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

SAFETY EVALUATION REPORT BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO THE INSERVICE TESTING PROGRAM AND REQUESTS FOR RELIEF

COMMONWEALTH EDISON COMPANY

BYRON STATION, UNITS 1 AND 2

DOCKET NOS.: 50-454/455

1.0 INTRODUCTION

The Code of Federal Regulations, 10 CFR 50.55a(g), requires that inservice testing (IST) of ASME Code Class 1, 2, and 3 pumps and valves be performed in accordance with Section XI of the ASME Boiler and Pressure Vessel Code and applicable addenda, except where specific written relief has been requested by the licensee and granted by the Commission pursuant to 10 CFR 50.55a(a)(3)(i), (a)(3)(ii), or (g)(6)(i). In requesting relief, the licensee must demonstrate that (1) the proposed alternatives provide an acceptable level of quality and safety, (2) compliance would result in hardship or unusual difficulties without a compensating increase in the level of quality and safety, or (3) conformance with certain requirements of the applicable Code edition and addenda is impractical for its facility.

The Regulation, 10 CFR 50.55a(a)(3)(i), (a)(3)(ii), and (g)(6)(i), authorizes the Commission to grant relief from these requirements upon making the necessary findings. The NRC staff's findings with respect to granting or not granting the relief requested as part of the licensee's IST Program are contained in the Safety Evaluation (SE) issued on the licensee's program.

The IST program addressed in this report covers the first ten-year inspection interval from Semptember 16, 1985 to September 16, 1995 for Byron 1 and from August 21, 1987 to August 21, 1997 for Byron 2. The licensee's program is described in a letter dated November 4, 1982. This report is based on review of the licensee's IST program through Revision 6 for pumps and Revision 7 for valves submitted in a letter dated August 31, 1987.

The program is based on the requirements of Section XI of the ASME Code, 1980 Edition through the Winter of 1981 Addenda.

2.0 EVALUATION

The Regulation, 10 CFR 50.55a(g)(4)(i), requires that during the initial 120 month interval, the IST program shall comply with the latest edition and addenda of the Code incorporated by reference in 10 CFR 50.55a(b) on the date 12 month prior to the date of issuance of the operating license. This corresponds to 1980 Edition through the Winter of 1981 Addenda (80W81) for Unit 1 and 1983 Edition through the Summer of 1983 Addenda (83S83) for Unit 2.

The licensee's IST program which was submitted August 31, 1987 was developed using the 80W81 Code for both units and thus departed from the provisions 10 CFR Part 50.55a(g)(4)(i). By letter dated May 16, 1988, the licensee committed to use the 83583 Code for both units. 10 CFR 50.55a(g)(4)(iv) permits use of later, approved code editions and addenda subject to Commission approval. Thus, the Commission approves the use of the 83583 Code for both units with the issuance of this Safety Evaluation.

However, the program that was reviewed was developed using the 80W81 Code. In a letter dated July 29, 1988, the licensee stated that the differences between the 80W81 Code and the 83583 Code have a minimal effect on the Byron IST program. The staff has reviewed the differences between the two codes and concludes that there are only minor additional changes in the area of inservice testing and that the licensee's IST program would not be affected by the use of the later edition and addenda.

The IST program and the requests for relief from the requirements of Section XI have been reviewed by the staff with the assistance of its contractor, EG&G, Idaho, Inc. (EG&G). In addition, EG&G and staff members met with licensee representatives on July 8 and 9, 1986, in a working session to discuss questions resulting from the review. The Technical Evaluation Report (TER) provided as Attachment 1 is EG&G's evaluation of the licensee's inservice testing program and relief requests. The staff has reviewed the TER and concurs with the evaluations and conclusions contained in the TER. A summary of the pump and valve relief request determinations is presented in Table 1. The granting of relief is based upon the fulfillment of any commitments made by the licensee in its basis for each relief request and the alternative proposed testing.

Six relief requests were denied (TER sections 3.1.1, 4.1.1.1, 4.2.1.3, 4.2.2.1, 4.5.1.1 and 4.8.2.1) and two relief requests were granted with certain conditions (TER sections 3.3.1 and 4.8.1.1). The licensee should refer to the specific TER section for a detailed discussion of these cases. These denials and conditions are listed in TER Appendix C and in addition, Appendix C lists other IST program anomalies which were identified during our review.

The licensee should resolve all the items listed in Appendix C in accordance with the staff positions. Required program changes should be made within 90 days of receipts of this SER.

3.0 INSPECTION

An inspection of the Byron 1 & 2 IST programs should be conducted by Region III. The inspection should focus on the adequacy of implementing procedures for the IST program, and satisfactory actions to resolve the items addressed in Appendix C of the TER.

4.0 CONCLUSION

Based on the review of the licensee's IST program and relief requests, the staff concludes that the IST program as evaluated and modified by this SER will provide reasonable assurance of the operational readiness of the pumps and valves covered by the IST program to perform their safety related functions. The staff has determined that granting relief, pursuant to 10 CFR 50.55a (a)(3)(i), (a)(3)(ii), or (g)(6)(i), is authorized by law and will not endanger life or property, or the common defense and security and is otherwise in the public interest. In making this determination the staff has considered the alternate testing being implemented, resulting hardships without a compensating increase in safety, or the impracticality of performing the required testing considering the burden if the requirements were imposed. The last column of Table 1 identifies the regulation under which the requested relief is granted.

During the review of the licensee's inservice testing program, the staff has identified certain misinterpretations or omissions of Code requirements. These items are summarized in the TER Appendix C. The IST program for Byron 1 & 2, through a submittal dated August 31, 1987, as revised by May 18, 1988 and July 29, 1988 letter commitments, is acceptable for implementation provided that the items noted above are corrected promptly. Relief requests contained in any subsequent revisions may not be implemented without prior approval by NRC.

