOV-501	2	F-2	B-1	4	G	M	X	30	O	C	FC			
1-MOV-508	2	H-12	B-1	3	G	M	X	20	C	O	FQ			
1-MOV-509	2	G-8	B-1	3	G	M	X	20	C	O	FQ			
1-CV-510	2	E-9	B-1	1 1/2	G	A	X	30	O	C	FQ			
1-CV-511	2	E-13	B-1	1 1/2	G	A	X	30	O	C	FQ			
1-CV-512	2	D-4	B-1	3	GL	A	X	30	C	C	FQ			
1-MOV-514	2	F-6	B-1	3	G	M	X	20	C	O	FQ			

UNIT NO. 1 SYSTEM NAME: CVCS P&ID NO. OM-73 SHEET 2

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
1-CVC-165	2	E-6	C-1	2	C	-	-	-	O/C	O/C	[illegible]			
1-CVC-171	2	G-6	C-1	2	C	-	-	-	O/C	O/C	VQ			
1-CVC-177	2	H-6	C-1	2	C	-	-	-	O/C	O/C	VQ			
1-CVC-184	1	D-5	AC-1	2	C	-	-	-	O	O/C	VC,LR	A-4		CIV, Tested OPEN During Power Operation. Tested SHUT During Cold Shutdown
1-CVC-185	1	C-8	C-1	2	C	-	-	-	C	O/C	VC			
1-CVC-186	1	D-8	C-1	2	C	-	-	-	O	O/C	VC			Tested OPEN During Power Operation. Tested SHUT During Cold Shutdown
1-CVC-187	1	E-12	C-1	2	C	-	-	-	O	O/C	VC			Tested OPEN During Power Operation. Tested SHUT During Cold Shutdown
1-MOV-269	2	F-9	B-1	2	G	M	X	20	C	C	FC			

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UNIT NO. 1 SYSTEM NAME: CVCS P&ID NO. OM-73 SHEET 2

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
1-RV-311	2	G-10	C-1	3/4	RV	-	-	-	C	O	ST			
1-RV-315	2	E-8	C-1	3/4	RV	-	-	-	C	O	ST			
1-RV-318	2	F-8	C-1	3/4	RV	-	-	-	C	O	ST			
1-RV-321	2	H-8	C-1	3/4	RV	-	-	-	C	O	ST			
1-RV-324	2	H-6	C-1	3/4	RV	-	-	-	C	O	ST			
1-RV-325	2	G-6	C-1	3/4	RV	-	-	-	C	O	ST			
1-RV-326	2	E-6	C-1	3/4	RV	-	-	-	C	O	ST			
1-CVC-435	1	E-12	AC-1	2	C	-	-	-	C	O/C	VC,LR	A-4		CIV
1-CV-505	1	B-6	A-1	3/4	GL	A	X	7	O	C	FC,LR	A-4		CIV

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UNIT NO. 1 SYSTEM NAME: CVCS P&ID NO. OM-73 SHEET 2

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
1-CV-506	1	B-8	A-1	3/4	GL	A	X	7	O	C	FC,LR	A-4		CIV
1-CV-515	1	D-2	A-1	2	GL	A	X	13	O	C	FC,LR	A-4		CIV
1-CV-516	1	D-4	A-1	2	GL	A	X	13	O	C	FC,LR	A-4		CIV
1-CV-517	1	C-10	A-1	2	GL	A	X	200	C	O/C	FC,LR	A-4		CIV
1-CV-518	1	D-10	A-1	2	GL	A	X	53	O	O	FQ,LR	A-4		CIV
1-CV-519	1	E-12	A-1	2	GL	A	X	38	O	O	FQ,LR	A-4		CIV

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UNIT NO. 1 SYSTEM NAME: CVCS P&ID NO. OM-73 SHEET 3

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
1-CVC-103	2	B-3	A-2	2	G	H	-	-	C*	C*	LR	A-4		CIV
1-CVC-105	2	B-3	A-2	2	G	H	-	-	O*	O*	LR	A-4		CIV

* Normally if CVC-103 is OPEN, CVC-105 is SHUT, and vice-versa.

UNIT NO. 1 SYSTEM NAME: Safety Injection & Containment Spray System P&ID NO. OM-74 SHEET 1

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
1-SI-113	2	D-2	C-1	2	C	-	-	-	C	O/C	VC			Tested OPEN During Cold Shutdown. Tested SHUT During Power Operation.
1-SI-123	2	E-2	C-1	2	C	-	-	-	C	O/C	VC			Tested OPEN During Cold Shutdown. Tested SHUT During Power Operation.
1-SI-133	2	F-2	C-1	2	C	-	-	-	C	O/C	VC			Tested OPEN During Cold Shutdown. Tested SHUT During Power Operation.
1-SI-143	2	H-2	C-1	2	C	-	-	-	C	O/C	VC			Tested OPEN During Cold Shutdown. Tested SHUT During Power Operation.
1-SI-401	2	F-9	C-1	6	C	-	-	-	C	O	VC			
1-SI-405	2	F-6	C-1	3	C	-	-	-	C	O/C	VC			
1-RV-409	2	F-4	C-1	3/4	RV	-	-	-	C	O	ST			

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UNIT NO. 1 SYSTEM NAME: Safety Injection & Containment Spray System P&ID NO. OM-74 SHEET 1

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
1-SI-410	2	E-9	C-1	8	C	-	-	-	C	O	VC			
1-SI-414	2	E-6	C-1	3	C	-	-	-	C	O/C	VC			
1-RV-417	2	D-4	C-1	1	RV	-	-	-	C	O	ST			
1-SI-422	2	D-9	C-1	2	C	-	-	-	C	O	VQ			
1-SI-424	2	C-9	C-1	2	C	-	-	-	C	O	VQ			
1-SI-426	2	F-9	C-1	2	C	-	-	-	C	O	VQ			
1-SI-427	2	D-6	C-1	6	C	-	-	-	C	O/C	VC			
1-SI-434	2	H-4	C-1	10	C	-	-	-	C	O/C	VC			
1-SI-446	2	B-4	C-1	10	C	-	-	-	C	O/C	VC			
1-SI-448	2	A-9	C-1	2	C	-	-	-	C	O	VQ			
1-SI-451	2	G-9	C-1	2	C	-	-	-	C	O	VQ			

UNIT NO. 1 SYSTEM NAME: Safety Injection & Containment Spray System P&ID NO. OM-74 SHEET 1

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
1-MOV-616	2	C-3	B-1	2	GL	M	X	20	C	O	FQ			
1-MOV-617	2	C-3	B-1	2	GL	M	X	20	C	O	FQ			
1-MOV-626	2	D-3	B-1	2	GL	M	X	20	C	O	FQ			
1-MOV-627	2	E-3	B-1	2	GL	M	X	20	C	O	FQ			
1-MOV-636	2	F-3	B-1	2	GL	M	X	20	C	O	FQ			
1-MOV-637	2	F-3	B-1	2	GL	M	X	20	C	O	FQ			
1-MOV-646	2	G-3	B-1	2	GL	M	X	20	C	O	FQ			
1-MOV-647	2	H-3	B-1	2	GL	M	X	20	C	O	FQ			
1-MOV-659	2	B-10	B-1	4	G	M	X	70	O	O/C	FC			
1-MOV-660	2	B-10	B-1	4	G	M	X	70	O	O/C	FC			
1-MOV-4142	2	E-10	B-1	18	G	M	X	124	O	O/C	FQ			Tested SHUT Only.
1-MOV-4143	2	F-10	B-1	18	G	M	X	128	O	O/C	FQ			Tested SHUT Only.
1-SI-4146	2	E-10	C-1	18	C	-	-	-	C	O	VQ	SI-6	RR	
1-SI-4147	2	F-10	C-1	18	C	-	-	-	C	O	VQ	SI-6	RR	

UNIT NO. 1 SYSTEM NAME: Safety Injection & Containment Spray System P&ID NO. OM-74 SHEET 2

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
1-SI-114	2	E-3	C-1	6	C	-	-	-	C	O/C	VC			
1-SI-118	2	E-4	AC-1	6	C	-	-	-	C	O/C	VC,IR			PSIV
1-SI-124	2	J-3	C-1	6	C	-	-	-	C	O/C	VC			
1-SI-128	2	J-4	AC-1	6	C	-	-	-	C	O/C	VC,IR			PSIV
1-SI-134	2	E-9	C-1	6	C	-	-	-	C	O/C	VC			
1-SI-138	2	E-8	AC-1	6	C	-	-	-	C	O/C	VC,IR			PSIV
1-SI-144	2	H-9	C-1	6	C	-	-	-	C	O/C	VC			
1-SI-148	2	H-9	AC-1	6	C	-	-	-	C	O/C	VC,IR			PSIV
1-RV-211	2	B-2	C-1	1	RV	-	-	-	C	O	ST			
1-SI-215	1	D-2	AC-1	12	C	-	-	-	C	O/C	VQ,IR	SI-3	RR	PSIV
1-SI-217	1	D-5	AC-1	12	C	-	-	-	C	O/C	VQ,IR	SI-4,5	RR	PSIV
1-RV-221	2	F-1	C-1	1	RV	-	-	-	C	O	ST			
1-SI-225	2	H-2	AC-1	12	C	-	-	-	C	O/C	VQ,IR	SI-3	RR	PSIV
1-SI-227	1	H-5	AC-1	12	C	-	-	-	C	O/C	VQ,IR	SI-4,5	RR	PSIV
1-RV-231	2	B-9	C-1	1	RV	-	-	-	X	O	ST			
1-SI-235	2	D-9	AC-1	12	C	-	-	-	C	O/C	VQ,IR	SI-3	RR	PSIV
1-SI-237	1	D-7	AC-1	12	C	-	-	-	C	O/C	VQ,IR	SI-4,5	RR	PSIV

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UNIT NO. 1 SYSTEM NAME: Safety Injection & Containment Spray System P&ID NO. OM-74 SHEET 2

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
1-RV-241	2	E-9	C-1	1	RV	-	-	-	C	O	ST			
1-SI-245	2	G-10	AC-1	12	C	-	-	-	C	O/C	VQ,IR	SI-3	RR	PSIV

UNIT NO. 1 SYSTEM NAME: Safety Injection & Containment Spray System P&ID NO. OM-74 SHEET 2

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
1-SI-247	1	H-7	AC-1	12	C	-	-	-	C	O/C	VQ, IR	SI-4,5	RR	PSIV
1-MOV-399	2	H-7	B-1	2	G	M	X	20	C	C	FQ			
1-SI-455	2	A-10	A-2	2	GL	H	-	-	C	C	LR	A-4		CIV
1-SI-463	2	A-10	A-2	2	GL	H	-	-	C	C	LR	A-4		CIV
1-RV-468	2	J-8	C-1	1 1/2	RV	-	-	-	C	O	ST			
1-RV-469	2	J-5	C-1	3/4	RV	-	-	-	C	O	ST			
1-CV-612	2	B-4	A-1	1	G	A	X	6	O/C	C	FQ, LR	A-4		CIV
1-MOV-615	2	E-2	B-1	6	GL	M	X	20	C	O	FQ			
1-CV-618	1	D-4	B-1	1	G	A	X	30	O/C	C	FQ			
1-CV-622	2	F-5	A-1	1	G	A	X	6	O/C	C	FQ, LR	A-4		CIV
1-MOV-625	2	J-2	B-1	6	GL	M	X	20	C	O	FQ			
1-CV-628	1	G-5	B-1	1	G	A	X	30	O/C	C	FQ			
1-CV-632	2	B-11	A-1	1	G	A	X	6	O/C	C	FQ, LR	A-4		CIV
1-MOV-635	2	E-10	B-1	6	GL	M	X	20	C	O	FQ			
1-CV-638	1	C-7	B-1	1	G	A	X	30	O/C	C	FQ			

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UNIT NO. 1 SYSTEM NAME: Safety Injection & Containment Spray System P&ID NO. OM-74 SHEET 2

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
1-CV-642	2	F-1	A-1	1	G	A	X	6	O/C	C	FQ,LR	A-4		CIV
1-MOV-645	2	H-10	B-1	6	GL	M	X	20	C	O	FQ			
1-CV-648	1	G-7	B-1	1	G	A	X	30	O/C	C	FQ			
1-MOV-651	1	J-7	A-1	12	G	M	X	108	C	O/C	FC,LR	A-4		CIV
1-MOV-652	1	J-4	A-1	12	G	M	X	102	C	O/C	FC,LR	A-4		CIV

UNIT NO. 1 SYSTEM NAME: Safety Inj[illegible]ction & Containment Spray System P&ID NO. OM-74 SHEET 3

