UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO THE INSERVICE TESTING PROGRAM RELIEF REQUESTS

COMMONWEALTH EDISON COMPANY

ZION STATION, UNITS 1 AND 2

DOCKET NOS. 50-295 AND 50-304

1.0 INTRODUCTION

The Code of Federal Regulations, 10 CFR 50.55a, requires that inservice testing (IST) of certain American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (Code) Class 1, 2, and 3 pumps and valves be performed in accordance with Section XI of the ASME Code and applicable addenda, except where relief has been granted or proposed alternatives have been authorized by the Commission pursuant to 10 CFR 50.55a Subsections (f)(6)(i), (a)(3)(i), or (a)(3)(ii). To obtain authorization or relief, the licensee must demonstrate that: (1) conformance is impractical for its facility; (2) the proposed alternative provides an acceptable level of quality and safety; or (3) compliance would result in a hardship or unusual difficulty without a compensating increase in the level of quality and safety. Section 50.55a, Subsection (f)(4)(iv) provides that inservice tests of pumps and valves may meet the requirements set forth in subsequent editions and addenda that are incorporated by reference in Subsection (b) of Section 50.55a, subject to the limitations and modifications listed, and subject to Commission approval. Nuclear Regulatory Commission guidance contained in Generic Letter (GL) 89-04, *"Guidance on Developing Acceptable Inservice Testing Programs,"* provided alternatives to the Code requirements determined to be acceptable to the staff and authorized the use of the alternatives in Positions 1, 2, 6, 7, 9, and 10 provided the licensee follow the guidance delineated in the applicable position. When an alternative is proposed which is in accordance with GL 89-04 guidance and is documented in the IST program, no further evaluation is required; however, implementation of the alternative is subject to NRC inspection.

Section 50.55a authorizes the Commission to grant relief from ASME Code requirements or to approve proposed alternatives upon making the necessary findings. The NRC staff's findings with respect to granting or not granting the relief requested or authorizing the proposed alternative as part of the licensee's IST program are contained in this Safety Evaluation (SE).

An SE for the Zion Station, Units 1 and 2, IST Program for Pumps and Valves was issued by the NRC on June 4, 1991, for the second ten-year interval program. The SE included a Technical Evaluation Report (TER) prepared by EG&G Idaho, Inc., which identified certain omissions and inconsistencies in Appendix B. The licensee responded to NRC in letters dated September 16, 1991, and December 17, 1991, with information describing actions taken to address the items identified in Appendix B. New or revised relief requests

were included in the responses. Evaluations of the licensee's actions and the new or revised relief requests are provided below.

2.0 EVALUATION OF RELIEF REQUESTS AND LICENSEE'S ACTIONS ON ANOMALIES

2.1 Anomaly Item 1

This IST program anomaly deals with pump hydraulic performance reference values. This anomaly was addressed by the licensee in a submittal dated January 7, 1993, which is currently being evaluated by the NRC. The staff will document its evaluation of the licensee's response to this IST anomaly in a subsequent Safety Evaluation.

2.2 Anomaly Item 2

This IST program anomaly deals with pump hydraulic performance limits. This anomaly was addressed by the licensee in a submittal dated January 7, 1993, which is currently being evaluated by the NRC. The staff will document its evaluation of the licensee's response to this IST anomaly in a subsequent Safety Evaluation.

2.3 Anomaly Item 3

This IST program anomaly deals with pump vibration reference values. This anomaly was addressed by the licensee in a submittal dated January 7, 1993, which is currently being evaluated by the NRC. The staff will document its evaluation of the licensee's response to this IST anomaly in a subsequent Safety Evaluation.

2.4 Anomaly Item 4

This anomaly related to interim relief for pump Relief Request PR-03 relative to measuring the root mean square (RMS) of vibration velocity in lieu of peak amplitude. The anomaly recommended the licensee develop an acceptable alternative and resubmit their relief request by the end of the interim period (one year from the June 1991 SE or by the end of the next refueling outage, whichever is later). The licensee was continuing to evaluate the Zion vibration problem and was to complete revisions to PR-03 by the end of the Spring 1992 refueling outage. No NRC action is required at this time. PR-03 was revised and resubmitted in the licensee's January 7, 1993, letter and will be evaluated in a subsequent SE.