BYRON STATION, UNITS 1 AND 2
SER TABLE 1
SUMMARY OF RELIEF REQUESTS

RELIEF REQUEST NUMBER	TER SECTION	SECTION XI REQUIREMENT & SUBJECT	EQUIPMENT IDENTIFICATION	ALTERNATE METHOD OF TESTING	ACTION BY USNRC
Valve VR-2	4.1.2.1	IWV-3521 Test frequency.	Containment spray additive checks: 1(2)CS020A and B	Verify operability during refueling outages by either full flow or disassembly and inspection.	Relief Granted/ (g)6(i)
Valve VR-3	4.2.3 1	IWV-3521 Test frequency.	Safety injection pumps' discharge check valves: 1(2)SI8922A and B	Full-stroke exercise during refueling outages.	Relief Granted/ (g)6(i)
Valve VR-4	4.1.1.1	IWV-3521 and IWV-3412 Test frequency.	Containment spray ring header checks: 1(2)CS008A and B	Verify operability during refueling outages by either full flow or disassembly and inspection.	Relief Denied
Valve VR-4	4.1.2.2	IWV-3521 Test frequency.	Containment spray pump discharge checks: 1(2)CS003A and B	Part-stroke quarterly, verify operability during refueling outages by either full flow or disassembly and inspection.	Relief Granted/ (g)6(i)
Valve VR-5	4.2.1.1	IWV-3521 and IWV-3412 Test frequency.	Accumulator discharge checks: 1(2)SI8948A-D and 1(2)SI8956A-D	Exercise with flow during cold shutdowns if not performed within the last 9 months.	Relief Granted/ (g)6(i)
Valve VR-6	4.2.3.2	IWV-3521 Test frequency.	Safety injection pump suction checks: 1(2)SI8926	Part-stroke exercise quarterly, full-stroke exercise during refueling outages.	Relief Granted/ (g)6(i)
Valve VR-7	Deleted				

BYRON STATION, UNITS 1 AND 2
SER TABLE 1
SUMMARY OF RELIEF REQUESTS

RELIEF REQUEST NUMBER	TER SECTION	SECTION XI REQUIREMENT & SUBJECT	EQUIPMENT IDENTIFICATION	ALTERNATE METHOD OF TESTING	ACTION BY USNRC
Valve VR-8	4.3.1.1	IWV-3411 Test Frequency.	Component cooling water to RCPs: 1(2)CC685, 1(2)CC9413A, 1(2)CC9414, 1(2)CC9416, 1(2)CC9438	Exercise during refueling outages and cold shutdowns when the reactor coolant pumps are not running.	Relief Granted/ (g)6(i)
Valve VR-8	4.3.2.1	IWV-3521 Test frequency.	Component cooling water supply to RCPs check valve: 1(2)CC9486	Verify reverse flow closure during leak rate testing per IWV-3420 (at least once per two years).	Relief Granted/ (g)6(i)
Valve VR-9	4.4.1.1	IWV-3411 Test frequency.	Seal water supply to RCPs: 1(2)CV8100 and 1(2)CV8112	Exercise during refueling outages and cold shutdowns when the reactor coolant pumps are not running.	Relief Granted/ (g)6(i)
Valve VR-10	4.5.1.1	IWV-3411 Test frequency and IWV-3415 fail safe test.	Instrument air to containment isolation valves: 1(2)IA065 and 1(2)IA066	Exercise during refueling outages and during cold shutdowns on an undefined frequency.	Relief Denied
Valve VR-12	4.8.2.1	IWV-3417(a) Stroke times.	Rapid acting valves.	Assign 2 second stroke time limit, upon exceeding limit increase test frequency and trend.	Relief Denied
Valve VR-13	4.6.1.1	IWV-3412, 3413(b), 3417, and 3522 Stroke time and trend.	Diesel generator air start valves: 1(2)DG5182A-D, 1(2)DG5183A-D, 1(2)DG5184A-D, and 1(2)DG5185A-D	Verify operability monthly by comparison of air reciever pressures before and after diesel start.	Relief Granted/ (g)6(i)
Valve VR-14	Deleted				

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TECHNICAL EVALUATION REPORT
PUMP AND VALVE INSERVICE TESTING PROGRAM
BYRON STATION, UNITS 1 AND 2

Docket Nos. 50-454 and 50-455

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TECHNICAL EVALUATION REPORT
PUMP AND VALVE INSERVICE TESTING PROGRAM
BYRON STATION, UNITS 1 AND 2

1. INTRODUCTION

Contained herein is a technical evaluation of the pump and valve inservice testing (IST) program submitted by Commonwealth Edison Company for its Byron Station, Units 1 and 2.

By a letter dated November 4, 1982, Commonwealth Edison Company submitted an IST Program for Byron Station, Units 1 and 2. A working meeting with Commonwealth Edison Company and Byron Station, Units 1 and 2 representatives was conducted July 8 and 9, 1986 and conference calls were held on December 24, 1986 and July 09, 1987. The licensee's IST Program for pumps, Revision 6, and for valves, Revision 7, as revised by Commonwealth Edison Company and attached to S. C. Hunsader letter to NRC, dated August 31, 1987, was reviewed to verify compliance of proposed tests of pumps and valves whose function is safety related with the requirements of the ASME Boiler and Pressure Vessel Code (the Code), Section XI, 1980 Edition through Winter 1981 Addenda. Any IST program revisions subsequent to those noted above are not addressed in this technical evaluation report (TER). The NRC staff position is that required program changes, such as additional relief requests or the deletion of any components from the IST program, should be submitted to the NRC under separate cover in order to receive prompt attention, but should not be implemented prior to review and approval by the NRC.

In their submittal, Commonwealth Edison Company has requested relief from the ASME Code testing requirements for specific pumps and valves and these requests have been evaluated individually to determine if the required testing is indeed impractical for the specific pumps and valves. This review was performed utilizing the acceptance criteria of the Standard Review Plan, Section 3.9.6, and the Draft Regulatory Guide and Value/Impact Statement titled "Identification of Valves for Inclusion in Inservice Testing Program". The IST Program testing requirements apply only to

2. SCOPE

The EG&G Idaho review of the Commonwealth Edison Company, Byron Station, Units 1 and 2 inservice testing (IST) program for pumps and valves was begun in 1984. The program initially examined was Revision 2, dated November 11, 1982, which identified the licensee's proposed testing of safety related pumps and valves in the plant systems listed in Appendix B.

The licensee's proposed IST program was reviewed by locating and highlighting the components on the appropriate system P&IDs and determining their function in the system. Then the licensee's proposed testing was evaluated to determine if it was in compliance with the ASME Code, Section XI, requirements. During the course of this review, questions and comments were made relative to unclear or potential problem areas in the licensee's IST program. These were transmitted to the licensee in the form of a request for additional information (RAI) which served as the agenda for the working meeting between the licensee, the NRC, and the EG&G reviewers.

Each pump and valve relief request was individually evaluated to determine if the licensee had clearly demonstrated that the Code requirements are impractical for the identified system components, and to determine if the proposed alternate testing would provide a reasonable indication of component operability giving due consideration to the burden on the licensee if the Code requirements were imposed. Where the licensee's technical basis or alternate testing was insufficient or unclear, the licensee was requested to clarify the relief request. The system P&ID was also examined to determine whether the instrumentation necessary to make the identified measurements is available. If, based on the unavailability of adequate instrumentation or the reviewers experience and system knowledge, it was determined that it may not be possible or practical to make the measurements identified in the licensee's IST program, a question or comment was generated requesting clarification.