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
1-SI-313	2	B-8	C-1	8	C	-	-	-	C	O	VC	SI-7		
1-SI-316	2	C-5	AC-1	8	C	-	-	-	C	O/C	VQ,LR	SI-1,A-4	RR	CIV
1-SI-323	2	E-8	C-1	8	C	-	-	-	C	O	VC	SI-7		
1-SI-326	2	C-4	AC-1	8	C	-	-	-	C	O/C	VQ,LR	SI-1,A-4	RR	CIV
1-SI-330	2	C-4	AC-1	8	C	-	-	-	C	O/C	VQ,LR	SI-1,A-4	RR	CIV
1-SI-334	2	A-9	C-1	2	C	-	-	-	C	O	VQ			
1-SI-340	2	G-4	AC-1	8	C	-	-	-	C	O/C	VQ,LR	SI-1,A-4	RR	CIV
1-SI-344	2	E-9	C-1	2	C	-	-	-	C	O	VQ			
1-CV-657	2	D-4	B-1	12	GL	A	X	60/121	C	O/C	FQ			
1-MOV-658	2	D-7	B-1	12	G	M	X	97	C	O	FQ			
1-MOV-4144	2	J-5	B-1	24	G	M	X	70	C	O/C	FQ			
1-MOV-4145	2	H-5	B-1	24	G	M	X	70	C	O/C	FQ			
1-SI-4148	2	J-7	C-1	24	C	-	-	-	C	O/C	VQ	SI-2	RR	
1-SI-4149	2	H-7	C-1	24	C	-	-	-	C	O/C	VQ	SI-2	RR	
1-CV-4150	2	C-3	B-1	8	GL	A	X	60	C	O	FQ			
1-CV-4151	2	G-3	B-1	8	GL	A	X	60	C	O	FQ			

UNIT NO. 1 SYSTEM NAME: Waste Process Equipment & Area Drains P&ID NO. OM-76 SHEET 1

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
1-MOV-5463	2	J-9	A-1	4	G	M	X	13	O/C	C	LR,FQ	A-4		CIV

UNIT NO. 1   SYSTEM NAME: Waste Process Equipment & Area Drains   P&ID NO. OM-76   SHEET 4

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
1-MOV-5462	2	C-3	A-1	4	G	M	X	13	O/C	C	FQ,LR	A-4		CIV

UNIT NO. 1 SYSTEM NAME: Reactor Coolant Waste Processing System P&ID NO. OM-77 SHEET 1

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
1-CV-4260	2	E-5	A-1		GL	A	X	7	O/C	C	FQ,LR	A-4		CIV

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UNIT NO. 1 SYSTEM NAME: Reactor Coolant Waste Processing System P&ID NO. OM-77 SHEET 3

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
1-ES-142	3	E-9	A-2	1	GL	H	-	-	C	C	LR	A-4		CIV
1-ES-144	3	E-9	A-2	1	GL	H	-	-	C	C	LR	A-4		CIV

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UNIT NO. 1 SYSTEM NAME: Waste Gas & Misc. Waste Processing Systems P&ID NO. OM-78 SHEET 1

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ TEST	REL. REQ. NO.	ALT. TEST	REMARKS
1-CV-2180	2	C-2	A-1	2	GL	A	X	7	O/C	C	LR,FQ	A-4		CIV
1-CV-2181	2	C-2	A-1	2	GL	A	X	7	O/C	C	LR,FQ	A-4		CIV

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UNIT NO. 1 SYSTEM NAME: Area & Process Radiation Monitoring System P&ID NO. OM-98 SHEET 1

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
1-CV-5291	2	B-9	A-1	1	GL	A	X	7	O	C	FQ,LR	A-4		CIV
1-CV-5292	2	B-9	A-1	1	GL	A	X	7	O	C	FQ,LR	A-4		CIV

UNIT NO. 1   SYSTEM NAME: Gas Analyzing System   P&ID NO. OM-463   SHEET 1

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
1-SV-6507A	3	B-9	A-2	1/4	GL	S	X	3	C	C	LR	A-1,A-4	RR	CIV
1-SV-6507B	3	B-2	A-2	1/4	GL	S	X	3	C	C	LR	A-1,A-4	RR	CIV
1-SV-6507C	3	B-2	A-2	1/4	GL	S	X	3	C	C	LR	A-1,A-4	RR	CIV
1-SV-6507D	3	B-3	A-2	1/4	GL	S	X	3	C	C	LR	A-1,A-4	RR	CIV
1-SV-6507E	3	B-10	A-2	1/4	GL	S	X	3	C	C	LR	A-1,A-4	RR	CIV
1-SV-6507F	3	B-10	A-2	1/4	GL	S	X	3	C	C	LR	A-1,A-4	RR	CIV
1-SV-6531	2	E-5	A-2	1/4	GL	S	X	7	C	C	LR	A-1,A-4	RR	CIV
1-SV-6540A	3	B-9	A-2	1/4	GL	S	X	3	C	C	LR	A-1,A-4	RR	CIV
1-SV-6540B	3	B-2	A-2	1/4	GL	S	X	3	C	C	LR	A-1,A-4	RR	CIV
1-SV-6540C	3	B-2	A-2	1/4	GL	S	X	3	C	C	LR	A-1,A-4	RR	CIV
1-SV-6540D	3	B-3	A-2	1/4	GL	S	X	3	C	C	LR	A-1,A-4	RR	CIV
1-SV-6540E	3	B-10	A-2	1/4	GL	S	X	3	C	C	LR	A-1,A-4	RR	CIV
1-SV-6540F	3	B-10	A-2	1/4	GL	S	X	3	C	C	LR	A-1,A-4	RR	CIV

UNIT NO. 1 SYSTEM NAME: Gas Analyzing System P&ID NO. OM-463 SHEET 2

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
1-SV-6507G	3	H-6	A-2	1/4	GL	S	X	3	C	C	LR	A-1,A-4	RR	CIV
1-SV-6540G	3	G-6	A-2	1/4	GL	S	X	3	C	C	LR	A-1,A-4	RR	CIV

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UNIT NO. 1 SYSTEM NAME: Steam Generator Blowdown Recovery P&ID NO. OM-464 SHEET 1

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
1-CV-4010	2	D-2	B-1	2	G	A	X	30	O/C	C	FQ			
1-CV-4011	2	E-2	B-1	2	G	A	X	30	O/C	C	FQ			
1-CV-4012	2	B-2	B-1	2	G	A	X	30	O/C	C	FQ			
1-CV-4013	2	C-2	B-1	2	G	A	X	30	O/C	C	FQ			

UNIT NO. 1 SYSTEM NAME: Plant Water & Air Service System Stations P&ID NO. OM-479 SHEET 1

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
1-PSW-1008	2	J-3	A-2	3	GL	H	-	-	C	C	LR	A-4		CIV

UNIT NO. 1 SYSTEM NAME: Plant Water & Air Service System Stations P&ID NO. OM-479 SHEET 2

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
0-PSW-1019	2	D-6	A-2	3	G	H		-	C	C	LR	A-4		CIV
1-PA-1040	2	D-2	A-2	2	G	H		-	C	C	LR	A-4		CIV
1-PA-1044	2	F-8	A-2	2	G	H		-	C	C	LR	A-4		CIV

UNIT NO. 1 SYSTEM NAME: Auxiliary Feedwater System P&ID NO. OM-800 SHEET 1

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
1-AFW-102	3	C-8	C-1	6	C	-	-	-	C	O/C	VC			
1-MS-103	3	A-8	C-1	6	C	-	-	-	C	O/C	VC			
1-MS-106	3	A-8	C-1	6	C	-	-	-	C	O/C	VC			
1-MS-108	3	D-7	C-1	6	C	-	-	-	C	O	VC			
1-MS-110	3	B-7	C-1	6	C	-	-	-	C	O	VC			
1-AFW-114	3	B-9	C-1	6	C	-	-	-	C	O	VQ			
1-AFW-116	3	F-8	C-1	6	C	-	-	-	C	O/C	VC			
1-AFW-128	3	E-9	C-1	6	C	-	-	-	C	O	VQ			
1-AFW-129	2	B-2	C-1	4	C	-	-	-	C	O	VC			
1-AFW-130	2	G-1	C-1	4	C	-	-	-	C	O	VC			
1-AFW-183	3	H-8	C-1	4	C	-	-	-	C	O/C	VC			
1-AFW-190	3	H-7	C-1	6	C	-	-	-	C	O	VC			
1-AFW-193	3	B-4	C-1	4	C	-	-	-	C	O	VC			
1-AFW-194	3	G-3	C-1	4	C	-	-	-	C	O	VC			
1-AFW-199	2	G-2	C-1	4	C	-	-	-	C	O	VC			
1-AFW-200	2	G-2	C-1	4	C	-	-	-	C	O	VC			
1-AFW-201	3	H-10	C-1	2	C	-	-	-	C	O	VQ			

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UNIT NO. 1 SYSTEM NAME: Auxiliary Feedwater System P&ID NO. OM-800 SHEET 1

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
1-AFW-202	3	H-10	C-1	2	C	-	-	-	C	O	VQ			
1-CV-4070	3	A-9	B-1	6	GL	A	X	140	C	O	FQ			
1-CV-4071	3	A-8	B-1	6	GL	A	X	150	C	O	FQ			
1-RV-4501	3	B-11	C-1	1 1/2	RV	-	-	-	C	O	ST			
1-RV-4502	3	D-11	C-1	1 1/2	RV	-	-	-	C	O	ST			

UNIT NO. 1 SYSTEM NAME: Auxiliary Feedwater System P&ID NO. OM-800 SHEET 1

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
1-CV-4520	3	B-6	B-1	6	GL	A	X	19	O	O/C	FQ			
1-CV-4521	3	B-4	B-1	6	GL	A	X	19	O	O/C	FQ			
1-CV-4522	3	D-4	B-1	6	GL	A	X	19	O	O/C	FQ			
1-CV-4523	3	D-3	B-1	6	GL	A	X	19	O	O/C	FQ			
1-CV-4530	3	H-5	B-1	6	GL	A	X	19	O	O/C	FQ			
1-CV-4531	3	H-4	B-1	6	GL	A	X	19	O	O/C	FQ			
1-CV-4532	3	F-4	B-1	6	GL	A	X	19	O	O/C	FQ			
1-CV-4533	3	F-2	B-1	6	GL	A	X	19	O	O/C	FQ			
1-CV-4550	3	H-7	B-1	6	GL	A	X	90	O	O/C	FQ			

RELIEF REQUEST NUMBER A-1

System: Various

P&ID: Various

Valves: Various valves which have actual stroke times of 2 seconds or less

Category: A and B Active

Class: Various

Impractical Test Requirement: IWP-3413 to measure valve stroke time to the nearest second, and associated trending requirements of IWV-3417.

Basis for Relief: Valves with extremely short stroke times (less than 2 seconds) have stroke times of such short duration that comparison of measurements with previous data for specified percentage increases is not indicative of degrading valve performance. With measurement of stroke times to the nearest second per IWV-3413(b), a very small increase in stroke time will result in an extremely large percentage change, which could result in an unnecessary increase in test frequency and challenges to valves. Verificiation that valves meet a specified maximum stroke time of short duration provides adequate assurance of operability.

Alternative Testing: Only the maximum stroke time will be verified for those valves with nominal stroke times less than 2 seconds. The trending requirements of IWV-3417(a) will, therefore, not apply.

RELIEF REQUEST NUMBER A-2

System: Various

P&ID: Various

Valves: Various solenoid actuated valves

Category: A and B Active

Class: Various

Impractical Test Requirement: IWV-3300 requirement to locally verify remote position indication at least once every 2 years.

Basis for Relief: Relief request withdrawn

Alternative Testing:

RELIEF REQUEST NUMBER A-3

System: As Required, Unit 1

P&ID: Where Applicable

Valves: As Required

Category: C

Class: As Required

Function: Relief Protection on Various Systems

Impractical Test Requirement: IWV-3512 requires compliance to ASME PTC 25.3-1976. Paragraph 3.02 of PTC 25.3, 1977 Addendum, requires, "A person who supervises the test shall have a formal education in thermodynamics and fluid mechanics. In addition, he shall have at least two years practical experience in fluid flow measurement and have had experience in test supervision."

Basis For Relief: The requirement of ASME PTC 25.3-1976 for the qualifications of a relief valve test supervisor are burdensome to a utility. It would result in addtional staff requirements that are not warranted in light of the alternate means of mecting the intent of this paragraph.

Alternative Requirements: The Plant Operating Safety Review Committee reviews all test procedures and any unacceptable results of relief valve testing. There are typically several members of this committee that meet the educational and experience level requirements of the Code. All test results are reviewed by the System Engineer responsible for the components i. the system the relief valve protects. The personnel who conduct the tests meet specific qualification requirements in accordance with ANSI/ASME N45.2.6 - 1978. All instruments used for testing are calibrated within the scope of the site Quality Assurance requirements.

RELIEF REQUEST NUMBER A-4

System: Various

P&ID: Various

Valves: All those identified with "CIV" in the Remarks column of the associated Valve Test Program.

Class: Various

Impractical Test Requirements:

a. IWV-3421 through 3425 regarding leak rate test methodology.

b. IWV-3427(b) regarding leak rate trending requirements.