2.5 Anomaly Item 5

This anomaly concerned pump Relief Request PR-02 relative to the test method and frequency requirements of IWP-3100 and IWP-3400(a) for the service water pumps. Relief was granted provided the licensee apply certain guidance on developing pump curves and perform the testing during cold shutdowns and every refueling outage with allowable ranges in accordance with Table IWP-3100-2. The relief request was revised and included in the licensee's submittal dated

September 16, 1991. An evaluation of the revised relief request is provided below.

2.5.1 Relief Request PR-02

The Code Class 3 service water pumps, 1(2)-SW-001/002/003, are vertical shaft pumps and are supplied with an emergency power source. The function of the service water pumps is to provide lake water for cooling for both safety-related and non-essential heat exchangers and equipment. The pumps also provide a back-up supply of service water to the suction of the auxiliary feedwater. IWP-3400(a), "Frequency of Inservice Tests," requires an inservice test on each pump nominally every 3 months during normal plant operation.

2.5.2 Alternative Testing

The licensee proposes to perform IST of the service water pumps during refueling outages and during scheduled cold shutdowns, though not more often than once every 3 months, conditions permitting.

2.5.3 Licensee's Basis for Relief

The licensee states: "Permanent flow instrumentation is installed on the common discharge headers for the service water (SW) pumps on both units. Flow instrumentation could not be installed on the individual discharge lines because the plant design did not provide a sufficient length of straight pipe needed for accurate flow measurements. In order to test the pumps individually, two of the SW pumps on the unit being tested must be secured and the cross-tie valves between units must be closed. Individually flow testing the SW pumps at normal plant operation would jeopardize safety. Per [Final Safety Analysis Report] FSAR Section 9.6, two SW pumps per unit are required during normal plant operations to provide adequate cooling. During normal plant operations, operating the system as required for individual quarterly testing would violate the SW system design requirements described in the FSAR and place the plant in an unsafe operating condition."

2.5.4 Evaluation

Flow measurement of individual service water pumps is impractical during normal plant operations due to piping design limitations and instrumentation limitations. In order to perform the testing at the Code required frequency, two out of three service water pumps must be out-of-service which results in inadequate cooling for the operational loads of the service water system. Imposition of the Code required testing frequency would, therefore, be a burden in that the licensee would have to shut down the plant solely to perform the testing quarterly. Performing the testing at unscheduled cold shutdowns could result in extension of the outage to complete the testing, though the testing should be performed at extended unscheduled cold shutdowns. Testing the pumps each scheduled cold shutdown, but not more often than every 3 months, and at each refueling outage provides an acceptable level of operational readiness and allows for monitoring the pumps in accordance with the Code required parameters, though at an extended interval. Therefore,

relief can be granted for the proposed frequency of testing. Additionally, as noted in the previous revision of this relief request, a monthly operational test is performed per Technical Specifications, with includes vibration readings and discharge pressure measurements.

2.5.5 Conclusion

Relief from the test frequency requirements of IWP-3400(a) may be granted pursuant to 10 CFR 50.55a(f)(6)(i) for the service water pump testing based on (1) the impracticality of performing the testing during normal operations due to limitations of the piping design and instrumentation, (2) the burden on the licensee if the Code requirements were imposed in that plant shutdown would be required to perform the testing, and (3) the proposed alternative testing providing an acceptable level of assurance of the operational readiness of the pumps, provided all the parameters required by the Code are measured during the testing at the extended interval. The testing is required to be performed at each scheduled cold shutdown and during each refueling outage.

2.6 Anomaly Item 6

This anomaly related to the calculation of inlet pressure for the service water pumps based on the level of the lake above the pump suction. Relief was granted provided the calculations are within the Code accuracy requirements for instrumentation. The portion of Relief Request PR-02 which previously addressed this issue has been deleted. The licensee has provided their technical position on the Code requirements for determining differential pressure for the service water pumps in Position Number PP-07. The differential pressure will be determined in accordance with IWP-4240 by taking the difference between the pressure at a point in the inlet pipe and the pressure at a point in the discharge pipe. The inlet pressure will be calculated using the head difference between the suction bell elevation and the reading on the forebay level gage. The position states that the instruments used for pump testing shall meet the requirements of IWP-4100 unless specific relief is requested.

The licensee has removed this issue from the relief request. IWP-4240, "Differential Pressure," allows that the differential pressure across a pump can be determined by taking the difference between the pressure at a point in the inlet pipe and a pressure at a point in the discharge pipe. The licensee's method meets this provision of the Code. The calculational method must be included in the test implementing procedure and be subject to quality assurance requirements.

