February 14, 2006

Mr. H. L. Sumner, Jr.
Vice President - Nuclear
Hatch Project
Southern Nuclear Operating
Company, Inc.
P.O. Box 1295
Birmingham, AL 35201-1295

SUBJECT: EDWIN I. HATCH NUCLEAR PLANT, UNIT NOS. 1 AND 2 - RE: REQUEST FOR RELIEF FROM THE REQUIREMENTS OF THE AMERICAN SOCIETY OF MECHANICAL ENGINEERED BOILER AND VESSEL CODE (ASME CODE) (TAC NOS. MC6837, MC6838, MC7626, AND MC7627)

Dear Mr. Sumner:

By letter dated July 11, 2005 (see Agencywide Documents Access and Management System (ADAMS) Accession No. ML051940481), Southern Nuclear Operating Company, Inc. (the licensee), submitted Pump Relief Requests RR-P-1, RR-P-2, RR-P-3, RR-P-4, RR-P-5, RR-P-6, RR-P-7, RR-P-8, RR-P-9, RR-P-10, RR-P-11, and RR-P-12, and Valve Relief Requests RR-V-1, RR-V-2, RR-V-3, RR-V-4, RR-V-5, RR-V-6, and RR-V-7 for its fourth 10-year inservice testing (IST) program interval at the Edwin I. Hatch Nuclear Plant, Unit Nos. 1 and 2 (Hatch 1 and 2). In response to the Nuclear Regulatory Commission (NRC) staff's request for additional information sent August 31, 2005, the licensee withdrew relief requests RR-P-1 and RR-P-10, revised all other relief requests, and submitted additional information in a letter dated September 26, 2005.

The NRC staff has completed its review of the submitted relief requests. Relief Requests RR-P-3, RR-P-4, RR-P-6, RR-P-7, RR-P-8, RR-P-12, RR-V-5, and RR-V-7 are authorized pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR), Section 50.55a(a)(3)(i) on the basis that the proposed alternatives provide an acceptable level of quality and safety. Relief Requests RR-P-2, RR-P-5, RR-P-9, RR-P-11, RR-V-2, and RR-V-4 are authorized pursuant to 10 CFR 50.55a(a)(3)(ii) based on the determination that compliance with the specified ASME Code requirements results in hardship without a compensating increase in the level of quality and safety. Relief Requests RR-V-1 and RR-V-3 are granted pursuant to 10 CFR 50.55a(f)(6)(i) on the basis that compliance with the ASME Code requirements is impractical. In addition, the NRC staff determined that the proposed testing for RR-V-1 and RR-V-3 provides reasonable assurance that the components will be operationally ready.

Relief Request RR-V-6 for check valves 1E41-F022, 1E41-F040, 1E41-F046, 1E41-F048, 1E41-F057, 1E51-F021, 2E41-F022, 2E41-F040, 2E41-F046, 2E41-F048, 2E41-F057, 2E51-F021, 2P41-F098, and 2P41-F105, is authorized pursuant to 10 CFR 50.55a(a)(3)(i) on the basis that the proposed alternatives provide an acceptable level of quality and safety.

Relief Request RR-V-6, for check valves 1E11-F046A, 1E11-F046B, 1E11-F046C, 1E11-F046D, 1E11-F125A, 1E11-F125B, 1E21-F036A, 1E21-F036B, 1E21-F039A,

1E21-F039B, 1P41-F1074, 1P41-F1075, 2E11-F046A, 2E11-F046B, 2E11-F046C, 2E11-F046D, 2E11-F123A, 2E11-F123B, 2E21-F036A, 2E21-F036B, 2E21-F039A, and 2E21-F039B is denied because the proposed alternative does not provide an acceptable level of quality and safety.