Basis For Relief:

a. In keeping with NRC Staff position, all CIV testing shall be performed under 10CFR50 Appendix J in additional to IWV-3426 and IWV-3427(a). Testing per 10CFR50 Appendix J meets the intent of leak rate testing per Section XI, but will be controlled via the Local Leak Rate Testing Program.

b. The attached data shows that the variability of leak rates for valves 6 inches and larger is excessive. CCNPP feels that this excessive variability shows the relative independence of one leak rate test to another. The tendency towards random leak rate data would cause unnecessary testing per IWV-3427(b), with no identifiable increase in benefit to public health and safety. The worth of performing this additional trending is also called into question by the recent ASME approval of OM-10 ("Inservice Testing of Valves"), which is the planned replacement to Section XI testing rules. OM-10 does not require trending of valve leak rates.

Alternative Testing:

a. CCNPP shall test all CIVs under the requirements of 10CFR50 Apprendix J, in addition to IWV-3426 and IWV-3427(a).

b. CCNPP shall perform no alternative testing in keeping with OM-10 guidance.

RELIEF REQUEST NUMBER VS-1

System: Ventilation System

P&ID: OM-65, Sh.1

Valves: 1-CV-1410, 1-CV-1411, 1-CV-1412, 1-CV-1413

Category: A-1

Class: 2

Function: Containment Isolation

Impractical Test Requirement: IWV-3400 requirement to stroke test the valves quarterly.

Basis for Relief: These valve are normally locked shut with power removed. They are only required to stroke in Mode 6. It is not desirable to stroke test these valves during each cold shutdown since unnecessary stroking could damage the sealing surfaces of these valves, causing degradation of the valve's leak-tight capability. This would result in an unnecessary increase in testing and valve maintenance.

Alternative Testing: The valves will be full stroke tested on a refueling frequency.

RELIEF REQUEST NUMBER NG-1

System: Nitrogen Generating and Blanketing System

P&ID: OM-68

Valves: 0-N2-344, 0-N2-345, 0-N2-346, 0-N2-347, 0-N2-348, 0-N2-349, 0-N2-389, 0-N2-392, 0-N2-395, 0-N2-398

Category: AC-2

Class: 2

Impractical Test Requirement: IWV-3520 requirement to full-stroke exercise the valves quarterly.

Basis for Relief: These containment isolation valves are normally shut, passive valves. A quarterly test to ensure the valves are closed is not possible without using LLRT-type equipment, and making an entry into containment.

Alternative Testing: These valves will be leak tested on a refueling schedule in accordance with the Calvert Cliffs Appendix J Program.

RELIEF REQUEST NUMBER RC-1

System: Reactor Coolant

P&ID: OM-72

Valves: 1-ERV-402, 404

Category: C-1

Class: 1

Function: Relieve reactor coolant pressure.

Impractical Test Requirement: Setpoint test per IWV-3510.

Basis for Relief: These valves are categorized per Calvert Cliffs Technical Specifications as ASME Section XI Category C-Active (relief valve). However, due to the unique valve design, these valves cannot be tested per IWV-3510, since the valves are actuated as the result of an electrical signal from a pressure measurement device opening these valves

Alternative Testing: Valves are tested per Technical Specificat:.ns at refueling intervals. The test includes a channel calibration of the actuation channel. A channel functional test, excluding valve operation, is performed within 31 days prior to entering a condition when this valve is required to serve as an MPT relief, and every 31 days thereafter when the valves are required to be operable. In addition, these valves will be functionally tested each cold shutdown prior to placing them in service for Low Temperature Overpressurization Protection.

RELIEF REQUEST NUMBER SI-1

System: Safety Injection and Containment Spray

P&ID: OM-74, Sh. 3

Valves: SI-316, SI-326, SI-330, SI-340

Category: AC-1

Class: 2

Function: Containment Spray Header inlet checks, inside and outside containment isolation valves.

Impractical Test Requirement: IWV-3520 requirement to exercise the valves once every 3 months.

Basis for Relief: Check valves SI-316, SI-326, SI-330, and SI-340 cannot be stroked during operation without spraying large quantities of contaminated water into the containment. This contaminated refueling pool water is also borated to approximately 2300 ppm. Spraying the containment would result in a radioactive contamination cleanup problem and seriously damage components such as lagging, reactor coolant pumps, and control rod element assembly coils.

Alternative Testing: One valve will be disassembled at each refueling outage to inspect the valve internal components. If degradation is found that would result in the valve being unable to pass full design flow, then all valves will be inspected in the same refueling outage.

RELIEF REQUEST NUMBER SI-2

System: Safety Injection and Containment Spray

P&ID: OM-74, Sh. 3

Valves: SI-4148, SI-4149

Category: C-1

Class: 2

Function: Containment Sump Outlet Check Valves

Impractical Test Requirement: IWV-3520 requirement to exercise valves once every 3 months.

Basis for Relief: These check valves cannot be full-stroke exercised without flooding the containment floor with contaminated refueling pool water that is borated to approximately 2300 ppm. This would result in serious damage to lagging and electrical systems control components in addition to the radioactive contamination cleanup problem of the containment sump and associated equipment.

Alternative Testing: One valve will be disassembled at each refueling outage to inspect the valve internal components. If degradation is found that would result in the valve being unable to pass full design flow, then all valves will be inspected in the same refueling outage.

RELIEF REQUEST NUMBER SI-3

System: Safety Injection

P&ID: OM-74, Sh. 2

Valves: 1-SI-215, 1-SI-225, 1-SI-235, 1-SI-245

Category: AC-1

Class: 1

Function: Safety Injection Tank discharge check valves, pressure system isolation valves

Impractical Test Requirement: IWV-3520 requirement to full-stroke exercise valves.

Basis for Relief: It is not possible to measure the flowrate through these valves nor to simulate rapid depressurization of the RCS. Additionally, achieving the design flowrate through these valves would require removal of the reactor vessel head and the flowrate required could cause damage to the core internals.

Alternative Testing: One valve will be disassembled at each refueling outage to inspect the valve's internal components. If degradation is found that would result in the valve being unable to pass full design flow, then all valves will be inspected in the same refueling outage.

RELIEF REQUEST NUMBER SI-4

System: Safety Injection

P&ID: OM-74, Sh. 2

Valves: 1-SI-217, 1-SI-227, 1-SI-237, 1-SI-247

Category: AC-1

Class: 1

Function: Safety Injection to RCS loop check valves, pressure isolation valves

Impractical Test Requirement: IWV-3400 requirement to test the valves' pressure isolation function.

Basis for Relief: The pressure upstream of these valves is continuously monitored, and an increase results in an alarm in the control room, which requires operator action in accordance with the Calvert Cliffs alarm manual. This manual would require the operator to determine the leakage rate through these valves.

Alternative Testing: Pressure upstream of these valves is continuously monitored and an increase will be alarmed in the control room. This continuous monitoring provides assurance that these valves are meeting their pressure isolation safety function.

RELIEF REQUEST NUMBER SI-5

System: Safety Injection

P&ID: OM-74, Sh. 2

Valves: 1-SI-217, 1-SI-227, 1-SI-237, 1-SI-247

Category: AC-1

Class: 1

Function: Safety Injection to RCS loop check valves, pressure isolation valves

Impractical Test Requirement: IWV-3520 requirement to full-stroke exercise the valves.

Basis for Relief: It is not possible to measure the flowrate through these valves nor to simulate rapid depressurization of the RCS. Additionally, achieving the design flowrate through these valves would require a removal of the reactor vessel head and the flowrate required could cause damage to the core internals.

Alternative Testing: The valves are part stroked whenever shutdown cooling is in operation. One valve will be disassembled at each refueling outage to inspect the valve's internal components. If degradation is found that would result in the valve being unable to pass full design flow, then all valves will be inspected in the same refueling outage.

RELIEF REQUEST NUMBER SI-6

System: Safety Injection

P&ID: OM-74

Valves: 1-SI-4146, 1-SI-4147

Category: C

Class: 2

Function: Refueling Water Tank Outlet Check Valves

Impractical Test Requirement: IWV-3520 requires a check valve to be tested to its design flow position once a quarter.

Basis for Relief: It is not possible to provide full design flow through these check valves during any period of plant operation. The full design flow would require the simultaneous operation of 1 LPSI pump, 1 CS pump, and 1 HPSI pump for each valve with the combined discharge path that duplicates the design basis LOCA. It is not possible to provide simultaneous full design flow from all three pumps due to core damage from excessive reactor vessel flow and deluging of containment interior components from the spray header.

Alternative Testing: These valves will be part-stroke tested once a quarter. One valve will be disassembled at each refueling outage to inspect the valve's internal components. If degradation is found that would result in the valve being unable to pass full design flow, then all valves will be inspected in the same refueling outage.

RELIEF REQUEST NUMBER SI-7

System: Containment Spray

P&ID: OM-74

Valves: 1-SI-313, 1-SI-323

Category: C

Class: 2

Function: Containment Spray Pump Discharge Check Valve

Impractical Test Requirement: IWV-3520 requires a check valve to be tested to its design flow position once a quarter.

Basis for Relief: These valves cannot be full-flow stroke tested due to limitations on the bypass discharge flow paths. The valves can be full flow tested only during refueling outages where plant conditions can be established to allow the use of both Containment Stray pumps as alternate LPSI pumps to provide Shutdown Cooling flow. The core decay heat load is minimal and the need for a boration flow path dependent only on one charging pump occurs during refueling outages only.

Alternative Requirements: On a COLD SHUTDOWN basis, the valves will be part-stroke tested. The valves will be Full Stroked each refueling outage during the Large Flow testing of the respective Containment Spray pumps.

APPENDIX D

CALVERT CLIFFS UNIT 2

SECOND TEN YEAR VALVE TESTING PROGRAM

UNIT NO. 2 SYSTEM NAME: Main Steam and Reheat P&ID NO. OM-36 SHEET 1

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
2-RV-3992	2	F-7	C-1	6	RV	-	-	-	C	O	ST			
2-RV-3993	2	F-6	C-1	6	RV	-	-	-	C	O	ST			
2-RV-3994	2	F-6	C-1	6	RV	-	-	-	C	O	ST			
2-RV-3995	2	F-6	C-1	6	RV	-	-	-	C	O	ST			
2-RV-3996	2	F-5	C-1	6	RV	-	-	-	C	O	ST			
2-RV-3997	2	F-4	C-1	6	RV	-	-	-	C	O	ST			
2-RV-3998	2	F-4	C-1	6	RV	-	-	-	C	O	ST			
2-RV-3999	2	F-4	C-1	6	RV	-	-	-	C	O	ST			
2-RV-4000	2	F-3	C-1	6	RV	-	-	-	C	O	ST			
2-RV-4001	2	B-6	C-1	6	RV	-	-	-	C	O	ST			
2-RV-4002	2	B-6	C-1	6	RV	-	-	-	C	O	ST			
2-RV-4003	2	B-5	C-1	6	RV	-	-	-	C	O	ST			
2-RV-4004	2	B-5	C-1	6	RV	-	-	-	C	O	ST			
2-RV-4005	2	B-4	C-1	6	RV	-	-	-	C	O	ST			
2-RV-4006	2	B-4	C-1	6	RV	-	-	-	C	O	ST			
2-RV-4007	2	B-3	C-1	6	RV	-	-	-	C	O	ST			
2-CV-4043	2	F-3	B-1	36	GL	E/H	X	6	O	C	FC			
2-CV-4048	2	B-3	B-1	36	GL	E/H	X	6	O	C	FC			

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UNIT NO. 2 SYSTEM NAME: Condensate and Feedwater System P&ID NO. OM-40 SHEET 4

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
2-FW-130	2	F-7	C-1	16	C	-	-	-	O	C	VC			
2-FW-133	2	B-7	C-1	16	C	-	-	-	O	C	VC			
2-MOV-4516	2	B-8	B-1	16	G	M	X	70	O	C	FC			
2-MOV-4517	2	F-8	B-1	16	G	M	X	70	O	C	FC			

UNIT NO. 2 SYSTEM NAME: Service Water Cooling System P&ID NO. OM-47 SHEET 2

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
2-CV-1645	3	F-8	B-1	6	B	A	X	20	C	O	FQ			
2-CV-1646	3	D-9	B-1	6	B	A	X	20	C	O	FQ			

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UNIT NO. 2 SYSTEM NAME: Service Water Cooling System P&ID NO. OM-47 SHEET 2