2.7 Anomaly Item 7

This anomaly concerned the vibration measurement frequency response range for the service water pumps. Interim relief was granted for the licensee to investigate the feasibility of acceptable alternatives. In the licensee's response to the anomaly, they have indicated that a low frequency probe with an acceptable response range has been purchased and calibrated. Baseline reference values were to be determined and procedure changes made by

June 17, 1992, to address the concerns. The testing will conform with the Code requirements by the time the interim relief expires. No further NRC action is required.

2.8 Anomaly Item 8

This anomaly related to the full-scale range of the flow, suction pressure, and discharge pressure instruments. Relief Request PR-09 was revised and resubmitted January 7, 1993, and will be evaluated in a subsequent SE.

2.9 Anomaly Item 9

This anomaly questioned the testing listed in the valve tables for service water check valves SW-10/11/12. The licensee has submitted a relief request to address the concerns stated in the anomaly. An evaluation is provided below.

2.9.1 Relief Request VR-37

The licensee requests relief from the test frequency and exercising procedure requirements of IWV-3521 and IWV-3522 for service water check valves 1(2)-SW-10/11/12. These valves function in the service water supply lines to the diesel generator (D/G) coolers to prevent diversion of screen wash to the coolers in the event of a secured service water line.

2.9.2 Alternative Testing

The licensee proposes to verify operational readiness of the check valves by disassembly and inspection. Other testing methods do not appear to provide positive and meaningful test results. Due to system operating restrictions, required scaffolding, and draining and isolating the water supply to this valve, the disassembly and inspection will be performed during refueling outages. A sample disassembly and inspection plan for this group of valves will be in accordance with Generic Letter 89-04, Attachment 1, Position 2.

The check valves will be disassembled to the extent necessary to assess the condition of the valve and to allow manual exercising of the disk. During the visual examination, full stroke capability will be verified. Any degradation will be documented and evaluated. Appropriate corrective action will be taken, as required by IWV-3523. If failure of valve internals or disk binding is found, the remaining valves in that group will be disassembled and inspected during the same outage.

A partial stroke exercise with flow will be performed after reassembly to demonstrate that the valve is functioning properly.

2.9.3 Licensee's Basis for Relief

The licensee states: "Plant piping configuration does not provide a positive way to verify valve closure. Significant system design changes would be

required to comply with Code requirements. The costs involved to allow Code testing would be burdensome.

In order to close the valve, service water must be isolated. Isolating SW to the D/G coolers would take a D/G out of service and put the unit into a (Technical Specification) Limiting Condition of Operation. This test methodology is not considered a safe practice during normal operation.

The only method available to Zion would be an audible technique, i.e., hearing the valve disk hit the seat or obtaining acoustic monitoring data at cold shutdown. It also is not expected that the method of applying screen wash for a differential pressure against the valve disk would even close the valve firmly enough to get meaningful data to detect that valve degradation was occurring.

Currently, the diagnostic technique is only used on certain valves identified in the Check Valve Preventive Maintenance Program. This program requires disassembly of these valves due to their service conditions and maintenance history. Acoustic monitoring is used for additional data, but the frequency of obtaining data would not be useful as compared to the inspection data received during disassembly."

2.9.4 Evaluation

These service water check valves are required to function open to provide cooling water to the diesel generator coolers, and to function closed to prevent diversion of screen wash to the coolers if the service water supply is secured. Generic Letter 89-04, Attachment 1, Position 2, provided an acceptable alternative to full flow testing of check valves, and indicated that valve disassembly and inspection can be used as a positive means of determining that a valve disk will full stroke exercise open or of verifying closure capability, as permitted by IWV-3522. Guidelines for implementing this alternative, as provided in Position 2, are to be included in the licensee's program for disassembly and inspection of the valves, including the disassembly and inspection of at least one of the three valves each refueling outage. Implementation is subject to NRC inspection.

Use of this alternative for verifying valve closure is acceptable only where no other method of verifying closure (flow or pressure measurements) is practical (reference Question 17 of the Minutes of the Public Meetings on Generic Letter 89-04, dated October 25, 1989). The licensee indicates that they employ an acoustic monitoring technique to test certain valves. They state that this data would not be useful as compared to the inspection data received during disassembly. However, the NRC considers disassembly and inspection a maintenance practice which provides information on the condition of valves, but not a test as required by ASME Section XI. Therefore, the staff recommends that the licensee further pursue the use of nonintrusive techniques for application to these valves as well, and schedule the disassembly and inspection on a maintenance frequency independent of the IST frequency. Additionally, entry into an LCO to perform surveillance testing is not an "unsafe practice" (reference GL 87-09).