In letter dated April 20, 2005, the licensee requested that the NRC staff notify the licensee with any concerns regarding the phased-in approach the licensee planned to use to implement its 10-year IST program. In letters dated June 28, November 18, and December 20, 2005, the licensee responded to various questions posed by the NRC staff regarding its implementation plans. Based on its review of the information provided by the licensee, the NRC staff concluded that the licensee's plans are consistent with with NRC NUREG-1482, Revision 1, "Guidelines for Inservice Testing at Nuclear Power Plants," Section 3.3.3, "Implementation of Updated Programs," and the 2001 edition, up to and including the 2003 addenda, of the American Society of Mechanical Engineers *Code for Operation and Maintenance of Nuclear Power Plants*, Section ISTC-3500, "Valve Testing Requirements," and Appendix I, Section 1300, "Guiding Principles."

The NRC staff's Safety Evaluation is enclosed.

Sincerely,

/RA/

Evangelos Marinos, Chief
Plant Licensing Branch II-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-321 and 50-366

Enclosure: As stated

cc w/encls: See next page

1E21-F039B, 1P41-F1074, 1P41-F1075, 2E11-F046A, 2E11-F046B, 2E11-F046C, 2E11-F046D, 2E11-F123A, 2E11-F123B, 2E21-F036A, 2E21-F036B, 2E21-F039A, and 2E21-F039B is denied because the proposed alternative does not provide an acceptable level of quality and safety.

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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

INSERVICE TESTING PROGRAM RELIEF REQUESTS, FOURTH 10-YEAR INTERVAL

SOUTHERN NUCLEAR OPERATING COMPANY

EDWIN I. HATCH NUCLEAR PLANT UNIT NOS. 1 AND 2

DOCKET NOS. 50-321 AND 50-366

1.0 INTRODUCTION

By letter dated July 11, 2005, Southern Nuclear Operating Company, Inc. (SNC, the licensee) submitted relief requests for the fourth 10-year inservice testing (IST) program interval at Edwin I. Hatch Nuclear Plant, Unit Nos. 1 and 2 (Hatch 1 and 2). In response to the Nuclear Regulatory Commission (NRC) staff's request for additional information on August 31, 2005 (see Agencywide Documents Access and Management System (ADAMS) Accession No. ML060270076), the licensee withdrew relief requests RR-P-1 and RR-P-10, revised all other relief requests, and submitted additional information in a letter dated September 26, 2005. The licensee requested relief from certain inservice test requirements of the 2001 Edition through 2003 Addenda of the American Society of Mechanical Engineers (ASME) *Code for Operation and Maintenance of Nuclear Power Plants (OM Code)*. NRC evaluation of pump relief requests RR-P-2, RR-P-3, RR-P-4, RR-P-5, RR-P-6, RR-P-7, RR-P-8, RR-P-9, RR-P-11, and valve relief requests RR-V-1, RR-V-2, RR-V-3, RR-V-4, RR-V-5, RR-V-6, and RR-V-7 are contained herein. The Hatch 1 and 2 fourth 10-year IST interval began on January 1, 2006.

2.0 REGULATORY EVALUATION

Title 10 of the *Code of Federal Regulations (10 CFR)* Section 50.55a, requires that IST of certain ASME Code Class 1, 2, and 3 pumps and valves be performed at 120-month (10-year) IST program intervals in accordance with the specified ASME Code incorporated by reference in the regulations, except where alternatives have been authorized or relief has been requested by the licensee and granted by the Commission pursuant to paragraphs (a)(3)(i), (a)(3)(ii), or (f)(6)(i) of 10 CFR 50.55a. In accordance with 10 CFR 50.55a(f)(4)(ii), licensees are required to comply with the requirements of the latest edition and addenda of the ASME Code incorporated by reference in the regulations 12 months prior to the start of each 120-month IST program interval. In accordance with 50.55a(f)(4)(iv), IST of pumps and valves may meet the requirements set forth in subsequent editions and addenda that are incorporated by reference in 10 CFR 50.55a(b), subject to NRC approval. Portions of editions or addenda may be used provided that all related requirements of the respective editions and addenda are met. In proposing alternatives or 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 difficulty without a compensating increase in the level of quality

ENCLOSURE

and safety; or (3) conformance is impractical for the facility. Section 50.55a authorizes the Commission to approve alternatives and to grant relief from ASME Code requirements upon making necessary findings. NRC guidance contained in Generic Letter (GL) 89-04, "Guidance on Developing Acceptable Inservice Testing Programs," provides alternatives to ASME Code requirements which are acceptable. Further guidance is given in GL 89-04, Supplement 1, and NUREG-1482, Revision 1, "Guidance for Inservice Testing at Nuclear Power Plants."