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
2-SRW-314	3	F-3	C-1	14	C	-	-	-	O/C	O/C	VQ			
2-SRW-315	3	G-3	C-1	14	C	-	-	-	O/C	O/C	VQ			
2-SRW-316	3	H-3	C-1	14	C	-	-	-	O/C	O/C	VQ			
2-SRW-317	3	G-6	C-1	8	C	-	-	-	O/C	O	VQ			
2-SRW-318	3	E-10	C-1	8	C	-	-	-	O/C	O	VQ			
2-SRW-319	3	H-5	C-1	8	C	-	-	-	O/C	O	VQ			
2-SRW-320	3	G-9	C-1	8	C	-	-	-	O/C	O	VQ			
2-SRW-321	3	H-8	C-1	6	C	-	-	-	C	O	VQ			
2-SRW-323	3	E-1	C-1	18	C	-	-	-	O	C	VC			
2-SRW-324	3	E-1	C-1	18	C	-	-	-	O	C	VC			
2-SRW-325	3	E-1	C-1	18	C	-	-	-	O	C	VC			
2-CV-1582	3	E-6	B-1	8	B	A	-	10	C	O	FQ			
2-CV-1585	3	E-11	B-1	8	B	A	X	10	C	O	FQ			
2-CV-1590	3	H-6	B-1	8	B	A	X	10	C	O	FQ			
2-CV-1593	3	G-11	B-1	8	B	A	X	10	C	O	FQ			
2-CV-1598	3	B-8	B-1	8	B	A	X	15	O	C	FQ			

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UNIT NO. 2 SYSTEM NAME: Service Water Cooling System P&ID NO. OM-47 SHEET 2

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
2-CV-1597	3	D-9	B-1	8	B	A	X	10.5	O	C	FQ			
2-CV-1600	3	A-10	B-1	14	B	A	X	30	O	C	FC			
2-CV-1637	3	B-10	B-1	14	B	A	X	30	O	C	FC			
2-CV-1638	3	A-11	B-1	14	B	A	X	30	O	C	FC			
2-CV-1639	3	B-11	B-1	14	B	A	X	30	O	C	FC			

UNIT NO. 2 SYSTEM NAME: Plant Fire Protection System P&ID NO. OM-56 SHEET 1

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ NO.	ALT. TEST	REMARKS
2-FP-145A	2	C-8	AC-2	6	C	-	-	-	C	C	LR	A-4		CIV
2-FP-145B	2	C-9	AC-2	6	C	-	-	-	C	C	LR	A-4		CIV
2-MOV-6200	3	C-8	A-2	6	G	M	X	-	C	C	LR	A-4		CIV

UNIT NO. 2 SYSTEM NAME: Ventilation System P&ID NO. OM-65 SHEET 1

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
2-CV-1410	2	B-11	A-1	48	B	A	X	7	C	C	LR,FQ	VS-1,A-4	RR	CIV
2-CV-1411	2	B-11	A-1	48	B	A	X	7	C	C	LR,FQ	VS-1,A-4	RR	CIV
2-CV-1412	2	C-11	A-1	48	B	A	X	7	C	C	LR,FQ	VS-1,A-4	RR	CIV
2-CV-1413	2	C-11	A-1	48	B	A	X	7	C	C	LR,FQ	VS-1,A-4	RR	CIV

UNIT NO. 2 SYSTEM NAME: Ventilation System P&ID NO. OM-65 SHEET 2

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
2-HP-104	2	F-4	AC-2	4	C	-	-	-	C	C	LR	A-4		CIV
2-HP-6900	2	G-5	A-1	4	G	M	X	-	C	C	FC,LR	A-4		CIV
2-HP-6901	2	G-5	A-1	4	G	M	X	-	C	C	FC,LR	A-4		CIV
2-HP-6903	2	G-5	A-2	4	G	M	X	-	C	C	LR	A-4		CIV

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UNIT NO. 2 SYSTEM NAME: Reactor Coolant & Water Process Sample System Post Accident Sample System P&ID NO. OM-66 SHEET 1

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
2-SV-105	1	A-10	B-1	3/4	G	S	X	3	C	O	FC	A-1	RR	
2-SV-106	1	A-11	B-1	3/4	G	S	X	3	C	O	FC	A-1	RR	
2-CV-5464	1	C-10	A-1	3/4	G	A	X	7	C	C	LR,FQ	A-4		CIV
2-CV-5465	1	B-11	A-1	3/4	G	A	X	7	C	C	LR,FQ	A-4		CIV
2-CV-5466	1	B-11	A-1	3/4	G	A	X	7	C	C	LR,FQ	A-4		CIV
2-CV-5467	1	B-11	A-1	3/4	G	A	X	7	C	C	LR,FQ	A-4		CIV

UNIT NO. 2 SYSTEM NAME: Reactor Coolant & Water Process Sample System Post Accident Sample System P&ID NO. OM-66 SHEET 3

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
2-SV-6529	1	E-11	A-2		GL	S	X	7	C	C	LR	A-4		CIV

UNIT NO. 2 SYSTEM NAME: Plant Heating System P&ID NO. OM-71 SHEET 2

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
0-PH-387	2	C-12	AC-2	3	C	H	-	-	C	C	LR	A-4		CIV
2-MOV-6579	2	E-11	A-2	3	G	M	X	13	C	C	LR	A-4		CIV

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UNIT NO. 2 SYSTEM NAME: Waste Process Equipment & Area Drains P&ID NO. OM-76 SHEET 2

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
2-MOV-5463	2	J-6	A-1	4	G	M	X	1[illegible]	O/C	C	LR,FQ	A-4		CIV

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UNIT NO. 2 SYSTEM NAME: Waste Process Equipment & Area Drains P&ID NO. OM-76 SHEET 4

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
2-MOV-5462	2	C-6	A-1	4	G	M	X	13	O/C	C	LR,FQ	A-4		CIV

UNIT NO. 2 SYSTEM NAME: Reactor Coolant Waste Processing System P&ID NO. OM-77 SHEET 1

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
2-CV-4260	2	D-7	A-1		GL	A	X	7	O/C	C	FQ,LR	A-4		CIV

UNIT NO. 2 SYSTEM NAME: Reactor Coolant Waste Processing System P&ID NO. OM-77 SHEET 3

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
2-ES-142	3	E-9	A-2	1	GL	H	-	-	C	C	LR	A-4		CIV
2-ES-144	3	E-9	A-2	1	GL	H	-	-	C	C	LR	A-4		CIV

UNIT NO. 2 SYSTEM NAME: Waste Gas & Misc Waste Processing Systems P&ID NO. OM-78 SHEET 1

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
2-CV-2180	2	D-2	A-1	2	GL	A	X	7	O/C	C	LR,FQ	A-4		CIV
2-CV-2181	2	D-2	A-1	2	GL	A	X	7	O/C	C	LR,FQ	A-4		CIV

UNIT NO. 2 SYSTEM NAME: Area & Process Radiation Monitoring System P&ID NO. OM-98 SHEET 1

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
2-CV-5291	2	C-9	A-1	1	GL	A	X	7	O	C	FQ,LR	A-4		CIV
2-CV-5292	2	C-10	A-1	1	GL	A	X	7	O	C	FQ,LR	A-4		CIV

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UNIT NO. 2 SYSTEM NAME: Circulating Salt Water Cooling System P&ID NO OM-450 SHEET 1

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
2-MOV-5250	3	A-3	B-1	6	B	M	X	22	O	C	FQ			
2-MOV-5251	3	A-2	B-1	6	B	M	X	30	O	C	FQ			

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UNIT NO. 2 SYSTEM NAME: Circulating Salt Water Cooling System P&ID NO. OM-450 SHEET 2

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
2-SW-103	3	C-6	C-1	30	C	-	-	-	O/C	O/C	VQ			
2-SW-107	3	C-9	C-1	30	C	-	-	-	O/C	O/C	VQ			
2-SW-111	3	C-12	C-1	30	C	-	-	-	O/C	O/C	VQ			
2-CV-5160	3	E-4	B-1	24	B	A	X	24	O/C	O/C	FQ			
2-CV-5162	3	G-4	B-1	24	B	A	X	27	O/C	O/C	FQ			
2-CV-5163	3	J-4	B-1	24	B	A	X	26	O/C	O/C	FQ			
2-CV-5170	3	F-3	B-1	8	B	A	X	15	O/C	O	FQ			
2-CV-5171	3	G-3	B-1	8	B	A	X	15	O/C	O	FQ			
2-CV-5173	3	E-3	B-1	8	B	A	X	22	O/C	O	FQ			
2-CV-5206	3	J-7	B-1	24	B	A	X	124	O/C	O	FQ			
2-CV-5208	3	J-6	B-1	24	B	A	X	106	O/C	O/C	FQ			
2-CV-5210	3	D-10	B-1	30	B	A	x	140	O/C	O	FQ			
2-CV-5212	3	H-10	B-1	30	B	A	X	278	O/C	O	FQ			

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UNIT NO. 2 SYSTEM NAME: Component Cooling System P&ID NO. OM-452 SHEET 1

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
2-CC-115	3	J-4	C-1	16	C	-	-	-	O/C	O/C	VQ			
2-CC-120	3	G-4	C-1	16	C	-	-	-	O/C	O/C	VQ			
2-CC-125	3	E-4	C-1	16	C	-	-	-	O/C	O/C	VQ			

UNIT NO. 2 SYSTEM NAME: Component Cooling System P&ID NO. OM-452 SHEET 2

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
2-CV-3824	3	B-6	B-1	16	B	A	X	25	O/C	O	FQ			
2-CV-3826	3	C-6	B-1	16	B	A	X	29	O/C	O	FQ			
2-CV-3828	3	G-9	B-1	16	B	A	X	45	C	O	FQ			
2-CV-3830	3	E-9	B-1	16	B	A	X	36	C	O	FQ			
2-CV-3832	2	A-2	A-1	10	B	A	X	18	O	C	FC,LR	A-4		CIV
2-CV-3833	2	H-4	A-1	10	B	A	X	18	O	C	FC,LR	A-4		CIV
2-CV-3840	3	A-8	B-1	10	B	A	X	15	O	C	FQ			
2-CV-3842	3	A-9	B-1	10	B	A	X	20	O	C	FQ			

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UNIT NO. 2 SYSTEM NAME: Compressed Air System: Plant & Instrument Air P&ID NO. OM-454 SHEET 3

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
2-IA-175	3	C-7	AC-1	2	C	-	-	-	O/C	C	VC,LR	A-4		CIV
2-MOV-2080	2	C-7	A-1	2	G	M	X	13	O	C	LR,FC	A-4		CIV

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UNIT NO. 2 SYSTEM NAME: Reactor Coolant System P&ID NO. OM-460 SHEET 1

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
2-SV-103	1	J-6	B-1	3/4	G	S	X	3	C	O	FC	A-1		
2-SV-104	1	J-5	B-1	3/4	G	S	X	3	C	O	FC	A-1		
2-RV-200	1	B-4	C-1	2 1/2	RV	-	-	-	C	O	ST			
2-RV-201	1	B-7	C-1	2 1/2	RV	-	-	-	C	O	ST			
2-ERV-402	1	A-4	BC-1	2 1/2	RV	*	-	-	C	O	ST	RC-1	RR	*Electro-matic re-ief valve
2-MOV-403	1	B-4	B-1	4	G	M	X	45	O	O	FQ			
2-ERV-404	1	A-7	BC-1	2 1/2	RV	*	-	-	C	O	ST	RC-1	RR	*Electro-matic re-lief valve
2-MOV-405	1	B-6	B-1	4	G	M	X		O	O	FQ			
2-DW-5460-CV	1	A-10	A-1	2	GI	A	X	7..	O/C	C	FQ,LR	A-4		CIV

UNIT NO. 2 SYSTEM NAME: CVCS P&ID NO. OM-461 SHEET 1

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
2-CVC-162	2	F-2	C-1	4	C	-	-	-	O	C	VC			
2-CVC-217	2	G-6	C-1	3	C	-	-	-	O/C	O/C	VQ			
2-CVC-222	2	G-9	C-1	3	C	-	-	-	O/C	O/C	VQ			
2-CVC-228	2	H-2	C-1	3	C	-	-	-	C	O	VC			
2-CVC-235	2	F-4	C-1	3	C	-	-	-	C	O	VC			
2-MOV-501	2	F-2	B-1	4	G	M	X	30	O	C	FC			
2-MOV-508	2	G-10	B-1	3	G	M	X	20	C	O	FQ			
2-MOV-509	2	F-6	B-1	3	G	M	X	20	C	O	FQ			
2-CV-510	2	E-7	B-1	1 1/2	GL	A	X	30	O	C	FQ			
2-CV-511	2	E-10	B-1	1 1/2	GL	A	X	30	O	C	FQ			
2-CV-512	2	C-3	B-1	3	G	A	X	30	O/C	C	FQ			
2-MOV-514	2	F-5	B-1	3	G	M	X	20	C	O	FQ			