With the current design and testing method, it is impractical to implement the Code requirements. It would be burdensome to require the licensee to modify the piping system to enable testing. The current practice of disassembly and inspection provides an acceptable alternative for monitoring the condition of these valves per GL 89-04.

2.9.5 Conclusion

Relief may be granted pursuant to 10 CFR 50.55a(f)(6)(i) and Generic Letter 89-04, Position 2, based on (1) the impracticality of performing testing with the current design and testing methods, (2) the burden on the licensee if the Code requirements were immediately imposed, and (3) the alternative testing providing an acceptable level of assurance of the operational readiness of the valves.

2.10 Anomaly Item 10

Relief request VR-13 was approved in the June 4, 1991, SE, for testing containment isolation valves per Appendix J and the Technical Specifications, provided the licensee's testing is in accordance with Generic Letter 89-04, Attachment 1, Position 10, guidelines. The revised relief request clarifies that the testing includes IWV-3426 and IWV-3427(a) and is in accordance with Position 10. Therefore, the relief granted in the previous SE is acceptable and no further NRC action is required.

2.11 Anomaly Item 11

Relief Request VR-17 was granted for rapid-acting valves and the main steam isolation valves, and denied for other air-operated valves, in the June 4, 1991, SE. VR-17 has been revised to include only the rapid-acting valves and the main steam valves, for which the previously approved relief remains applicable. Relief Request VR-40 has been issued to address the use of reference values for all other power operated valves. Therefore, Relief Request VR-17 is approved, as revised, per the previous SE, and Relief Request VR-40 requires NRC review and evaluation.

2.11.1 Relief Request VR-40

The licensee has requested relief from the corrective action requirements of ASME Section XI, IWV-3417(a) for power operated valves except those identified in VR-17 (rapid-acting valves and the main steam isolation valves).

2.11.2 Alternative Testing

The licensee proposes the following: "The reference mean stroke time would be established by summing the current stroke times of at least three consecutive tests, divided by the number of tests. The mean would be established only for valves in good operating condition.

The mean will be re-established after maintenance has been performed on the valve which may alter the stroke time. With the exception of using a mean

instead of a previous test value for trending, the requirements of IWV-3417 will be followed."

2.11.3 Licensee's Basis for Relief

The licensee states: "The Code requires power operated valves to be trended from test to test by calculating the percent increase from the previous test. Zion believes that comparing to a reference value rather than the previous test is a better method to detect a meaningful trend. Using a mean for trending reduces the potential for a floating or increasing alert limit by delineating a specific fixed value. Zion is also conscious of the "step ladder" effect of raising the mean periodically and administratively controls any changes.

Zion has been able to detect valve degradation with the proposed trending method resulting in repairs and increased preventive maintenance for the affected valves."

2.11.4 Evaluation

The NRC has indicated the acceptability of using a reference value for trending stroke times of valves in Generic Letter 89-04, Attachment 1, Position 6, and in response to Question 40 of the Minutes of the Public Meetings on Generic Letter 89-04.

By rulemaking effective September 8, 1992, the 1989 Edition of ASME Section XI was incorporated by reference in § 50.55a(b). The 1989 Edition provides that inservice testing of valves may be performed in accordance with ASME OM-10. Upon issuance of OM-10, the allowable changes in stroke times from reference values are stipulated. When a licensee establishes stroke time measurement comparisons to reference values, the requirements of OM-10 ¶ 4.2.1.8, "Stroke Time Acceptance Criteria," and all related requirements such as testing requirements and corrective action, are to be met. This provides the requisite approval per § 50.55a ¶ (f)(4)(iv) for use of portions of later editions of the Code approved in § 50.55a ¶ (b). The related requirements of OM-10 include 1.3, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 4.2.1.1, 4.2.1.2, 4.2.1.3, 4.2.1.4, 4.2.1.5, 4.2.1.6, 4.2.1.7, 4.2.1.8, 4.2.1.9, 5, and 6.

Because the stroke timing acceptance criteria for power-operated valves in IWV was based on a change from the previous values, and the establishment of reference is now included in OM-10, it is appropriate to utilize the requirements of OM-10 for use of reference values of valve stroke times. This removes the inconsistencies from application of acceptance criteria where no previous guidance was available.