For pumps, it was verified that each of the seven inservice test quantities of Table IWP-3100-1 were indicated to be measured or observed.

Further evaluation was performed on all valves in the program to determine that the identified testing could practically and safely be conducted as described. If the licensee's ability to perform the testing was in doubt, a question was formulated to alert the licensee to the suspected problem.

Safety-related safety valves and relief valves, excluding those that perform only a thermal relief function, were confirmed to be included in the IST program and tested in accordance with IWV-3510. Safety-related explosively actuated valves were verified to be included in the IST program and tested in accordance with IWV-3610.

Once all the components in the licensee's IST program had been identified on the P&IDs and evaluated as described above, the P&IDs were examined closely by at least two trained and experienced reviewers to identify any additional pumps or valves that may perform a safety function which were not included in the licensee's program. The licensee was asked to reconcile any components that were identified by this process which were not included in the IST program. Also, the list of systems included in the licensee's program was compared to a system list in the Draft Regulatory Guide and Value/Impact Statement titled, "Identification of Valves for Inclusion in Inservice Testing Programs". Systems that appear in the Draft Regulatory Guide list but not in the licensee's program were evaluated and, if appropriate, questions were added to the RAI.

Additionally, if the reviewers suspected a specific or a general aspect of the licensee's IST program based on their past experiences, questions were included in the RAI to clarify those areas of doubt. Some questions were included for the purpose of allowing the reviewers to make conclusive statements in this TER.

At the completion of the review, the RAI was transmitted to the licensee. These questions were later used as the agenda for the working meeting with the licensee on July 8 and 9, 1986. At the meeting, each

3. PUMP TESTING PROGRAM

The Byron Station, Units 1 and 2, IST program submitted by the Commonwealth Edison Company was examined to verify that all pumps that are included are subjected to the periodic tests required by the ASME Code, Section XI, 1980 Edition through Winter 1981 Addenda, except for those pumps identified below for which specific relief from testing has been requested and is summarized in Appendix C. Each Commonwealth Edison Company basis for requesting relief from the pump testing requirements and the reviewers' evaluation of that request is summarized below.

3.1 Essential Service Water System

3.1.1 Relief Request

The licensee has requested relief from the IWP-3100 requirements of Section XI for measurement of differential pressure for the essential service water makeup pumps, 0SX02PA and B, and proposed to evaluate these pumps using pump discharge pressure.

3.1.1.1 Licensee's Basis for Requesting Relief. It is impractical to measure the inlet pressures of these pumps. Instrumentation for directly measuring the inlet pressure for these pumps does not exist. These pumps are vertical well type pumps which take a suction from the river screen house forebay. The annual fluctuation between the highest and lowest river water is approximately two feet. This difference in suction pressure (approx. 0.9 psi) is less than the accuracy of the pump discharge pressure gage:

Gage	Range	Accuracy (1/2% of full scale)
0PI-SX054/55	0-300 PSIG	1.5 PSIG

Installing system modifications to record suction pressure will not provide more accurate data for evaluating the performance of these pumps.

3.2.1.1 Licensee's Basis for Requesting Relief. These pumps are positive displacement Diesel Oil Transfer Pumps. The pump differential pressure is not a factor affecting pump performance, but rather dependant only on the inlet pressure to the pump. As the pump discharge pressure is constant, and the inlet pressure varies with tank level, the differential pressure is not a valid operational parameter. Using pump discharge pressure in lieu of pump differential pressure will provide meaningful pump performance data for evaluation of operational readiness of the Diesel Oil Transfer Pumps.

As an alternative, pump discharge pressure is a valid operational parameter. This will be used to evaluate the Diesel Oil Transfer Pumps performance.

3.2.1.2 Evaluation. These diesel oil transfer pumps are positive displacement type. Their outlet pressure is dependant on the pressure of the system into which they are pumping and is not affected significantly by either inlet pressure (providing adequate NPSH exists) or flowrate. For these pumps differential pressure and flowrate are not dependant variables, as they are for centrifugal type pumps. Differential pressure is not a meaningful parameter in determining if hydraulic degradation is occurring. Measurement of discharge pressure in lieu of differential pressure for these positive displacement pumps provides enough information to evaluate to determine the hydraulic condition of these pumps and presents a reasonable alternative to the Code requirements.

Based on the determination that the licensee's proposed alternative is essentially equivalent to the Code requirements, relief should be granted as requested.

3.3 All Systems

3.3.1 Relief Request

The licensee has requested relief from the Table IWP-3100-2 requirements of Section XI, for measurement of pump vibration in units of

velocity greater than 6 times the reference value or greater than .70 inches per second will require corrective actions to be performed on the affected component.

The OSX02PA and B pumps, due to their design, will experience vibration velocity readings that will normally exceed 0.4 inches per second. A vibration of this magnitude would fall into the "Alert" range of the ANSI/ASME OM-6, Table 6100-1 and would require "Doubling the Test Frequency." For this reason, the vibration data on these pumps will be evaluated on a case by case basis, with comparisons to previous data closely monitored to verify that the vibration is not affecting pump operability. This is in accordance with IWP-3230(c). Evaluation of data, to assign equipment to the alert or action ranges, will be done within 96 hours (per IWP-3220 of Section XI). This will be done using industry accepted vibration analysis equipment, such as a full spectrum analyzer.

Vibration measurements for all pumps will be obtained and recorded in velocity, inches per second, and will be broadband unfiltered peak measurements. The monitored locations for vibration analysis will be marked so as to permit subsequent duplication in both location and plane.

The frequency response range of the vibration transducers and their readout system shall be capable of frequency responses from one-third minimum pump shaft rotational speed to at least one thousand hertz.

The centrifugal pumps in the program will have vibration measurements taken in a plane approximately perpendicular to the rotating shaft in two orthogonal directions on each accessible pump bearing housing and in the axial direction on each accessible pump thrust bearing housing.

The vertical line shaft pumps in the program will have vibration measurements taken on the upper motor bearing housing in three orthogonal directions, one of which is the axial direction.

Measurements of vibration in mils displacement are not sensitive to small changes that are indicative of developing mechanical problems.