UNIT NO. 2 SYSTEM NAME: CVCS P&ID NO. OM-461 SHEET 2

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
2-CVC-165	2	F-6	C-1	2	C	-	-	-	O/C	O/C	VQ			
2-CVC-171	2	G-6	C-1	2	C	-	-	-	O/C	O/C	VQ			
2-CVC-177	2	J-6	C-1	2	C	-	-	-	O/C	O/C	VQ			
2-CVC-184	1	E-5	AC-1	2	C	-	-	-	O	O/C	VC,LR	A-4		CIV, Tested OPEN During Power Operation. Tested SHUT During Cold Shutdown
2-CVC-185	1	C-8	C-1	2	C	-	-	-	C	O/C	VC			
2-CVC-186	1	E-8	C-1	2	C	-	-	-	O	O/C	VC			Tested OPEN During Pow-Operation. Tested SHUT During Cold Shutdown
2-CVC-187	1	E-11	C-1	2	C	-	-	-	O	O/C	VC			Tested OPEN During Pow-Operation. Tested SHUT During Cold Shutdown
2-MOV-269	2	G-4	B-1	2	G	M	X	20	C	C	FQ			
2-RV-311	2	G-9	C-1	3/4	RV	-	-	-	C	O	ST			
2-RV-315	2	F-8	C-1	3/4	RV	-	-	-	C	O	ST			

UNIT NO. 2 SYSTEM NAME: CVCS P&ID NO. OM-461 SHEET 2

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
2-RV-318	2	G-8	C-1	3/4	RV	-	-	-	C	O	ST			
2-RV-321	2	H-8	C-1	3/4	RV	-	-	-	C	O	ST			
2-RV-324	2	H-6	C-1	3/4	RV	-	-	-	C	O	ST			
2-RV-325	2	G-6	C-1	3/4	RV	-	-	-	C	O	ST			
2-RV-326	2	F-6	C-1	3/4	RV	-	-	-	C	O	ST			
2-CVC-435	1	F-10	AC-1	2	C	-	-	-	C	O/C	LR,VC	A-4		CIV
2-CV-505	2	B-8	A-1	3/4	GL	A	X	7	O	C	LR,FC	A-4		CIV
2-CV-506	2	B-6	A-1	3/4	GL	A	X	7	O	C	LR,FC	A-4		CIV

UNIT NO. 2 SYSTEM NAME: CVCS P&ID NO. OM-461 SHEET 2

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
2-CV-515	1	D-3	A-1	2	GL	A	X	13	O	C	LR,FC	A-4		CIV
2-CV-516	1	D-4	A-1	2	GL	A	X	13	O	C	LR,FC	A-4		CIV
2-CV-517	1	C-9	A-1	2	GL	A	X	200	C	O/C	FC,LR	A-4		CIV
2-CV-518	1	E-9	A-1	2	GL	A	X	24	O	O	LR,FQ	A-4		CIV
2-CV-519	1	E-10	A-1	2	GL	A	X	18	O	O	LR,FQ	A-4		CIV

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UNIT NO. 2 SYSTEM NAME: CVCS P&ID NO. OM-461 SHEET 3

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
2-CVC-103	2	B-3	A-2	2	G	H	-	-	C*	C*	LR	A-4		CIV
2-CVC-105	2	B-3	A-2	2	G	H	-	-	O*	O*	LR	A-4		CIV

* Normally if CVC-103 is OPEN, CVC-105 is SHUT, and vice versa.

UNIT NO. 2 SYSTEM NAME: Safety Injection & Containment Spray System P&ID NO. OM-462 SHEET 1

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
2-SI-113	2	D-2	C-1	2	C	-	-	-	C	O/C	VC			Tested OPEN During Cold Shutdown. Tested SHUT During Power Operation.
2-SI-123	2	E-2	C-1	2	C	-	-	-	C	O/C	VC			Tested OPEN During Cold Shutdown. Tested SHUT During Power Operation.
2-SI-133	2	F-2	C-1	2	C	-	-	-	C	O/C	VC			Tested OPEN During Cold Shutdown. Tested SHUT During Power Operation.
2-SI-143	2	G-2	C-1	2	C	-	-	-	C	O/C	VC			Tested OPEN During Cold Shutdown. Tested SHUT During Power Operation.

UNIT NO. 2 SYSTEM NAME: Safety Injection & Containment Spray System P&ID NO. OM-462 SHEET [illegible]

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
2-SI-401	2	G-9	C-1	6	C	-	-	-	C	O	VC			
2-SI-405	2	G-5	C-1	3	C	-	-	-	C	O/C	VC			
2-RV-409	2	F-4	C-1	3/4	RV	-	-	-	C	O	ST			
2-SI-410	2	E-9	C-1	8	C	-	-	-	C	O	VC			
2-SI-414	2	E-5	C-1	3	C	-	-	-	C	O/C	VC			
2-RV-417	2	D-4	C-1	1	RV	-	-	-	C	O	ST			
2-SI-422	2	E-8	C-1	2	C	-	-	-	C	O	VQ			
2-SI-424	2	C-8	C-1	2	C	-	-	-	C	O	VQ			
2-SI-426	2	F-8	C-1	2	C	-	-	-	C	O	VQ			
2-SI-427	2	D-5	C-1	6	C	-	-	-	C	O/C	VC			
2-SI-434	2	H-4	C-1	10	C	-	-	-	C	O/C	VC			
2-SI-446	2	C-5	C-1	10	C	-	-	-	C	O/C	VC			
2-SI-448	2	B-8	C-1	2	C	-	-	-	C	O	VQ			

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UNIT NO. 2 SYSTEM NAME: Safety Injection & Containment Spray System P&ID NO. OM-462 SHEET 1

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
2-SI-451	2	G-8	C-1	2	C	-	-	-	C	O	VQ			
2-MOV-616	2	D-3	B-1	2	GL	M	X	20	C	O	FQ			
2-MOV-617	2	C-3	B-1	2	GL	M	X	20	C	O	FQ			
2-MOV-626	2	E-3	B-1	2	GL	M	X	20	C	O	FQ			
2-MOV-627	2	E-3	B-1	2	GL	M	X	20	C	O	FQ			
2-MOV-636	2	F-3	B-1	2	GL	M	X	20	C	O	FQ			
2-MOV-637	2	F-3	B-1	2	GL	M	X	20	C	O	FQ			
2-MOV-646	2	H-3	B-1	2	GL	M	X	20	C	O	FQ			
2-MOV-647	2	G-3	B-1	2	GL	M	X	20	C	O	FQ			
2-MOV-659	2	A-10	B-1	4	G	M	X	70	O	O/C	FC			
2-MOV-660	2	B-10	B-1	4	G	M	X	70	O	O/C	FC			
2-MOV-4142	2	E-10	B-1	18	G	M	X	106	O	O/C	FQ			Tested SHUT Only.
2-MOV-4143	2	D-10	B-1	18	G	M	X	108	O	O/C	FQ			Tested SHUT Only.
2-SI-4146	2	E-10	C-1	18	C	-	-	-	C	O	VQ	SI-6	RR	
2-SI-4147	2	E-10	C-1	18	C	-	-	-	C	O	VQ	SI-6	RR	

UNIT NO. 2 SYSTEM NAME: Safety Injection & Containment Spray System P&ID NO. OM-462 SHEET 2

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
2-SI-114	2	D-3	C-1	6	C	-	-	-	C	O/C	VC			
2-SI-118	1	D-4	AC-1	6	C	-	-	-	C	O/C	IR,VC			PSIV
2-SI-124	2	H-3	C-1	6	C	-	-	-	C	O/C	VC			
2-SI-128	1	H-4	AC-1	6	C	-	-	-	C	O/C	IR,VC			PSIV
2-SI-134	2	D-9	C-1	6	C	-	-	-	C	O/C	VC			
2-SI-138	1	D-9	AC-1	6	C	-	-	-	C	O/C	IR,VC			PSIV
2-SI-144	2	H-9	C-1	6	C	-	-	-	C	O/C	VC			
2-SI-148	1	H-9	AC-1	6	C	-	-	-	C	O/C	IR,VC			PSIV
2-RV-211	2	B-3	C-1	1	RV	-	-	-	C	O	ST			
2-SI-215	1	C-3	AC-1	12	C	-	-	-	C	O/C	VQ,IR	SI-3	RR	PSIV
2-SI-217	1	D-6	AC-1	12	C	-	-	-	C	O/C	IR,VQ	SI-4,5	RR	PSIV
2-RV-221	2	F-3	C-1	1	RV	-	-	-	C	O	ST			
2-SI-225	1	G-3	AC-1	12	C	-	-	-	C	O/C	IR,VQ	SI-3	RR	PSIV
2-SI-227	1	H-5	AC-1	12	C	-	-	-	C	O/C	IR,VQ	SI-4,5	RR	PSIV
2-RV-231	2	B-9	C-1	1	RV	-	-	-	C	O	ST			

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UNIT NO. 2 SYSTEM NAME: Safety Injection & Conainment Spray System P&ID NO. OM-462 SHEET 2

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
2-SI-235	1	C-9	AC-1	12	C	-	-	-	C	O/C	IR,VQ	SI-3	RR	PSIV
2-SI-237	1	D-7	AC-1	12	C	-	-	-	C	O/C	IR,VQ	SI-4,5	RR	PSIV
2-RV-241	2	F-9	C-1	1	RV	-	-	-	C	O	ST			
2-SI-245	1	G-9	AC-1	12	C	-	-	-	C	O/C	IR,VQ	SI-3	RR	PSIV
2-SI-247	1	G-7	AC-1	12	C	-	-	-	C	O/C	IR,VQ	SI-4,5	RR	PSIV

UNIT NO. 2 SYSTEM NAME: Safety Injection & Containment Spray System P&ID NO. OM-462 SHEET 2

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
2-MOV-399	2	H-6	B-1	2	G	M	X	20	C	C	FQ			
2-SI-455	2	B-8	A-2	2	G	H	-	-	C	C	LR	A-4		CIV
2-SI-463	2	B-8	A-2	2	G	H	-	-	C	C	LR	A-4		CIV
2-RV-468	2	J-8	C-1	1 1/2	RV	-	-	-	C	O	ST			
2-RV-469	2	J-5	C-1	3/4	RV	-	-	-	C	O	ST			
2-CV-612	2	B-5	A-1	1	GL	A	X	6	O/C	C	FQ,LR	A-4		CIV
2-MOV-615	2	D-3	B-1	6	GL	M	X	20	C	O	FQ			
2-CV-618	1	C-5	B-1	1	GL	A	X	30	O/C	C	FQ			
2-CV-622	2	F-5	A-1	1	GL	A	X	6	O/C	C	FQ,LR	A-4		CIV
2-MOV-625	2	H-3	B-1	6	GL	M	X	20	C	O	FQ			
2-CV-628	1	G-5	B-1	1	GL	A	X	30	O/C	C	FQ			
2-CV-632	2	B-11	A-1	1	GL	A	X	6	O/C	C	FQ,LR	A-4		CIV
2-MOV-635	2	D-10	B-1	6	GL	M	X	20	C	O	FQ			
2-CV-638	1	C-7	B-1	1	GL	A	X	30	O/C	C	FQ			
2-CV-642	2	F-7	A-1	1	GL	A	X	6	O/C	C	FQ,LR	A-4		CIV

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UNIT NO. 2 SYSTEM NAME: Safety Injection & Containment Spray System P&ID NO. OM-462 SHEET 2

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
2-MOV-645	2	H-10	B-1	6	GL	M	X	20	C	O	FQ			
2-CV-648	1	G-7	B-1	1	GL	A	X	30	O/C	C	FQ			

UNIT NO. 2 SYSTEM NAME: Safety Injection & Containment Spray System P&ID NO. OM-462 SHEET 2

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
2-MOV-651	1	J-7	A-1	12	G	M	X	109	C	O/C	FC,LR	A-4		CIV
2-MOV-652	1	J-5	A-1	12	G	M	X	108	C	O/C	FC,LR	A-4		CIV

UNIT NO. 2 SYSTEM NAME: Safety Injection & Containment Spray System P&ID NO. OM-462 SHEET 3

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
2-SI-313	2	B-8	C-1	8	C	-	-	-	C	O	VC	SI-7	RR	
2-SI-316	2	D-4	AC-1	8	C	-	-	-	C	O/C	LR,VQ	SI-1,A-4	RR	CIV
2-SI-323	2	F-8	C-1	8	C	-	-	-	C	O	VC	SI-7	RR	
2-SI-326	2	G-4	AC-1	8	C	-	-	-	C	O/C	LR,VQ	SI-1,A-4	RR	CIV
2-SI-330	2	D-3	AC-1	8	C	-	-	-	C	O/C	LR,VQ	SI-1,A-4	RR	CIV
2-SI-334	2	A-9	C-1	2	C	-	-	-	C	O/C	VQ			
2-SI-340	2	G-3	AC-1	8	C	-	-	-	C	O/C	LR,VQ	SI-1,A-4	RR	CIV
2-SI-344	2	E-9	C-1	2	C	-	-	-	C	O/C	VQ			
2-CV-657	2	E-4	B-1	12	GL	A	X	79/86	C	O/C	FQ			
2-MOV-658	2	E-7	B-1	12	G	M	X	92	C	O	FQ			
2-MOV-4144	2	J-5	B-1	24	G	M	X	70	C	O/C	FQ			
2-MOV-4145	2	H-5	B-1	24	G	M	X	70	C	O/C	FQ			
2-SI-4148	2	J-7	C-1	24	C	-	-	-	C	O/C	VQ	SI-2	RR	
2-SI-4149	2	H-7	C-1	24	C	-	-	-	C	O/C	VQ	SI-2	RR	
2-CV-4150	2	C-3	B-1	8	GL	A	X	60	C	O	FQ			
2-CV-4151	2	F-3	B-1	8	GL	A	X	60	C	O	FQ			