The Hatch 1 and 2 IST program was developed in accordance with the 2001 Edition through 2003 Addenda of the ASME OM Code. By letter dated July 11, 2005, SNC requested relief from certain requirements of the OM Code for Hatch 1 and 2's fourth 10-year IST interval.

The NRC's findings with respect to granting or denying the IST program relief requests are given below.

3.0 TECHNICAL EVALUATION

A summary of the reliefs evaluated in this safety evaluation can be found in Attachment 1 to this enclosure.

3.1 Pump Relief Request RR-P-2

3.1.1 OM Code Requirement

The licensee requested relief from the OM Code requirements of ISTB-3510(e). Paragraph ISTB-3510(e) states, "The frequency response range of the vibration-measuring transducers and their readout system shall be from one-third minimum pump shaft rotational speed to at least 1000 Hz [Hertz]."

3.1.2 Component Identification

The components affected by this relief request are standby liquid control (SBLC) pumps as identified in Table 1.

Table 1

Hatch Nuclear Plant	Pump Number	Description	Code Class	OM Code Category
Units 1 & 2	1(2)C41-C001A	SBLC Pump	2	Group B
	1(2)C41-C001B	SBLC Pump	2	Group B

3.1.3 Licensee's Basis for Requesting Relief

The SBLC pumps operate at 370 revolutions per minute (rpm) (6.2 Hz), therefore the instrument frequency response range of the Hatch 1 and 2 IST Program instrumentation does not satisfy the OM Code requirement.

In lieu of the requirements of ISTB-3510(e), the vibration measuring instrument frequency response range utilized for the SBLC pumps will be as described below.

1. Vibration monitoring equipment with a calibration accuracy of at least ±5 percent over a frequency response range of 2.5 Hz to 1,000 Hz will be utilized for IST.

2. These lower frequency response limits result from high-pass filters which eliminate low-frequency elements associated with the input signal from the integration process. These filters prevent low frequency electronic noise from distorting vibration readings thus any actual vibration occurring at low frequencies is filtered out.

3. The SBLC pumps are Union Pump Company reciprocating pumps. The subject pumps utilize roller bearings instead of sleeve bearings. Sleeve bearings can exhibit vibration at subsynchronous frequencies when a condition of oil whirl is present. However, oil whirl does not occur in roller or ball bearings.

4. Roller and ball bearing degradation symptoms typically occur at one times (1x) (6.2 Hz) shaft rotational frequency and greater. Therefore, vibration measurements at frequencies less than shaft speed would not provide meaningful data relative to degradation of the pump bearings.

5. The SBLC pumps are standby pumps only. They are only operated during Technical Specification Surveillance and Inservice Testing which results in very little run time. In the unlikely event that the system is required to perform its safety function, the pump run time would be from 19 to 74 minutes to exhaust the volume of the sodium pentaborate storage tank.

6. In addition to the IST vibration monitoring program, these pumps are included in the site maintenance department vibration program. This program has the capability to perform spectral analysis. The maintenance vibration program will also be utilized to analyze any IST vibration data which places the pumps in the ALERT or ACTION ranges. The need for any corrective actions would be based on evaluation of IST and maintenance testing program data.