3.3.2 Relief Request

The licensee has requested relief from the IWP-3100 requirement of Section XI for measurement of bearing temperature for the following pumps:

0CC01P	Component Cooling Pump
1(2)CC01PA and B	Component Cooling Pumps
1(2)D001PA, B, C, and D	Diesel Oil Transfer Pumps
1(2)CS01PA and B	Containment Spray Pumps
1(2)RH01PA and B	Residual Heat Removal Pumps
0SX02PA and B	Essential Service Water Makeup Pumps (Diesel)
0W001PA and B	Control Room Chilled Water Pumps

3.3.2.1 Licensee's Basis for Requesting Relief. These pumps' bearings are not provided with permanent temperature detectors or thermal wells. Therefore, gathering data on bearing temperature is impractical. The only temperature measurements possible are from the bearing housing. To detect high bearing temperature at the bearing housing would require that the bearings in question be seriously degraded. Measurement of housing temperature on these pumps does not provide positive information on bearing condition or degradation. For example, the bearings on the essential service water pumps (0SX02PA, 0SX02PB) and diesel oil transfer pumps (1D001PA through D and 2D001PA through D) are cooled by the fluid pumped. Therefore, any heat generated by degraded bearings is carried away by the cooling fluid and would not be directly measured at the bearing housing.

No direct alternate test is proposed for bearing temperature. However, measurement of hydraulic parameters and vibration readings do provide a more positive method of monitoring pump condition and bearing degradation. By measuring pump hydraulic parameters and vibration velocity, pump operability and the trending of mechanical degradation is assured. Also, since these parameters (i.e., hydraulic parameters and vibration) are measured quarterly, the pump mechanical condition will be more accurately determined than would be possible by measuring bearing temperature on a yearly basis.

ultrasonic flowmeters whose accuracy is consistent independent of the range (and which may exceed the range requirements specified in the Code) for the following pumps:

Pump Identification	Function
0CC01P	Component Cooling Pump
1(2)CC01PA and B	Component Cooling Pumps
1(2)D001PA, B, C, and D	Diesel Oil Transfer Pumps
1(2)CV01PA and B	Centrifugal Charging Pumps
0SX02PA and B	Essential Service Water Makeup Pumps (Diesel)
1(2)SX01PA and B	Essential Service Water Pumps

3.3.3.1 Licensee's Basis for Requesting Relief. The full scale range of ultrasonic flowmeters, used to collect Section XI flow data, exceed three times the reference value.

Ultrasonic flowmeters provide an accurate means of measuring flow rate. They utilize a digital display whose accuracy is independent of the full-scale range. The ultrasonic flowmeter is well within the requirements of IWP-4110 and 4120, which refer to an instrument accuracy of plus or minus 02% of full-scale for an instrument with a range of three times the reference value or less. The following examples will illustrate this point. The component cooling pumps (0CC01P, 1/2CC01PA, and 1/2CC01PB) have a reference value of approximately 4500 gpm. Using the Code requirements, an instrument with a full-scale range of 13,500 gpm (3 x 4500 gpm), the acceptable instrument accuracy is plus or minus 270 gpm (.02 x 13,500 gpm). Using the ultrasonic flowmeter, with an accuracy of plus or minus 4% of the indicated reading, provides an instrument accuracy of plus or minus 180 gpm (.04 x 4500 gpm).

The diesel oil transfer pumps (1(2) D001PA-PD) have a reference value of approximately 25 gpm. Using the Code requirements, an instrument with a full-scale of 75 gpm (3 x 25 gpm) the acceptable instrument accuracy is plus

Based on the determination that the licensee's proposed alternative provides a reasonable alternative to the Code requirements, relief should be granted as requested.

4. VALVE TESTING PROGRAM

The Byron Station, Units 1 and 2, IST program submitted by the Commonwealth Edison Company was examined to verify that all valves that are included in the program are subjected to the periodic tests required by the ASME Code, Section XI, 1980 Edition through the Winter 1981 Addenda, and the NRC positions and guidelines. The reviewers found that, except as noted in Appendix D or where specific relief from testing has been requested, these valves are tested to the Code requirements and the NRC positions and guidelines. Each Commonwealth Edison Company basis for requesting relief from the valve testing requirements and the reviewer's evaluation of that request is summarized below and grouped according to the system and valve Category.

4.1 Containment Spray System

4.1.1 Category A/C Valves

4.1.1.1 Relief Request. The licensee has requested relief from exercising valves, 1(2)CS008A and B, containment spray (CS) ring header checks, in accordance with the requirements of Section XI, Paragraph IWV-3521, and proposed to verify valve operability by either utilizing full-flow or by disassembly and inspection on a refueling outage frequency.

4.1.1.1.1 Licensee's Basis for Requesting Relief--These valves cannot be full flow tested during unit operation as water from the CS pumps would be discharged through the CS ring headers causing undesirable effects on system components inside containment.

Partial stroking of the 1/2CS008A, B valves using air does not provide an adequate assurance of valve operability and may be detrimental for the following reasons:

a). There is no correlation between air flow and angle of disc movement.

perform a system full-flow test each refueling outage to demonstrate valve operability.

4.1.2.1.1 Licensee's Basis for Requesting Relief--The check valves in the spray additive system cannot be stroked without introducing NaOH into the CS system.

As an alternative, these valves will be dismantled each refueling outage in order to demonstrate operability. In addition to this, they will be full flow tested once every five years. The full flow test will be performed in lieu of dismantling the valves, if desired. This alternative will adequately maintain the system in a state of operational readiness, while not sacrificing the safety of the plant, by testing the valves as often as safely possible.

4.1.2.1.2 Evaluation--It is impractical to either full- or part-stroke exercise valves 1(2)CS020A and B quarterly during power operation or cold shutdown since flow through these valves would result in the introduction of NaOH into the CS system. NaOH is a highly caustic, extremely corrosive chemical, which poses a serious threat to personnel and equipment. Full-flow exercising of these valves can be performed by special test, however, this requires special test hook-ups and necessitates flushing the system. This presents a safety-hazard to operating personnel and would be burdensome for the licensee to perform during cold shutdowns. The licensee's proposal to demonstrate the full-stroke capability of these valves on a refueling outage frequency by either disassembly and inspection of check valve internals or by system full-flow testing provides a reasonable alternative to the Code requirements.

Based on the determination that it is impractical to test these valves in accordance with the Code requirements, that the licensee's proposal provides a reasonable alternative to the Code requirements, and considering the burden on the licensee if the Code requirements were imposed, relief should be granted as requested.

Based on the determination that it is impractical to test these valves in accordance with the Code requirements, that the licensee's proposed alternate testing frequency provides a reasonable assurance of operational readiness, and considering the burden on the licensee if the Code requirements were imposed, relief should be granted as requested.