2.11.5 Conclusion

Therefore, pursuant to § 50.55a(f)(4)(iv), the licensee may use reference values for stroke-timing of power-operated valves provided all related requirements of OM-10 are utilized. Whether all related requirements of OM-10 are met is subject to NRC inspection.

2.12 Anomaly Item 12

The licensee had proposed verifying valve position indicators once every three years, as opposed to once every two years as required by ASME Section XI, Paragraph IWV-3300. Relief was denied in the SE issued June 4, 1991. The licensee has agreed to meet the Code requirements for valves with remote position indicators except for the containment recirculation sump isolation valves for which specific relief has been requested in VR-41. An evaluation of this relief request is provided.

2.12.1 Relief Request VR-41

The request applies to containment recirculation sump isolation valves 1(2)MOV-SI8811A and 1(2)MOV-SI8811B These valves are opened remote manually (as opposed to an automatic signal) to provide suction to the residual heat removal (RHR) pumps during cold leg recirculation. They are required to function closed, and are maintained in the closed position, when RHR pump suction is from the hot leg of the reactor coolant system.

2.12.2 Alternative Testing

The licensee proposes: "Zion Station requests relief to perform remote position indication verification of 1(2)MOV-SI8811A and B on an alternative basis. That is, one valve is inspected each refueling outage to coincide with the required environmental qualification (EQ) inspection. Since Zion is on an 18-month refueling schedule, each valve would be tested once every 3 years rather than once every 2 years. This alternative would provide adequate assurance that operational readiness is maintained."

2.12.3 Licensee's Basis for Relief

The licensee states: "The containment recirculation sump isolation valves are each contained in a metal closure which can withstand post-LOCA containment pressure. There are no indicators outside the container which can be used to determine the actual physical position (open/closed) of the valves. It is necessary to remove the exterior closure each time remote position verification is required.

Removal of the metal closure is time and labor intensive. The removal of both enclosures each refueling outage is a burden to the Station due to the time required to remove the containers (scaffolding and rigging), stroke and verify indicators, and reinstall the containers."

2.12.4 Evaluation

The applicable valves are normally closed, and typically remain closed during normal conditions. They function to open following a loss of coolant accident when the emergency core cooling system pumps switch to the recirculation mode of operation. The extent of accessing the valves to verify position indication for both each refueling outage is a burden to the licensee without a compensating increase in the level of safety, in the time and extensive

effort involved in performing the verification when the valves can be alternated such that one is verified each refueling outage. This results in a verification for each valve, though at an extended interval. However, considering the infrequent operation of the valves, performing the verification at the extended interval provides an acceptable level of safety for verification of the position indication. Additionally, the extended interval is consistent with an effort already required (EQ inspection), and is not an unreasonable length of time. Therefore, the proposed alternative can be approved to perform the position verification in conjunction with the EQ inspection of the valves at alternating refueling outages. In the event a position indication failed to indicate properly in an accident condition, operators could verify valve position by system parameters (sump level changes, pump suction pressure, flow).

2.12.5 Conclusion

The licensee's alternative to extend the interval for the containment recirculation sump isolation valves position verification to one valve each refueling outage is authorized pursuant to 10 CFR 50.55a(a)(3)(ii) based on (1) the requirements to verify position indication once every two years being a burden without a compensating increase in the level of safety due to the extent of the efforts related to accessing the valves to perform the required verification, and (2) the alternative schedule providing an acceptable level of safety for the verification of the operational readiness of the position indication, though at an extended interval.

2.13 Anomaly Item 13

This anomaly relates to the licensee's relief request VR-29 to test valves at cold shutdowns only when the plant is shut down greater than 72 hours, and not to delay plant startup to complete testing. Relief was granted in the June 4, 1991, SE, provided the licensee complied with guidelines listed in Section 3.1.4.1.2 of the TER. The guidelines are consistent with Operations and Maintenance Standard Part 10, "Inservice Testing of Valves in Light-Water Reactor Power Plants," Paragraph 4.2.1.2(g), which replaces Subsection IWV in the 1989 Edition of Section XI which has been incorporated by reference in § 50.55a(b).

The licensee indicated in their September 16, 1991, letter that they would revise procedures to implement the cold shutdown testing in accordance with the TER. In their December 17, 1991, letter, the licensee indicates that the relief request has been withdrawn and that the testing will be performed as outlined in the TER. Because the TER guidelines were consistent with OM-10, pursuant to § 50.55a(f)(4)(iv), the licensee's proposal is acceptable and relief is not required, provided all related requirements for ¶ 4.2.1.2(g) are implemented. Whether all related requirements are implemented is subject to NRC inspection.