3.1.4 Licensee's Proposed Alternative Testing

The licensee states that as an alternative to the frequency response range requirements of ISTB-3510(e), SBLC pump vibration will be measured with the currently installed vibration-measuring transducer which is calibrated to at least ± 5 percent full scale over a frequency response range of 2.5 Hz to 1000 Hz. The SBLC pump nominal shaft speed is 6.2 Hz (370 rpm) during comprehensive and preservice testing. This relief is requested only for comprehensive pump testing of the SBLC pumps.

3.1.5 Evaluation of Pump Relief Request RR-P-2

ISTB-3510(e) requires the frequency response range of the vibration-measuring transducers and their readout system be from one-third minimum pump shaft rotational speed to 1000 Hz.

The SBLC pumps 1(2)C41-C001A & B have a safety function to provide liquid poison to the reactor vessel to shutdown the reactor from the full power condition, independent of any control rod motion, and maintain the reactor subcritical during cooldown. The OM Code requires the vibration instrumentation frequency response range used in SBLC pump testing be from one third pump rotational speed (2.1 Hz for SBLC pumps) to 1000 Hz. The normal shaft speed of these pumps is 370 RPM (6.2 Hz). The OM Code required frequency response range for the SBLC pumps is 2.1 Hz to 1,000 Hz. The currently installed vibration-measuring transducer response range is 2.5 Hz to 1000 Hz, which is very close to the required range of 2.1 Hz to 1000 Hz.

The SBLC pumps are positive displacement pumps with rolling element bearings. Pump bearing degradation mechanisms with rolling elements are predominant at running speeds of 1x pump rotational speed (6.2 Hz) and greater.

The licensee states that in addition to the IST vibration monitoring program, these pumps are included in the site maintenance vibration program. This program has the capability to perform spectral analysis. The maintenance vibration program will be utilized to analyze any IST vibration data which places the pumps in the ALERT or ACTION Ranges. The frequency spectrum of the signals generated is characteristic of each pump and constitutes a unique pattern. Analysis of the pattern allows identification of vibration sources, and monitoring of the change over time permits evaluation of the mechanical condition of the pump.

Imposition of the OM Code requirements for the vibration instrumentation would be of little to no benefit in assuring operational readiness of the SBLC pumps. It would create a hardship on the licensee by requiring additional instrumentation be procured, maintained, and operated.

3.1.6 Conclusion

The proposed alternative to the requirements of ISTB-3510(e) is authorized pursuant to 10 CFR 50.55a(a)(3)(ii) because it provides reasonable assurance that the SBLC system pumps will maintain operational readiness. Compliance with the specified requirements of this section would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety. The licensee's proposed alternative as discussed in Section 3.1.4 above is authorized for Hatch 1 and 2's fourth 10-year IST interval.

3.2 Pump Relief Request RR-P-3

3.2.1 OM Code Requirement

The licensee requested relief from the OM Code requirements of ISTB-3510(b)(1). Paragraph ISTB-3510(b)(1) requires that the full-scale range of each analog instrument shall not be greater than three times the reference value. The relief is requested for Group A testing of the Residual Heat Removal (RHR) pumps.

3.2.2 Component Identification

The components affected by this relief request are associated with the RHR pumps as identified in Table 2.

Table 2

Hatch Nuclear Plant	Pump Number	Description	Code Class	OM Code Category
Units 1 & 2	1(2)E11-C002A	RHR Pump	2	Group A
	1(2)E11-C002B	RHR Pump	2	Group A
	1(2)E11-C002C	RHR Pump	2	Group A
	1(2)E11-C002D	RHR Pump	2	Group A

3.2.3 Licensee's Basis for Requesting Relief

The licensee states that the original installed pressure instrumentation associated with these pumps was not designed with the instrument pressure range limits of OM Code paragraph ISTB-3510(b)(1) taken into consideration. The actual pressure instrument ranges are as follows:

Pump No.	Instrument	Range psig	Test Range psig	Allowed Range psig	Accuracy
1E11-C002 A/B/C/D	1E11-PI-R003A-D	0-600	. 182	0-546	± 2%
2E11-C002 A/B/C/D	2E11-PI-R003A-D	0-600	. 186	0-558	± 2%