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UNIT NO. 2 SYSTEM NAME: Gas Analyzing System P&ID NO. OM-463 SHEET 1

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
2-SV-6507A	3	B-3	A-2	1/4	GL	S	X	3	C	C	LR	A-1,A-4	RR	CIV
2-SV-6507B	3	B-11	A-2	1/4	GL	S	X	3	C	C	LR	A-1,A-4	RR	CIV
2-SV-6507C	[illegible]	B-11	A-2	1/4	GL	S	X	3	C	C	LR	A-1,A-4	RR	CIV
2-SV-6507D	3	B-12	A-2	1/4	GL	S	X	3	C	C	LR	A-1,A-4	RR	CIV
2-SV-6507E	3	B-4	A-2	1/4	GL	S	X	3	C	C	LR	A-1,A-4	RR	CIV
2-SV-6507F	3	B-4	A-2	1/4	GL	S	X	3	C	C	LR	A-1,A-4	RR	CIV
2-SV-6531	2	E-5	A-2	1/4	GL	S	X	7	C	C	LR	A-1,A-4	RR	CIV
2-SV-6540A	3	B-9	A-2	1/4	GL	S	X	3	C	C	LR	A-1,A-4	RR	CIV
2-SV-6540B	3	B-11	A-2	1/4	GL	S	X	3	C	C	LR	A-1,A-4	RR	CIV
2-SV-6540C	3	B-11	A-2	1/4	GL	S	X	3	C	C	LR	A-1,A-4	RR	CIV
2-SV-6540D	3	B-12	A-2	1/4	GL	S	X	3	C	C	LR	A-1,A-4	RR	CIV
2-SV-6540E	3	B-4	A-2	1/4	GL	S	X	3	C	C	LR	A-1,A-4	RR	CIV
2-SV-6540F	3	B-4	A-2	1/4	GL	S	X	3	C	C	LR	A-1,A-4	RR	CIV

UNIT NO. 2 SYSTEM NAME: Gas Analyzing System P&ID NO. OM-463 SHEET 2

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
2-SV-6507G	3	J-9	A-2	1/4	GL	S	X	3	C	C	LR	A-1,A-4	RR	CIV
2-SV-6540G	3	H-9	A-2	1/4	GL	S	X	3	C	C	LR	A-1,A-4	RR	CIV

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UNIT NO. 2 SYSTEM NAME: Steam Generator Blowdown Recovery P&ID NO. OM-465 SHEET 1

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
2-CV-4010	2	D-2	B-1	2	GL	A	X	30	O/C	C	FQ			
2-CV-4011	2	E-2	B-1	2	GL	A	Z	30	O/C	C	FQ			
2-CV-4012	2	B-2	B-1	2	GL	A	X	30	O/C	C	FQ			
2-CV-4013	2	C-2	B-1	2	GL	A	X	30	O/C	C	FQ			

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UNIT NO. 2 SYSTEM NAME: Plant Water & Air Service System Stations P&ID NO. OM-479 SHEET 1

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
2-PSW-1009	2	J-9	A-2	3	GL	H	-	-	C	C	LR	A-4		CIV

UNIT NO. 2 SYSTEM NAME: Plant Water & Air Service System Stations P&ID NO. OM-479 SHEET 2

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
2-PA-137	2	D-12	A-2	2	G	H	-	-	C	C	LR	A-4		CIV
2-PA-1044	2	J-4	A-2	2	G	H	-	-	C	C	LR	A-4		CIV
0-PSW-1020		D-9	A-2	3	G	H	-	-	C	C	LR	A-4		CIV

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UNIT NO. 2 SYSTEM NAME: Auxiliary Feedwater System P&ID NO. OM-801 SHEET 1

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REC. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
2-AFW-102	3	C-9	C-1	6	C	-	-	-	C	O/C	VC			
2-MS-103	3	B-8	C-1	6	C	-	-	-	C	O/C	VC			
2-MS-106	3	B-8	C-1	6	C	-	-	-	C	O/C	VC			
2-MS-108	3	C-9	C-1	6	C	-	-	-	C	O	VC			
2-MS-113	3	B-8	C-1	6	C	-	-	-	C	O	VC			
2-AFW-114	3	B-9	C-1	6	C	-	-	-	C	O	VQ			
2-AFW-116	3	F-9	C-1	6	C	-	-	-	C	O/C	VC			
2-AFW-128	3	E-9	C-1	6	C	-	-	-	C	O	VQ			
2-AFW-129	2	B-1	C-1	4	C	-	-	-	C	O	VC			
2-AFW-130	2	G-1	C-1	4	C	-	-	-	C	O	VC			
2-AFW-183	3	H-8	C-1	4	C	-	-	-	C	O/C	VC			
2-AFW-190	3	H-7	C-1	6	C	-	-	-	C	O	VC			
2-AFW-193	3	B-4	C-1	4	C	-	-	-	C	O	VC			
2-AFW-194	3	H-3	C-1	4	C	-	-	-	C	O	VC			
2-AFW-199	2	C-2	C-1	4	C	-	-	-	C	O	VC			
2-AFW-200	2	G-2	C-1	4	C	-	-	-	C	O	VC			
2-AFW-201	3	H-10	C-1	2	C	-	-	-	C	O	VQ			

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UNIT NO. 2 SYSTEM NAME: Auxiliary Feedwater System P&ID NO. OM-801 SHEET 1

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
2-AFW-202	3	H-10	C-1	2	C	-	-		C	O	VQ			
2-CV-4070	3	B-9	B-1	6	GL	A	X	110	C	O	FQ			
2-CV-4071	3	B-8	B-1	6	GL	A	X	80	C	O	FQ			
2-RV-4501	3	B-11	C-1	1 1/2	RV	-	-	-	C	O	ST			
2-RV-4502	3	D-11	C-1	1 1/2	RV	-	-	-	C	O	ST			

UNIT NO. 2 SYSTEM NAME: Auxiliary Feedwater System P&ID NO. OM-801 SHEET 1

VALVE NUMBER	ASME CLASS	P&ID COORD	VALVE CATEGORY	SIZE (in.)	VLV TYPE	ACT TYPE	POS. IND.	TIME (sec.)	NORM POS.	REQ. POS.	REQ. TEST	REL. REQ. NO.	ALT. TEST	REMARKS
2-CV-4520	3	B-6	B-1	6	GL	A	X	19	O	O/C	FQ			
2-CV-4521	3	B-4	B-1	6	GL	A	X	19	O	O/C	FQ			
2-CV-4522	3	D-4	B-1	6	GL	A	X	19	O	O/C	FQ			
2-CV-4523	3	D-3	B-1	6	GL	A	X	19	O	O/C	FQ			
2-CV-4530	3	H-5	B-1	6	GL	A	X	19	O	O/C	FQ			
2-CV-4531	3	H-4	B-1	6	GL	A	X	19	O	O/C	FQ			
2-CV-4532	3	F-4	B-1	6	GL	A	X	19	O	O/C	FQ			
2-CV-4533	3	F-2	B-1	6	GL	A	X	19	O	O/C	FQ			
2-CV-4550	3	H-7	B-1	6	GL	A	X	90	O	O/C	FQ			

RELIEF REQUEST NUMBER A-1

System: Various

P&ID: Various

Valves: Various valves which have actual stroke times of 2 seconds or less

Category: A and B Active

Class: Various

Function: Various

Impractical Test Requirement: IWV-3413 to measure valve stroke time to the nearest second, and associated trending requirements of IWV-3417.

Basis for Relief: Valves with extremely short stroke times (less than 2 seconds) have stroke times of such short duration that comparison of measurements with previous data for specified percentage increases is not indicative of degrading valve performance. With mearurment of stroke times to the nearest second per IWV-3413(b), a very small increase in stroke time will result in an extremely large percentage change, which could result in an unnecessary increase in test frequency and challenges to valves. Verification that valves meet a specified maximum stroke time of short duration provides adequate assurance of operability.

Alternative Testing: Only the maximum stroke time will be verified for those valves with nominal stroke times less than 2 seconds. The trending requirements of IWV-3417(a) will, therefore, not apply.

RELIEF REQUEST NUMBER A-2

System: Various

P&ID: Various

Valves: Various solenoid actuated valves

Category: A and B Active

Class: Various

Impractical Test Requirement: IWP-3300 requirement to locally verify remote position indication at least once every 2 years.

Basis for Relief: Relief Request Withdrawn

Alternative Testing:

RELIEF REQUEST NUMBER A-3

System: As Required, Unit 2

P&ID: Where Applicable

Valves: As Required

Category: C

Class: As Required

Function: Relief Protection on Various Systems

Impractical Test Requirement: IWV-3512 requires compliance to ASME PTC 25.3-1976. Paragraph 3.02 of PTC 25.3, 1977 Addendum, requires, "A person who supervises the test shall have a formal education in thermodynamics and fluid mechanics. In addition, he shall have at least two years practical experience in fluid flow measurement and have had experience in test supervision."

Basis for Relief: The requirement of ASME PTC 25.3-1976 for the qualifications of a relief valve test supervisor are burdensome to a utility. It would result in additional staff requirements that are not warranted in light of the alternate means of meeting the intent of this paragraph.

Alternative Requirements: The Plant Operating Safety Review Committee reviews all test procedures and any unacceptable results of relief valve testing. There are typically several members of this committee that meet the educational and experience level requirements of the Code. All test results are reviewed by the System Engineer responsible for the components in the system the relief valve protects. The personnel who conduct the tests meet specific qualification requirements in accordance with ANSI/ASME N45.2.6 - 1978. All instruments used for testing are calibrated within the scope of the site Quality Assurance requirements.

RELIEF REQUEST NUMBER A-4

System: Various

P&ID: Various

Valves: All those identified with "CIV" in the Remarks column of the associated Valve Test Program.

Class: Various

Impractical Test Requirements:

a. IWV-3421 through 3425 regarding leak rate test methodology.

b. IWV-3427(b) regarding leak rate trending requirements.

Basis for Relief:

a. In keeping with NRC Staff position, all CIV testing shall be performed under 10CFR50 Apprendix J in addition to IWV-3426 and IWV-3427(a). Testing per 10CFR50 Appendix J meets the intent of leak rate testing per Section XI, but will be controlled via the Local Leak Rate Testing Program.

b. The attached data shows that the variability of leak rates for valves 6 inches and larger is excessive. CCNPP feels that this excessive variability shows the relative independence of one leak rate test to another. The tendency towards random leak rate data would cause unnecessary testing per IWV-3427(b), with no identifiable increase in benefit to public health and safety. The worth of performing this additional trending is also called into question by the recent ASME approval of OM-10 ("Inservice Testing of Valves"), which is the planned replacement to Section XI testing rules. OM-10 does not require trending of valve leak rates.

Alternative Testing:

a. CCNPP shall test all CIVs under the requirements of 10CFR50 Appendix J, in addition to IWV-3426 and IWV-3427(a).

b. CCNPP shall perform no alternative testing in keeping with OM-10 guidance.

RELIEF REQUEST NUMBER VS-1

System: Ventilation System

P&ID: OM-65, SH 1

Valves: 2-CV-1410, 2-CV-1411, 2-CV-1412, 2-CV-1413

Category: A-1

Class: 2

Function: Containment Isolation

Impractical Test Requirement: IWV-3400 requirement to stroke the valves quarterly

Basis for Relief: These valves are normally locked shut with power removed. They are only required to stroke in Mode 6. It is not desirable to stroke test these valves during each cold shutdown since unnecessary stroking could cause degradation of the valve's leak-tight capability. This would result in an unnecessary increase in testing and valve maintenance.

Alternative Testing: The valves will be full stroke tested on a refueling frequency.

RELIEF REQUEST NUMBER RC-1

System: Reactor Coolant

P&ID: OM-460

Valves: 2-ERV-402, 404

Category: C-1

Class: 1

Function: Relieve reactor coolant pressure.

Impractical Test Requirement: Setpoint test per IWV-3510.

Basis for Relief: These valves are categorized per Calvert Cliffs Technical Specifications as ASME Section XI Category C-Active (relief valve). However, due to the unique valve design, these valves cannot be tested per IWV-3510, since the valves are actuated as the result of an electric signal from a pressure measurement device.

Alternative Testing: Valves are tested per Technical Specifications at refueling intervals. The test includes a channel calibration of the actuation channel. A channel functional test, excluding valve operation, is performed within 31 days prior to entering a condition when this valve is required to serve as an MPT relief, and every 31 days thereafter when the valves are required to be operable. In addition, these valves will be functionally tested each cold shutdown prior to placing them in service for Low Temperature Overpressurization Protection.