2.14 Anomaly Item 14

The anomaly relates to valve relief requests VR-06 and VR-07 for a number of safety injection check valves. Relief was granted in the June 4, 1991, SE provided the licensee ensures that testing meets the guidance in GL 89-04, Position 1. The relief requests have been revised to provide further details on the flow established during the testing and flow measurement through individual branch lines. Therefore, they meet the guidance in GL 89-04, Position 1. The implementation is subject to NRC inspection. No further NRC action is required.

2.15 Anomaly Item 15

Relief was granted for the RHR pumps suction check valve 1/2SI8958 to full-stroke test during refueling outages, provided the licensee part-strokes the valve quarterly or during cold shutdowns. Relief Request VR-05 was revised (1) to delete valve SI8958, and (2) to include discussion on verifying the closed function of check valves RH8736A/B and RH8949A/B following the full-stroke exercising open. The extension of the test interval as requested in VR-05 was granted in the June 4, 1991, SE, and the revision has not changed the basis for extending the interval. Therefore, no NRC action is required for VR-05.

Valve SI8958 is now addressed in relief request VR-33, which is written specifically for this valve. The revised relief request included, as part of the licensee's proposed alternative testing, provisions to partially stroke exercise the valve during quarterly pump testing. VR-33 was revised in the licensee's January 7, 1993, submittal to include justification for not performing a part-stroke exercise. This will be discussed in detail in a subsequent SE of the January 1993 submittal.

2.16 Anomaly Item 16

Relief was granted in the June 4, 1991, SE to utilize a disassembly and inspection program as an alternative to testing for containment spray NaOH supply check valves CS-0016, 0021, and 0026, provided the licensee incorporate a part-stroke of the valves following reassembly, as delineated in GL 89-04, Position 2. The anomaly also included a recommendation to investigate alternative techniques such as non-intrusive methods for performing testing. The licensee submitted a revised relief request (VR-01) via a letter dated January 7, 1993. This will be discussed in detail in a subsequent SE.

2.17 Anomaly Item 17

Relief was granted for relief request VR-12 in the June 4, 1991, SE for a number of isolation valves seal water system check valves provided the licensee's alternative testing method conformed to staff positions. VR-12 has been revised to describe the testing in more detail. The valves do not have a design basis flow rate, but rather are required to open sufficiently to pressurize the injection line. The licensee's method confirms that this function can be accomplished during valve exercising. Therefore, the testing

method, as described, meets the intent of the staff positions for check valves. Relief has been granted and the licensee has addressed the anomaly adequately to describe the testing. No further NRC action is required.

2.18 Anomaly 18

The anomaly related to relief request VR-06 for testing the accumulator discharge check valves at less than design flow rates. Rather, a reduced flow had been calculated which was to obtain the velocity needed to fully open these valves. The anomaly identified that this calculation is applicable for valves known to be in good operating condition, and may not be applicable for valves which have been in service for an extended period of time. Interim relief was granted for the licensee to further investigate testing methods.

The licensee has revised VR-09, referencing correspondence from Westinghouse (which was not attached as stated in the relief request) which identified a concern in utilizing a test method resulting in rapid blowdown of the accumulators. The expansion of the nitrogen gas in the accumulator generates a temperature transient which was not analyzed in the original design of the accumulator, and multiple transients of this nature could generate through-wall cracks in the tank as a result of fatigue.

Based on the concerns of the vendor, the licensee has discontinued the reduced flow testing. A disassembly and inspection of the valves has been proposed as the alternative to full flow testing. This is an acceptable alternative approved by GL 89-04, paragraph entitled "IST Program Approval," provided the provisions of the letter are followed and the alternative testing is as delineated in Position 2. The licensee should ensure that their disassembly and inspection of these valves is in accordance with the guidance provided in GL 89-04, Position 2. Implementation is subject to NRC inspection. No further NRC action is required at this time.

3.0 CONCLUSIONS

As detailed above, use of the alternative described in Relief Request VR-41 is authorized pursuant to 10 CFR 50.55a(a)(3)(ii). Other relief requests, as specified above, are granted pursuant to 10 CFR 50.55a(f)(6)(i). The staff has further determined that the relief granted is authorized by law and will not endanger life or property or the common defense and security and is otherwise in the public interest.

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