The licensee states that even though instruments 1(2) E11-PI-R0O3A-D exceed the OM Code allowable range limit of three times the reference value, this additional gage range only results in approximately 1 psig maximum variance from the OM Code allowable in the measured parameter (i.e. 546 x 2 percent = 11 psig versus 600 x 2 percent = 12 psig). Using other instrumentation to account for a 1 psig improvement in measurement accuracy is not justifiable considering the cost associated with such a requirement. These pressure indicators should provide data that is sufficiently accurate to allow assessment of pump condition and to detect degradation during the performance of the quarterly pump test.

The licensee states that the proposed alternative provides an acceptable means of assessing the condition of an RHR pump if it were operating in the required action range since there would be limited differences in the information obtained if a more accurate pressure indicator were utilized. Based on the determination that compliance with the OM Code requirements result in a hardship without a compensating increase in the level of quality and safety, this proposed alternative should be granted pursuant to 10 CFR 50.55a(a)(3)(ii).

3.2.4 Licensee's Proposed Alternative Testing

RHR Pumps 1(2) E11-C002A, B, C, and D discharge pressure will be measured with the currently installed discharge pressure instrumentation 1(2)E11-PI-R003A, B, C, and D. This request for relief applies only to Group A testing of the RHR pumps.

3.2.5 Evaluation of Relief Request RR-P-3

The licensee requests relief from the OM Code instrumentation requirements of ISTB-3510(b)(1) for pressure gauges which are use to measure the discharge pressure of the RHR pumps. ISTB-3510(b)(1) requires that the full-range of each instrument be no greater than three times the reference value. The licensee proposes to use instrumentation that does not meet these OM Code requirements.

The installed discharge pressure gauges for the RHR pumps have a range of 0-600 psig and an accuracy of ± 2 percent. The typical value for the discharge pressure of the RHR pumps during testing is 182-186 psig. This request for relief applies only to Group A testing of the RHR pumps. The licensee states that the discharge instrumentation of the RHR pumps during comprehensive pump testing meets the OM Code requirement. Table RR-P-3 below contains details related to RHR pump instrumentation as provided by the licensee, the OM Code requirements, and their evaluation:

Table RR-P-3

Items	RHR Pumps: Discharge	Remark
Pump No.	Unit 1 (2A, 2B, 2C, 2D) Unit 2 (2A, 2B, 2C, 2D)	
Type of Inservice Test	Group A Test	
Discharge Pressure Gauge(s) Range (psig)	0-600	
Discharge Reference Value Range (psig)	182-186	
Three times the reference value	(3 x 182) =546 psig	Note 1
Effective gauge accuracy of installed instrument	(± 2%) of (600/182) = ± 6.59 %	
Actual accuracy required by the Code	(± 2%) x (546/182) = ± 6 %	
Acceptable alternative to the Code requirement	Yes, actual value is very close to the Code required value.	
Note 1: Actual value range is between 182 and 186 psig; 182 psig is used for conservative results.		

The use of the existing instrumentation for discharge pressure of RHR pumps provides a reading which is very close to the acceptable value required by the OM Code. Therefore, the proposed alternative method of measurement of discharge pressure of RHR pumps is acceptable and provides an acceptable level of quality and safety. This authorization does not apply to digital instrumentation.

3.2.6 Conclusion

The proposed alternative to the OM Code requirements of ISTB-3510(b)(1) for RHR pumps described in Section 3.2.4 above is authorized pursuant to 10 CFR 50.55a(a)(3)(i) on the basis that the alternative provides an acceptable level of quality and safety. The alternative is authorized for Hatch 1 and 2's fourth 10-year IST interval. This authorization does not apply to digital instrumentation.

3.3 Pump Relief Request RR-P-4

3.3.1 OM Code Requirement

The licensee requested relief from the OM Code requirements of ISTB-3510(b)(1). Paragraph ISTB-3510(b)(1) requires that the full-scale range of each analog instrument shall not be greater than three times the reference value. Relief is requested for Group A pump testing of the RHR pumps.