RELIEF REQUEST NUMBER SI-1

System: Safety Injection and Containment Spray

P&ID: OM-462, Sh. 3

Valves: SI-316, SI-326, SI-330, SI-340

Category: AC-1

Class: 2

Function: Containment Spray Header inlet checks, inside and outside containment isolation valves.

Impractical Test Requirement: IWV-3520 requirement to exercise the valves once every 3 months.

Basis for Relief: Check valves SI-316, SI-326, SI-330, and SI-340 cannot be stroked during operation without spraying large quantities of contaminated water into the containment. This contaminated refueling pool water is also borated to approximately 2300 ppm. Spraying the containment would result in a radioactive contamination cleanup problem and seriously damage components such as lagging, reactor coolant pumps, and control rod element assembly coils.

Alternative Testing: One valve will be disassembled at each refueling outage to inspect the valve's internal components. If degradation is found that would result in the valve being unable to pass full design flow, then all valves will be inspected in the same refueling outage.

RELIEF REQUEST NUMBER SI-2

System: Safety Injection and Containment Spray

P&ID: OM-462, Sh. 3

Valves: SI-4148, SI-4149

Category: C-1

Class: 2

Function: Containment Sump Outlet Check Valves

Impractical Test Requirement: IWV-3520 requirement to exercise valves once every 3 months.

Basis for Relief: These check valves cannot be full-stroke exercised without flooding the containment floor with contaminated refueling pool water that is borated to approximately 2300 ppm. This would result in serious damage to lagging and electrical systems control components in addition to the radioactive contamination cleanup problem of the containment sump and associated equipment.

Alternative Testing: One valve will be disassembled at each refueling outage to inspect the valve internal components. If degradation is found that would result in the valve being unable to pass full design flow, then all valves will be inspected in the same refueling outage.

RELIEF REQUEST NUMBER SI-3

System: Safety Injection

P&ID: OM-462, Sh. 2

Valves: 2-SI-215, 2-SI-225, 2-SI-235, 2-SI-245

Category: AC-1

Class: 1

Function: Safety Injection Tank discharge check valves, pressure system isolation valves

Impractical Test Requirement: IWV-3520 requirement to full-stroke exercise valves.

Basis for Relief: It is not possible to measure the flowrate through these valves nor to simulate rapid depressurization of the RCS. Additionally, achieving the design flowrate through these valves would require removal of the reactor vessel head and the flowrate required could cause damage to the core internals.

Alternative Testing: One valve will be disassembled at each refueling outage to inspect the valve's internal components. If degradation is found that would result in the valve being unable to pass full design flow, then all valves will be inspected in the same refueling outage.

RELIEF REQUEST NUMBER SI-4

System: Safety Injection

P&ID: OM-462, Sh. 2

Valves: 2-SI-217, 2-SI-227, 2-SI-237, 2-SI-247

Category: AC-1

Class: 1

Function: Safety Injection to RCS loop check valves, pressure isolation valves

Impractical Test Requirement: IWV-3400 requirement to test the valves' pressure isolation function.

Basis for Relief: The pressure upstream of these valves is continuously monitored, and an increase results in an alarm in the control room, which requires operator action in accordance with the Calvert Cliffs alarm manual. This manual would require the operator to determine the leakage rate through these valves.

Alternative Testing: Pressure upstream of these valves is continuously monitored and an increase will be alarmed in the control room. This continuous monitoring provides assurance that these valves are meeting their pressure isolation safety function.

RELIEF REQUEST NUMBER SI-5

System: Safety Injection

P&ID: OM-462, Sh. 2

Valves: 2-SI-217, 2-SI-227, 2-SI-237, 2-SI-247

Category: AC-1

Class: 1

Function: Safety Injection to RCS loop check valves, pressure isolation valves

Impractical Test Requirement: IWV-3520 requirement to full-stroke exercise the valves.

Basis for Relief: It is not possible to measure the flowrate through these valves nor to simulate rapid depressurization of the RCS. Additionally, achieving the design flowrate through these valves would require a removal of the reactor vessel head and the flowrate required could cause damage to the core internals.

Alternative Testing: The valves are part stroked whenever shutdown cooling is in operation. One valve will be disassembled at each refueling outage to inspect the valve's internal components. If degradation is found that would result in the valve being unable to pass full design flow, then all valves will be inspected in the same refueling outage.

RELIEF REQUEST NUMBER SI-6

System: Safety Injection

P&ID: M-462

Valves: 2-SI-4146, 2-SI-4147

Category: C

Class: 2

Function: Refueling Water Tank Outlet Check Valves

Impractical Test Requirement: IWV-3520 requires a check valve to be tested to its design flow position once a quarter.

Basis for Relief: It is not possible to provide full design flow through these check valves during any period of plant operation. The full design flow would require the simultaneous operation of 1 LPSI pump, 1 CS pump, and 1 HPSI pump for each valve with the combined discharge path that duplicates the design basis LOCA. It is not possible to provide simultaneous full design flow from all three pumps due to core damage from excessive reactor vessel flow and deluging of containment interior components from the spray header.

Alternative Requirement: These valves will be part stroke tested once per quarter. One valve will be disassembled at each refueling outage to inspect the valves internal components. If degradation is found that would result in the valve being unable to pass full design flow, then all valve will be inspected in the same refueling outage.

RELIEF REQUEST NUMBER SI-7

System: Containment Spray

P&ID: M-462

Valves: 2-SI-313, 2-SI-323

Category: C

Class: 2

Function: Containment Spray Pump Discharge Check Valve

Impractical Test Requirement: IWV-3520 requires a check valve to be tested to its design flow position once a quarter.

Basis for Relief: These valves cannot be full-flow stroke tested due to limitations on the bypass discharge flow paths. The valves can be full flow tested only during refueling outages where plant conditions can be established to allow the use of both containment spray pumps as alternate LPSI pumps to provide Shutdown Cooling flow. The Core Decay Heat Load is minimal and the need for a boration flow path dependent only on one charging pump occurs during refueling outages only.

Alternative Requirement: On a COLD SHUTDOWN basis, the valves will be part-stroke tested. The valves will be Full Stroked each refueling outage during the Large Flow testing of the respective containment spray pumps.

APPENDIX E

VALVES TESTED DURING COLD SHUTDOWN

APPENDIX E

VALVES TESTED DURING COLD SHUTDOWN

System	Unit	Valve Number	Justification
Main steam & Reheat	1/2	1-CV-4043 1-CV-4048 2-CV-4043 2-CV-4048	Valves cannot be full stroke tested during plant operation without causing major plant transients/plant shutdown. Valves are part-stroked per manufacturers recommendations only. Valves are full stroke tested at Cold Shutdown at 3 month intervals as allowed by Section XI.
Condensate & Feedwater	1/2	1-FW-130 1-FW-133 1-MOV-4516 1-MOV-4517 2-FW-130 2-FW-133 2-MOV-4516 2-MOV-4517	Exercising these normally open valves would require a cessation of feedwater flow to the steam generator. This would cause transients leading to shutdown. Valve logic and system configuration prevent any part-stroke testing of MOVs. Therefore, the valves are full stroke tested at Cold Shutdown at 3 month intervals as allowed by Section XI.
Service Water Cooling System	1/2	1-SRW-323 1-SRW-324 1-SRW-325 1-CV-1600 1-CV-1637 1-CV-1638 1-CV-1639 2-SRW-323 2-SRW-324 2-SRW-325 2-CV-1600 2-CV-1637 2-CV-1638 2-CV-1639	Exercising these valves during operation would stop cooling water flow to the main turbine auxiliaries and other vital secondary plant equipment necessary for power operation, causing plant shutdown. System configuration prevents Air Operated Valve part stroke testing during power operation. Valves are full stroke exercised at Cold Shutdown at 3 month intervals as allowed by Section XI.

System	Unit	Valve Number	Justification
Component Cooling	1/2	1-CV-3832 1-CV-3833 2-CV-3832 2-CV-3833	Exercising these valves during operation would stop cooling water flow to the reactor coolant pumps and other vital equipment necessary for power operation causing equipment damage or plant shutdown. Valve logic prevents part-stroke testing of Air Operated Valves during power operation. Valves are full stroke exercised at Cold Shutdown at 3 month intervals as allowed by Section XI
Compressed Air Plant & Instrument	1/2	1-IA-337 1-MOV-2080 2-IA-175 2-MOV-2080	Exercising these valves requires isolating instrument air to the containment thereby failing numerous air operated valves. Although control of these valves is not required during an accident it is required for normal reactor operation. System configuration and valve logic prevents part stroke testing these valves during power operation. Therefore, these valves are full stroke exercised at Cold Shutdown at 3 month intervals as allowed by Section XI.
Ventilation System	1/2	1-HP-6900 1-HP-6901 2-HP-6900 2-HP-6901	Valves are required by Tech. Spec. to be maintained closed during Power Operation. Valves are full stroke exercised at Cold Shutdown at 3 month intervals as allowed by Section XI.

System	Unit	Valve Number	Justification
Reactor Coolant System	1/2	1-SV-103 1-SV-104 1-SV-105 1-SV-106 2-SV-103 2-SV-104 2-SV-105 2-SV-106	Stroking valves during plant operation could cause failure to reseat properly thus reducing plant reliability. Failure to reseat could cause system/equipment damage, therefore no full- or part-stroking of valves is possible. Valves are full stroke exercised at Cold Shutdown at 3 month intervals as allowed by Section XI.
CVCS	1/2	1-CVC-162 1-CVC-184 1-CVC-435 2-CVC-162 2-CVC-184 2-CVC-435	Valves cannot be stroked during operation without stopping all charging pumps. This would place excessive thermal cycles on system equipment due to starting and stopping charging and letdown. Therefore, valves are full stroke exercised at Cold Shutdown at 3 month intervals as allowed by Section XI.
CVCS	1/2	1-CVC-228 1-CVC-235 2-CVC-228 2-CVC-235	Exercising these valves requires injecting concentrated boric acid directly into the reactor coolant system. The resulting rapid power decrease and reactor water chemistry change would cause plant shutdown. Flow is verified by measuring tank level change or flow through the changing pumps which is not possible during power operation. Therefore, the valves are full stroke exercised at Cold Shutdown at 3 month intervals as allowed by Section XI.

System	Unit	Valve Number	Justification
CVCS	1/2	1-MOV-501 1-CV-515 1-CV-516 2-MOV-501 2-CV-515 2-CV-516	Valves cannot be stroked during operation without stopping all charging pumps. This would place excessive cycles on starting and stopping charging and letdown which are required to operate. This would also place unnecessary cycles on a limited cycle life Regen. Heat Exchanger, decreasing component available lifetime. Therefore, valves are full stroke exercised at Cold Shutdown at 3 month intervals as allowed by Section XI.
CVCS	1/2	1-CV-517 1-CVC-185 (open) 2-CV-517 2-CVC-185 (open)	Valves cannot be stroked during plant operation due to the resultant thermal stress to the spray line and spray nozzle. Valves will be full-stroke exercised at Cold Shutdown at 3 month intervals as allowed by Section XI.
CVCS	1/2	1-CVC-185 (shut) 1-CVC-186 (shut) 1-CVC-187 (shut) 2-CVC-185 (shut) 2-CVC-186 (shut) 2-CVC-187 (shut)	Exercising these valves requires personnel access to high radiation areas within the containment during plant operation. Man rem exposure, if the valves were stroked during operation would be greater than 100 mrem gamma and 50 mrem neutron. Therefore, the valves are full stroke exercised at Cold Shutdown at 3 month intervals as allowed by Section XI.

System	Unit	Valve Number	Justification
CVCS	1/2	1-CVC-505 1-CVC-506 2-CVC-505 2-CVC-506	Valves cannot be stroked during plant operation without stopping RCP seal bleed off flow reducing RCP seal reliability, causing possible RCP failure. Valve logic prevents part stroking these valves during power operations. Valves are full stroke tested at Cold Shutdown at 3 month intervals as allowed by Section XI.
Safety Injection Containment Spray System	1/2	1-SI-434 1-SI-446 2-SI-434 2-SI-446	Valves cannot be full or part-stroked during operation because normal RCS pressure is above the shut-off head of the LPSI pumps. This would require depressurizing the reactor coolant system, causing plant shutdown. Valves will be full stroke exercised at Cold Shutdown at 3 month intervals as allowed by Section XI.
Safety Injection Containment Spray System	1/2	1-SI-401 1-SI-405 1-SI-410 1-SI-414 1-SI-427 2-SI-401 2-SI-405 2-SI-410 2-SI-414 2-SI-427	Valves cannot be full-stroked during power operation because normal RCS pressure is above the shut-off head of the HPSI pumps. Depressurizing the reactor coolant system would be required, forcing plant shutdown. Valves would be part stroked whenever the associated HPSI pumps are run to fill Safety Injection Tanks. The valves are full stroke exercised at Cold Shutdown at 3 month intervals as allowed by Section XI.