4.2 Safety Injection System

4.2.1 Category A/C Valves

4.2.1.1 Relief Request. The licensee has requested relief from exercising valves 1(2)SI8948A-D and 1(2)SI8956A-D, accumulator discharge checks, in accordance with the requirements of Section XI, Paragraphs IWV-3411 and 3521, and proposed to full-stroke exercise these valves at least once every nine months during cold shutdowns by providing a surge volume in the pressurizer, 'burping the valves', and noting a change in pressurizer level.

4.2.1.1.1 Licensee's Basis for Requesting Relief--The accumulator check valves cannot be tested during unit operation due to the pressure differential between the accumulators (650 psig) and the reactor coolant system (2235 psig). Full-stroke exercising of these valves could occur only with a rapid depressurization of the reactor coolant system.

Byron Station Technical Specifications require leak testing to be performed on these valves if the unit is in cold shutdown and if such leak rate testing has not been performed within nine months. Therefore, Byron Station will full stroke exercise (Ct) these valves on the same schedule. This will be accomplished by providing a surge volume in the pressurizer and "burping" the accumulator discharge valves. As a minimum, the accumulators will be discharged into the reactor vessel during refueling outages to perform full stroke exercise (Ct) of these valves. Positive verification of valve operability will be by noting a change in accumulator level. Stroke exercising the check valves on the same schedule as their required Technical

relief should be granted as requested provided the licensee can demonstrate that a full-stroke test is being performed when using the proposed method.

4.2.1.2 Relief Request. The licensee has requested relief from exercising the following valves in accordance with the requirements of Section XI, Paragraphs IWV-3412 and 3522, and proposed to full-stroke exercise these valves with flow during refueling outages with the reactor vessel head removed.

Valve Identification	Function
1(2)SI8819A-D	Cold leg safety injection check valves.
1(2)SI8905A-D	Hot leg safety injection check valves.
1(2)SI8949A-D	Hot leg safety injection check valves.

4.2.1.2.1 Licensee's Basis for Requesting Relief--Byron Station Technical Specifications require all Safety Injection pumps and all but one Charging Pump to be inoperable during Modes 4, 5, and 6, except when the reactor vessel head is removed. This requirement minimizes the possibility of low temperature overpressurization of the Reactor Coolant System. Therefore, check valves 1(2)SI8819A-D, 1(2)SI8905A-D, and 1(2)SI8949A-D, cannot be full stroke exercised during cold shutdowns as required by IWV-3412 and IWV 3522.

In addition to the stroke test exercise used to verify operational readiness of these check valves, the act of such stroking causes the necessity for Technical Specification required leak rate testing of these valves prior to unit criticality. This testing, in conjunction with the stroke exercising of these check valves, adds approximately one week to the duration of any outage and additional radiation exposure to workers who must connect flowmeters and differential pressure gauges directly to pipes containing radioactive fluids.

Byron Station's Technical Specifications require leak rate testing to be performed on these valves if the unit is in cold shutdown and if such leak rate testing has not been performed within nine months. Stroke exercising of check valves 1(2)SI8819A-D, 1(2)SI8905A-D, and 1(2)SI8949A-D,

Valve Identification	Function
1(2)SI8815	Charging pump discharge to cold leg check valve.
1(2)SI8841A and B	Hot leg safety injection check valves.
1(2)SI8900A-D	Charging safety injection check valves.

4.2.1.3.1 Licensee's Basis for Requesting Relief--The full-stroke exercising of check valves not stroked quarterly is required to be performed during cold shutdowns. However, the stroking of check valves 1(2)SI8815, 1(2)SI8900A-D, and 1(2)SI8841A-B, associated with the emergency core cooling system, during cold shutdowns, will induce thermal stresses on their respective reactor vessel nozzles as the reactor coolant system (maintained approximately 180 F) is injected with water from the refueling water storage tank (maintained approximately 65 F).

In addition to the stroke test exercise used to verify operational readiness of these check valves, the act of such stroking causes the necessity for Technical Specification required leak rate testing of these valves prior to unit criticality. This testing, in conjunction with the stroke exercising of these check valves, adds approximately one week to the duration of any outage and additional radiation exposure to workers who must connect flowmeters and differential pressure gauges directly to pipes containing radioactive fluids.

Byron Station's Technical Specifications require leak rate testing to be performed on these valves if the unit is in cold shutdown and if such leak rate testing has not been performed within nine months. Therefore, Byron Station will stroke exercise check valves 1(2)SI8815, 1(2)SI8900A-D, and 1(2)SI8841A and B on the same schedule, if plant conditions allow.

Stroke exercising the 1(2)SI8815, 1(2)SI8900A-D, and 1(2)SI8841A and B check valves on the same schedule as their required Technical Specification leak rate testing, as plant conditions allow, will adequately maintain the system in a state of operational readiness without creating additional undue thermal stresses to the reactor vessel nozzles or unnecessary personnel radiation exposure.

4.2.2.1.1 Licensee's Basis for Requesting Relief--The full-stroke exercising of valves not stroked quarterly is required to be performed during cold shutdowns. However, the stroking of the Containment Sump Outlet Isolation Valves, 1(2)SI8811A and B, requires the suction of the residual heat removal pumps to be drained, thus rendering one train of the system inoperable.

With one train of residual heat removal declared inoperable, Byron Station's Technical Specifications require two steam generators with a level greater than 41% (Unit 1) and 18% (Unit 2). If the cold shutdown condition was necessitated by a secondary side steam generator problem, Byron Station's Technical Specifications would preclude such testing until such time as the steam generators had been refilled.

The full-stroke testing of the 1(2)SI8811A and B valves; in conjunction with system draining, refilling and venting of each train solely for the purposes of such testing, accounts for an additional six days of scheduling requirements for a unit cold shutdown outage. The alternate testing during refueling outages will adequately maintain the system in a state of operational readiness, while not imposing undue hardships or sacrificing the safety of the plant.

As an alternative, Byron Station will full-stroke exercise the Containment Sump Outlet Isolation Valves, 1(2)SI8811A and B, during refueling outages vice cold shutdown.

4.2.2.1.2 Evaluation--It is impractical to full- or part-stroke exercise valves 1(2)SI8811A and B quarterly during power operation as this requires draining the suction piping for one train of residual heat removal and rendering it inoperable. The licensee has stated that with one train of residual heat removal inoperable (at cold shutdown) certain requirements exist with respect to the minimum level required in two of their four steam generators. However, the reviewer considers the probability of a cold shutdown resulting from secondary side steam generator problems in more than two steam generators quite remote and inconvenience is not an adequate

shutdown would risk low temperature overpressurization of the RCS and is, therefore, not practical. Cooldown and depressurization of the reactor coolant system and removal of the reactor vessel head solely to facilitate full-stroke exercising these valves at cold shutdown (due to low temperature overpressurization concerns) would be time consuming, difficult, and extremely burdensome to the licensee. Full-stroke exercising these valves utilizing system flow during refueling outages when an adequate surge volume exists (i.e., when the reactor vessel head is removed) provides reasonable assurance of operational readiness and a reasonable alternative to the Code requirements.

Based on the impracticability of complying with the Code requirements, the burden on the licensee if the Code requirements were imposed, and considering the proposed testing, relief should be granted.

4.2.3.2 Relief Request. The licensee has requested relief from exercising valves 1(2)SI8926, safety injection pump suction checks, in accordance with the requirements of Section XI, Paragraph IWV-3521, and proposed to part-stroke exercise these valves quarterly and to full-stroke exercise these valves on a refueling outage frequency.

4.2.3.2.1 Licensee's Basis for Requesting Relief--Full-stroke exercising of the Safety Injection (SI) pump suction check valves, 1(2)SI8926, cannot be demonstrated during unit operation as the reactor coolant system pressure prevents the pumps from reaching full flow injection conditions. Performance of this test with the reactor coolant system intact would lead to an inadvertent overpressurization of the system. The alternate method of protecting against overpressurization by partial draining of the reactor coolant system (RCS) to provide a surge volume is not considered a safe practice due to concerns of maintaining adequate water level above the reactor core.

As an alternative, the 1(2)SI8926 valves will be partial-stroke tested during periodic inservice tests with the SI pumps in the recirculation mode. Full-stroke exercising for these valves will be done during refueling

Section XI, Paragraph IWV-3412, and proposed to full-stroke exercise these valves during refueling outages and during cold shutdowns when the reactor coolant pumps are not in operation.

Valve Identification	Function
1(2)CC685	Component cooling supply to reactor coolant pumps
1(2)CC9413A	Component cooling return from reactor coolant pumps
1(2)CC9414	Component cooling supply to reactor coolant pumps
1(2)CC9416	Component cooling supply to reactor coolant pumps
1(2)CC9438	Component cooling supply to reactor coolant pumps

4.3.1.1.1 Licensee's Basis for Requesting Relief--Component cooling water flow to the reactor coolant pumps is required at all times while the pumps are in operation and for an extended period of time while in cold shutdown. Failure of one of these valves in a closed position during an exercise test would result in a loss of cooling flow to the pumps and eventual pump damage and/or trip.

As an alternative, these valves will be exercised during cold shutdown, provided all of the reactor coolant pumps are not in operation. This testing period will be each refueling outage as a minimum, but no more frequently than once per quarter. This alternative will adequately maintain the system in a state of operational readiness, while not sacrificing the safety of the plant, by testing the valves as often as safely possible.

4.3.1.1.2 Evaluation--These valves provide cooling water flow to the reactor coolant pumps. It is impractical to exercise these valves quarterly during operations, or during cold shutdowns when the reactor coolant pumps are in operation, since failure of one of these valves in the closed position could result in pump damage. The licensee's proposal, to exercise these valves during cold shutdowns when all the reactor coolant pumps are stopped and during refueling outages, provides a reasonable alternative to the Code requirements.

sections of piping, etc., and would be burdensome to the licensee to perform during cold shutdowns. The NRC staff position is that relief may be granted from the Code required testing frequency for check valves inside containment whose closure function can be verified only by leak testing which is routinely performed at refueling outages. The licensee's proposal to verify this valves closure during leak testing per IWV-3420 provides a reasonable alternative to the Code requirements.

Based on the impracticability of complying with the Code requirements, the burden on the licensee if the Code requirements were imposed, and the licensee's proposed testing frequency, relief should be granted as requested.

4.4 Chemical and Volume Control System

4.4.1 Category A Valves

4.4.1.1 Relief Request. The licensee has requested relief from exercising valves 1(2)CV8100 and 1(2)CV8112, reactor coolant pumps' seal water returns, in accordance with the requirements of Section XI, Paragraph IWV-3411, and proposed to full-stroke exercise these valves during cold shutdowns when the reactor coolant pumps are not in operation and during refueling outages.

4.4.1.1.1 Licensee's Basis for Requesting Relief--These valves cannot be tested during unit operation as seal water flow to the reactor coolant pumps is required at all times while the pumps are in operation. Failure of one of these valves in the closed position during an exercise test would result in seal water return flow being diverted to the pressurizer relief tank (PRT) by lifting a relief valve upstream of the isolation valves.

As an alternative, these valves will be exercise tested during cold shutdown, providing all reactor coolant pumps are not in operation. This testing period will be each refueling outage as a minimum, but no more

instruments and valves inside the containment building. Stroke exercising of these valves would be impractical because if these valves failed in the closed position during unit operation, instrumentation would not function properly and valves would stroke to their failure position, causing the loss of support equipment and possibly a reactor trip.

As an alternative, these valves will be exercised during cold shutdown, providing that all necessary equipment required for cold shutdown operations would not be affected. This testing period will be each refueling outage as a minimum, but no more frequently than once per quarter. This alternative will adequately maintain the system in a state of operational readiness, while not sacrificing the safety of the plant, by testing the valves as often as safely possible.

4.5.1.1.2 Evaluation--Exercising valves 1(2)IA035 and 1(2)IA066 quarterly during power operation is impractical because the loss of instrument air could seriously disrupt normal valve operations and possibly result in a reactor trip. The licensee's proposed alternate frequency, to full-stroke exercise these valves during cold shutdowns, when affected equipment is not necessary, and during refueling outages, is not clearly defined and could be interpreted in a non-conservative manner, and therefore, is not a reasonable alternative to the Code requirements. Further, the licensee has not provided a technical discussion to demonstrate the impracticality of performing this testing on a cold shutdown frequency.

Since the licensee has not demonstrated that cold shutdown testing is impractical, relief should not be granted as requested.

4.6 Diesel Generating System

4.6.1 Category B&C Valves

4.6.1.1 Relief Request. The licensee has requested relief from testing valves 1(2)DG5182A-D, 1(2)DG5183A-D, 1(2)DG5184A-D, and 1(2)DG5185A-D, diesel generator air start valves, in accordance with the

will compare the air pressures contained in the receiver tanks both before and after the diesel generator start, thus verifying the operability of the air start control valves. The proposed testing methodology at the increased frequency satisfies the intent of the Section XI requirements without posing undue hardships or difficulties.