System	Unit	Valve Number	Justification
Safety Injection Containment Spray System	1/2	1-SI-118 1-SI-128 1-SI-138 1-SI-148 2-SI-118 2-SI-128 2-SI-138 2-SI-148	Valves cannot be full stroked during operation because RCS pressure is above shutoff head of the HPSI pumps. Valves will be part-stroked whenever the SI tanks are filled and full-stroked at Cold Shutdown at 3 month intervals as allowed by Section XI. The test conditions are established to prevent Low Temperature Overpressurization.
Safety Injection Containment Spray System	1/2	1-SI-114 1-SI-124 1-SI-134 1-SI-144 2-SI-114 2-SI-124 2-SI-134 2-SI-144	Valves cannot be stroke tested during power operation due to the head of the LPSI pumps being less than the required pressure to overcome the effect of Safety Injection Tanks Pressure on these valves. Valves will be full stroke exercised at Cold Shutdown at 3 month intervals as allowed by Section XI.
Safety Injection Containment Spray System	1/2	1-SI-313 1-SI-323 2-SI-313 2-SI-323	Valves cannot be stroke tested during power operation as this may cause borated water to deluge the containment resulting in equipment damage and plant shutdown. See Relief Request SI-7.
Safety Injection Containment Spray System	1/2	1-MOV-651 1-MOV-652 2-MOV-651 2-MOV-652	Valves are interlocked on reactor coolant system pressure and cannot be tested at power. This is to provide overpressure protection of the downstream piping. The valves are full stroke exercised at Cold Shutdown at 3 month intervals as allowed by Section XI.

System	Unit	Valve Number	Justification
Safety Injection Containment Spray System	1/2	1-MOV-659 1-MOV-660 2-MOV-659 2-MOV-660	Failure of these valves in the closed position during operation would cause an entire safety system to become inoperable. Valve logic prevents a part-stroke of these valves. Therefore, these valves will be full-stroke exercised at Cold Shutdown as allowed by Section XI.
Auxiliary Feed-water System	1/2	1-AFW-102 1-AFW-116 1-AFW-129 1-AFW-130 1-AFW-183 1-AFW-190 1-AFW-193 1-AFW-194 1-AFW-199 1-AFW-200 2-AFW-102 2-AFW-116 2-AFW-129 2-AFW-130 2-AFW-183 2-AFW-1[illegible] 2-AFW-193 2-AFW-194 2-AFW-199 2-AFW-200	Exercising these valves full or part-stroke during plant operation would require feeding hot steam generators with cold feedwater thereby thermally shocking the auxiliary feedwater ring within the steam generator. Therefore the valves are full stroke exercised at Cold Shutdown at 3 month intervals as allowed by Section XI.
Auxiliary Feed-water System	1/2	1-MS-103 (shut) 1-MS-106 (shut) 2-MS-103 (shut) 2-MS-106 (shut)	Testing these valves during power operation requires filling the downstream pipe with water. Pump damage could occur if the pumps were started in this configuration. Therefore, the valves are tested closed at Cold Shutdowns only, as allowed by Section XI.

System	Unit	Valve Number	Justification
Auxiliary Feed-water System	1/2	1-MS-103 (open) 1-MS-106 (open) 1-MS-108 1-MS-110 2-MS-103 (open) 2-MS-106 (open) 2-MS-108 2-MS-110	Full stroking these valves during power operation would require feeding hot steam generators with cold feedwater thereby thermally shocking the AFW ring within the S/G. Therefore, the valves will be part-stroked quarterly during power operation and full stroked at Cold Shutdown as allowed by Section XI.

APPENDIX F

DRAWINGS USED IN PREPARATION

APPENDIX F

DRAWINGS USED IN PREPARATION

Drawing No.	Revision/ Date	Title	Sheet No.	Unit
OM-35	18/2-20-85	Main Steam & Reheat	1	1
OM-36	20/6-5-85	Main Steam & Reheat	1	2
OM-39	5/7-1-86	Condensate & Feedwater	4	1
OM-40	5/8-20-86	Condensate & Feedwater	4	2
OM-46	12/8-8-86	Service Water Cooling	1	1
OM-46	14/8-8-86	Service Water Cooling	2	1
OM-47	10/3-13-86	Service Water Cooling	1	2
OM-47	12/8-8-86	Service Water Cooling	2	2
OM-49	17/7-1-86	Circulating Salt Water Cooling	1	1
OM-49	9/12-17-86	Circulating Salt Water Cooling	2	1
OM-51	16/7-30-86	Component Cooling System	1	1
OM-51	5/7-2-86	Component Cooling System	2	1
OM-51	8/6-16-86	Component Cooling System	3	1
OM-52	7/10-16-84	Containment Charcoal Filter Spray	1	1
OM-53	14/8-19-86	Compressed Air: Instrument and Plant	1	1
OM-53	3/3-7-85	Compressed Air: Instrument and Plant	2	1
OM-53	10/8-19-86	Compressed Air: Instrument and Plant	3	1
OM-53	1/3-26-85	Compressed Air: Instrument and Plant	4	1
OM-56	5/11-15-85	Plant Fire Protection	2	1&2

Drawing No.	Revision/ Date	Title	Sheet No.	Unit
OM-58	16/10-28-86	Spent Fuel Pool Cooling & Pool Fill and Drain	1	1&2
OM-59	19/11-6-86	Well Water, Pretreated Water, Demineralized Water, and Condensate Storage	1	1&2
OM-65	12/1-4-85	Ventilation	1	1&2
OM-65	12/12-11-85	Ventilation	2	1&2
OM-65	5/10-4-84	Ventilation	3	1&2
OM-65	7/9-3-86	Ventilation	4	1&2
OM-66	20/7-7-86	Reactor Coolant and Waste Process Sample	1	1&2
OM-66	6/2-21-86	Reactor Coolant and Waste Process Sample	3	1&2
OM-68	10/1-21-86	Nitrogen Generating & Blanketing	1	1&2
OM-71	4/10-23-84	Plant Heating	2	1&2
OM-72	23/4-11-86	Reactor Coolant	1	1
OM-72	OA/7-31-86	Reactor Coolant	2	1
OM-73	31/11-21-86	Chemical & Volume Control	1	1
OM-73	13/8-25-86	Chemical & Volume Control	2	1
OM-73	13/4-14-86	Chemical & Volume Control	3	1
OM-74	26/5-9-86	Safety Injection & Containment Spray	1	1
OM-74	7/5-20-85	Safety Injection & Containment Spray	2	1
OM-74	4/5-1-85	Safety Injection & Containment Spray	3	1
OM-76	9/6-19-85	Waste Process Equipment & Area Drains	1	1
OM-76	12/4-17-86	Waste Process Equipment & Area Drains	2	1

Drawing No.	Revision/ Date	Title	Sheet No.	Unit
OM-76	13/5-2[illegible]	Waste Process Equipment & Area Drains	3	1
OM-76	1/4[illegible]	Waste Process Equipment & Area Drains	4	1
OM-77	13/[illegible]	Reactor Coolant Waste Processing	1	1&2
OM-77	8/5-12-86	Reactor Coolant Waste Processing	3	1&2
OM-78	20/8-8-86	Waste Gas & Misc. Waste Processing	1	1&2
OM-78	8/8-8-86	Waste Gas & Misc. Waste Processing	2	1&2
OM-98	16/7-7-86	Area & Process Radiation Monitoring	1	1&2
OM-115	10/4-28-86	Chemical Addition & Condenser Tube Bulleting	1	1&2
OM-115	4/1-6-86	Chemical Addition & Condenser Tube Bulleting	2	1&2
OM-115	3/7-7-86	Chemical Addition & Condenser Tube Bulleting	3	1&2
OM-450	13/10-31-86	Circulating Water Cooling	1	2
OM-450	16/12-20-85	Circulating Water Cooling	2	2
OM-452	16/1-23-86	Component Cooling	1	2
OM-452	1/10-8-84	Component Cooling	2	2
OM-452	8/6-16-86	Component Cooling	3	2
OM-453	7/4-28-86	Containment Charcoal Filter Water Spray	1	2
OM-454	12/1-8-86	Compressed Air: Instrument and Plant	1	2
OM-454	4/10-10-86	Compressed Air: Instrument and Plant	2	2
OM-454	16/10-30-86	Compressed Air: Instrument and Plant	3	2

Drawing No.	Revision/ Date	Title	Sheet No.	Unit
OM-454	2/3-5-86	Compressed Air: Instrument and Plant	4	2
OM-460	18/1-30-86	Reactor Coolant	1	2
OM-460	0A/10-9-86	Reactor Coolant	2	2
OM-461	25/7-2-86	Chemical & Volume Control	1	2
OM-461	3/12-17-84	Chemical & Volume Control	2	2
OM-461	8/5-12-86	Chemical & Volume Control	3	2
OM-462	26/8-13-86	Safety Injection & Containment Spray	1	2
OM-462	6/3-11-86	Safety Injection & Containment Spray	2	2
OM-462	3/12-10-84	Safety Injection & Containment Spray	3	2
OM-463	8/3-10-86	Gas Analyzing	1	1&2
OM-463	5/8-5-86	Gas Analyzing	2	1&2
OM-464	12/7-7-86	Steam Generator Blowdown Recovery	1	1
OM-465	12/4-21-86	Steam Generator Blowdown Recovery	1	2
OM-479	15/10-9-86	Plant Water & Air Service	1	1&2
OM-479	7/3-28-86	Plant Water & Air Service	2	1&2
OM-800	10/10-16-86	Auxiliary Feedwater	1	1
OM-801	10/9-29-86	Auxiliary Feedwater	1	2

APPENDIX G

CALVERT CLIFFS NUCLEAR POWER PLANT UNITS 1 AND 2

FIRST TEN YEAR PUMP AND VALVE INSERVICE

INSPECTION PLANS WITH INCORPORATED PAGES

FROM JANUARY 30, 1981 REVISED PROGRAM

Rev. 1
9/26/88

APPENDIX H

CHRONOLOGY OF SUBMITTALS AND SELECTED DOCUMENTATION

CHRONOLOGY OF SUBMITTALS

1. Calvert Cliffs Nuclear Power Plant Unit 2; Pump and Valve Inservice Inspection Program - May 1, 1980 - Mr. A. E. Lundvall, Jr. to Mr. R. W. Reid (see Appendix G)

2. Calvert Cliffs Nuclear Power Plant Unit 1; Pump and Valve Inservice Inspection Program - May 9, 1980 - Mr. A. E. Lundvall, Jr. to Mr. R. W. Reid (see Appendix G)

3. BG&E Co. - Inservice Valve Testing Program Relief Request - December 24, 1980

4. Pump and Valve Testing (revised pages) - January 30, 1981 - L. B. Russell to Mr. A. E. Lundvall, Jr.

5. Calvert Cliffs Nuclear Power Plant Units 1 & 2; Inservice Inspection and Pump and Valve Programs Request for Relief from ASME Code Section XI Requirements Determined to be Impractical - November 6, 1981 - Mr. A. E. Lundvall to Mr. Robert A. Clark

6. US NRC - Safety Evaluation Granting Relief from ASME Code Section XI Inservice Testing Requirements - February 8, 1982 - Mr. Robert A. Clark to Mr. A. E. Lundvall

7. Calvert Cliffs Nuclear Power Plant Units 1 & 2; Inservice Inspection Program - July 22, 1982 - Mr. A. E. Lundvall to Mr. Robert A. Clark

8. Calvert Cliffs Nuclear Power Plant Units 1 & 2; Inservice Inspection and Pump and Valve Programs Request for Relief from ASME Code Section XI Requirements Determined to be Impractical - August 30, 1982 - Mr. A. E. Lundvall to Mr. Robert A. Clark

9. US NRC - Safety Evaluation and Federal Register Notice - December 22, 1982 - Mr. Robert A. Clark to Mr. A. Lundvall

10. Calvert Cliffs Nuclear Power Plant Units 1 and 2; Inservice Test Program July 11, 1985 Request for relief from ASME codes, Section XI requirements, determined to be impractical - Mr. A. E. Lundvall to Mr. James R. Miller

11. U.S. NRC - Request for Additional Information - Proposed Pump and Valve Inservice Testing Program - November 13, 1987

12. U.S. NRC - Request for Additional Information - Proposed Pump and Valve Inservice Test Program - April 19, 1988 - Mr. S. McNeil to Mr. J. A. Tiernan

13. Calvert Cliffs Nuclear Power Plant Units 1 and 2 Relief Request for Section XI of ASME Code - March 30, 1988 - Mr. J. A. Tiernan to U.S. NRC Document Control Desk

14. Calvert Cliffs Nuclear Power Plant Units 1 and 2 Proposed Pump and Valve Inservice Test Program - July 5, 1988 - Mr. J. A. Tiernan to U.S. NRC Document Control Desk

15. U.S. NRC - Request for additional Information - Proposed Pump and Valve Inservice Testing Program - August 9, 1988 - Mr. S. McNeil to Mr. J. A. Tiernan