4.6.1.1.2 Evaluation--Due to the short stroke times and the system application of these solenoid operated valves, it is impractical to obtain a direct stroke time measurement without significant system design changes. These valves function to admit starting air to the emergency diesel generators and the failure of one of these valves to open in a timely manner would be indicated by a pressure imbalance between the starting air receivers, and possibly, an increase in diesel generator start time. Further, the Byron Station emergency diesel generators are tested monthly rather than quarterly. The licensee's proposal to verify valve operability, by comparison of the air pressures inside the starting air receivers before and immediately after diesel start each month, should furnish timely indication should degradation of these valves occur and provides a reasonable alternative to the Code requirements.

Based on the impracticability of the Code requirements, the burden on the licensee if the Code requirements were imposed, and the licensee's proposed alternate testing method and increased testing frequency, relief should be granted as requested.

4.7 Essential Service Water System

4.7.1 Category B Valves

4.7.1.1 Relief Request. The licensee has requested relief from testing valves 1(2)SX101A, service water valves from the auxiliary feedwater pump lube oil coolers, in accordance with the requirements of Section XI, Paragraphs IWV-3413 and 3417, and proposed to verify valve operability during quarterly auxiliary feedwater pump surveillance testing.

4.8 All Systems

4.8.1 Category A Valves

4.8.1.1 Relief Request. The licensee has requested relief from seat leakage measurements for all Unit 1(2) containment isolation valves in accordance with the requirements of Section XI, Paragraph IWV-3420, and proposed to seat leakage test these valves in accordance with the requirements of 10 CFR 50, Appendix J.

4.8.1.1.1 Licensee's Basis for Requesting Relief--Primary containment isolation valves will be seat leak tested in accordance with 10 CFR 50, Appendix J. For these valves, Section XI testing requirements are essentially equivalent to those of Appendix J.

As an alternative, primary containment isolation valves will be seat leak tested in accordance with the Appendix J requirements of 10 CFR 50. No additional information concerning valve leakage would be gained by performing separate tests to both Section XI and Appendix J. Therefore, overall plant safety is not affected.

4.8.1.1.2 Evaluation--The leak test procedures and requirements for containment isolation valves identified in 10 CFR 50, Appendix J essentially meet the Section XI Code requirements since it incorporates all the major elements of Paragraphs IWV-3421 through 3425, however, the 10 CFR 50, Appendix J, leak rate testing does not trend leakage rates or take corrective actions based on individual valve leakage rates. Testing the containment isolation valves in accordance with 10 CFR 50, Appendix J, provides a reasonable alternative to the requirements of Section XI, Paragraphs IWV-3421 through 3425, however, the licensee must comply with the Analysis of Leakage Rates and Corrective Action Requirements Paragraphs IWV-3426 and 3427, in order to obtain this relief.

Based on the determination that leak testing the containment isolation valves in accordance with the requirements of 10 CFR 50,

4.8.2.1.1 Licensee's Basis for Requesting Relief--Minor timing inaccuracies, with small stroke times can lead to substantial increases (percent wise) in stroke times. For example, a valve with a stroke time of 1 second in an initial test, and 1.6 seconds in the subsequent test, has experienced an apparent 60% increase in stroke time. If the accuracy requirements of IWV-3413(b) are utilized, it could be argued that stroke times between 1 and 2 seconds could constitute as much as a 100% increase in stroke time when, in fact, only a 0.2 second increase occurred. For instance, if the initial time was 1.4 seconds, (measured to the nearest second is 1.0 second) and if the next time is then 1.6 seconds, (measured to the nearest second is 2.0 seconds) the percent increase is 100%.

As an alternative, fast-acting valves will be defined as those valves that normally stroke in 2 seconds or less. Data will be analyzed utilizing the guidance set forth in IWV-3413(b). No trending of stroke time will be required, unless the 2 second fast-acting time is exceeded. Upon exceeding 2 seconds, the test frequency shall be increased to monthly and trending of stroke times shall begin, until corrective action is taken, or the stroke time returns to less than or equal to 2 seconds. Upon exceeding the maximum stroke time listed in the valve program tables for the above valve, corrective action shall be taken immediately in accordance with IWV-3417(b).

For small stroke times, the trending requirements are too stringent for the accuracies specified in the Code. The alternative specified will adequately maintain the system in a state of operational readiness, while not imposing undue hardships or sacrificing the safety of the plant.

4.8.2.1.2 Evaluation--The Code requires the comparison of power operated valve stroke times from test to test. For valves with short stroke times this comparison may not be practical since a slight (.2 second) change in stroke time may call for an increased frequency of testing though no degradation in stroke time has occurred (for valves with short stroke times the difference from test to test may be introduced by the timing method or the operator). Placing a maximum limiting stroke time of 2 seconds on the

APPENDIX A

APPENDIX A

VALVES TESTED DURING COLD SHUTDOWN

The following are Category A, B, and C valves that meet the exercising requirements of the ASME Code, Section XI, and are not full-stroke exercised every three months during plant operation. These valves are specifically identified by the owner in accordance with Paragraphs IWV-3412 and 3522 and are full-stroke exercised during cold shutdowns and refueling outages. All valves in this Appendix have been evaluated and the reviewer agrees with the licensee that testing these valves during power operation is not possible due to the valve type, location, or system design. These valves should not be full-stroke exercised during power operations. These valves are listed below and grouped according to the system in which they are located.

1. MAIN STEAM SYSTEM

1.1 Category B Valves

The closure of the main steam isolation valves, 1(2)MS001A-D, during unit operation would result in a reactor trip and safety injection actuation. To avoid this transient, these valves will be part-stroke exercised every three months and full-stroke exercising will be done during Mode 4 following, or preceding cold shutdown, per IWV-3412.

2. CHEMICAL AND VOLUME CONTROL SYSTEM

2.1 Category A and B Valves

Closure of these letdown and makeup valves, 1(2)CV112 B and C, 1(2)CV8105, 1(2)CV8106, 1(2)CV8152, and 1(2)CV8160, during normal unit operation would cause a loss of charging flow which would result in a reactor coolant inventory transient, and possibly, a subsequent reactor trip. These valves will be full-stroke exercised during cold shutdown as required by IWV-3412.

flow. This would result in undesirable affects on the steam generators. These valves will be full-stroke exercised during cold shutdown as required by IWV-3412.

4. RESIDUAL HEAT REMOVAL SYSTEM

4.1 Category A Valves

The 1(2)RH8701A and B and the 1(2)RH8702A and B valves are the isolation boundary between the residual heat removal (RHR) pumps and the RCS. Opening one of these valves during unit operation will leave only one valve isolating RHR from the high RCS pressure. This would place the plant in an undesirable condition. Therefore, these valves will be full-stroke exercised during cold shutdown, per IWV-3412.

4.2 Category C Valves

The residual heat removal pump discharge check valves, 1(2)RH8730A and B, cannot be full-stroke exercised during unit operation due to the high RCS pressure. These check valves will be part-stroke exercised, however, on a quarterly basis and full-stroke exercised during cold shutdown in accordance with IWV-3522.

5. REACTOR COOLANT SYSTEM

5.1 Category B Valves

The reactor pressure vessel vent valves, 1(2)RC014A-D, cannot be stroke exercised during unit operation as they provide a pressure boundary between the reactor coolant system and containment atmosphere. Failure of one of these valves in the open position would result in leaving only one valve as the high pressure boundary. These valves will be full-stroke exercised when the RCS pressure is at a minimum during cold shutdown, per IWV-3412.

plant transient. These valves will be full-stroke exercised during cold shutdown in accordance with IWV-3412.

The safety injection system SVAG (spurious valve action group) valves, 1(2)SI8802A and B, 1(2)SI8806, 1(2)SI8809A and B, 1(2)SI8813, 1(2)SI8835, and 1(2)SI8840, cannot be full or part-stroke exercised during unit operation. These valves are required by the Technical Specifications to be de-energized in their proper positions during unit operation. Stroking them would be a violation of the Technical Specifications as well as defeating the de-energized SVAG valve principle. These valves will be full-stroke exercised during cold shutdown in accordance with IWV-3412.

8.2 Category C Valves

The check valves listed below cannot be full-stroke exercised during operation as the the RHR pumps discharge pressure is significantly below that of the RCS operating pressure and flow cannot be established. These valves will be full-stroke exercised during cold shutdown in accordance with IWV-3522.

Valve Identification	Function
1(2)SI8818A thru D	RHR cold leg injection checks
1(2)SI8958A and B	RWST to RHR pump suction checks

APPENDIX B

APPENDIX B

The ISI Boundary Drawings listed below were used during the course of this review.

System	Drawing No.	Revision
Main Feedwater	M-36-1	Y
Auxiliary Feedwater	M-37	AA
Essential Service Water	M-42-1	Y
Essential Service Water	M-42-3	AB
Essential Service Water	M-42-5	T
Containment Spray	M-46	AD
Offgas-System Hydrogen Recombiners	M-47-2	M
Waste Disposal Steam Generator Blowdown	M-48-5	U
Waste Disposal Steam Generator Blowdown	M-48-6	W
Make-up Demineralizer	M-49-1	U
Diesel Fuel oil	M-50-1	AC
Fire Protection (Category-1)	M-52-1	N
Service Air	M-54-2	N
Instrument Air	M-55-2	T
Diagram of Reactor Coolant Loop-1	M-60-1	AD
Diagram of Reactor Coolant	M-60-5	V
Diagram of Reactor Coolant	M-60-6	T
Safety Injection	M-61-1	AE
Safety Injection	M-61-2	Z
Safety Injection	M-61-3	V
Safety Injection	M-61-4	U
Safety Injection	M-61-5	L
Safety Injection	M-61-6	U
Residual Heat Removal	M-62	AF
Fuel Pool Cooling and Clean-up	M-63	AK
Chemical and Volume Control and Boron Thermal Regeneration	M-64-1	Y

APPENDIX C

APPENDIX C

IST PROGRAM ANOMALIES IDENTIFIED DURING THE REVIEW

Inconsistencies and omissions in the licensee's program noted during the course of this review are summarized below. The licensee should resolve these items in accordance with the evaluations, conclusions, and guidelines presented in this report.

1. The Boric Acid Transfer pumps 0AB03P, 1AB03P, and 2AB03P are included in Byron Station FSAR, Table 3.9-15, as Active Pumps. Paragraph 3.9.6.1, Inservice Testing of Pumps, states that all pumps included in Table 3.9-15 require inservice testing. Therefore, the Boric Acid Transfer pumps should be included in the Byron Station IST program and tested to the Code requirements.

2. The reviewer agrees with the basis of pump relief request PR-1 for all pumps, however, the essential service water make-up pumps, OSX02PA and B, must have corrective action taken in accordance with the requirements of IWP-3230 when the vibration velocity measurements exceed .70 inches per second (see TER section 3.2.1).

3. Pump relief request PR-3 (see TER section 3.1.1) proposes to evaluate the essential service water makeup pumps, OSX02PA and B, utilizing pump discharge pressure. Some method can and should be utilized to determine the pump inlet pressure (i.e., measurement of the head of water above the pump suction) for calculation of pump differential pressure and evaluation of the pump's hydraulic performance.

4. The licensee has included the power operated relief valves (PORVs) in their IST program as Category B valves and proposed to exercise these valves quarterly. The NRC staff's position is that the PORVs should be exercised prior to achieving the condition which

frequency and has not provided the conditions under which this testing will be performed this relief request should be denied.

9. Valve relief request VR-14 (see TER section 4.8.2.1) addresses rapid-acting valves (i.e., valves that normally operate in 2 seconds or less), however, the IST program valve list identifies maximum stroke times for these valves of from 2 to 15 seconds. If a maximum stroke time of 2 seconds has been placed on these valves then it should be reflected in the maximum stroke time section of the IST program valve list. Further, the licensee's proposal to assign a fast-acting limit of 2 seconds and upon exceeding this limit to increase the test frequency to monthly and to trend the stroke times does not provide a reasonable alternative to the Code requirements.

10. Valve relief request VR-15 (see TER section 4.2.1.3) proposes to full-stroke exercise valves 1(2)SI8815, 1(2)SI8841A and B, and 1(2)SI8900A-D on a conditional basis during cold shutdowns, however, the conditions under which this testing are to take place are not clearly defined. Further, in the absence of evidence to demonstrate exercising these valves on a cold shutdown frequency is impractical, relief should not be granted.

11. Valve relief request VR-16 (see TER section 4.2.2.1) proposes to full-stroke exercise the containment sump outlet isolation valves, 1(2)SI8811A and B, during refueling outages. The licensee has not demonstrated the impracticality of performing this testing on a cold shutdown frequency and this relief request should be denied.

12. Valve relief request VR-17 (see TER section 4.7.1.1) proposes to exercise valves 1(2)SX101A during monthly surveillances on the motor driven auxiliary feedwater pump lube oil coolers, however, the licensee has not described the testing method that will verify valve operability. A regional inspector and/or NRR reviewer should verify that this testing verifies the operability of this valve.

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This EG&G Idaho, Inc. report presents the results of our evaluation of the Byron Station, Units 1 and 2, Inservice Testing Program for pumps and valves that perform a safety-related function.

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