3.3.2 Component Identification

The components affected by this relief request are associated with the RHR pumps as identified in Table 3.

Table 3

Hatch Nuclear Plant	Pump Number	Description	Code Class	OM Code Category
Units 1 & 2	1(2)E11-C002A	RHR Pump	2	Group A
	1(2)E11-C002B	RHR Pump	2	Group A
	1(2)E11-C002C	RHR Pump	2	Group A
	1(2)E11-C002D	RHR Pump	2	Group A

3.3.3 Licensee's Basis for Requesting Relief

The licensee states that the original installed flow instrumentation associated with the RHR pumps was not designed with the instrument range limits ISTB-3510(b)(1) taken into consideration. The flow instrument for the RHR pump(s) is 1(2)E11-FI-R608A/B. The actual flow instrument ranges and loop accuracies associated with the RHR pumps are as follows:

Pump No.	Instrument	Range gpm	Test Range gpm	Allowed Code Range gpm	Accuracy
1E11-C002 A/B/C/D	1E11-FI-R608A/B	0-25000	. 7700	0-23100	±0.87%
2E11-C002 A/B/C/D	2E11-FI-R608A/B	0-25000	. 7850	0-23550	±0.87%

Pump No.	Component/ Accuracy	Component/ Accuracy	Component/ Accuracy	Loop Accuracy ISTA-2000
1E11-C002 A/B/C/D	1E11-FT-N015A/B 0.5%	1E11-K600A/B 0.5%	1E11-FI-608A/B 0.5%	0.87%
2E11-C002 A/B/C/D	1E11-FT-N015A/B 0.5%	1E11-K600A/B 0.5%	1E11-FI-608A/B 0.5%	0.87%

The licensee states that flow instruments 1(2)E11-FI-R608A/B exceed the OM Code allowable full scale range limit of three times the reference value. The instrument range includes consideration for Low Pressure Coolant Injection flow rate (17,000 gallons-per-minute (gpm) for two pumps), whereas the IST pump flow rate is 7,700 gpm for Unit 1 and 7,850 gpm for Unit 2. The OM Code maximum allowable variance in measured flow rate would be 462 gpm (23100 x 2 percent) for Unit 1 and 471 gpm (23,550 x 2 percent) for Unit 2. The actual maximum variance in measured flow is 218 gpm (25,000 x 0.87 percent) for Units 1 and 2. Therefore, the actual accuracy of the installed flow indicators is greater than the required OM Code accuracy, thus, the range of the indicator exceeding the OM Code limit of three times the reference value is of no consequence.

3.3.4 Licensee's Proposed Alternative Testing

RHR pump(s) 1(2)E11-C002A/B/C/D's flow will be measured with the currently installed instrumentation. This request for relief applies to Group A, comprehensive, and preservice testing of the RHR pumps.

3.3.5 Evaluation of Relief Request RR-P-4

The licensee requests relief from the OM Code instrumentation requirements of ISTB-3510(b)(1) for flow instruments that are used to measure RHR pump flow. ISTB-3510(b)(1) requires that the full-range of each instrument be no greater than three times the reference value. The licensee proposes to use currently installed instrumentation that does not meet these OM Code requirements.

The installed flow instruments for the RHR pumps have a range of 0-25000 gpm and an accuracy of ± 0.87 percent. The typical reference value for RHR pump flow during testing is 7700-7800 gpm. Table RR-P-4, below, contains details related to RHR pump instrumentation as provided by the licensee, the OM Code requirements, and their evaluation:

Table RR-P-4

Items	RHR Pumps	Remark
Pump No.	Unit 1 (2A, 2B, 2C, 2D) Unit 2 (2A, 2B, 2C, 2D)	
Type of Inservice Test	Group A Test	
Flow Instrument(s) Range (gpm)	0-25000	
Flow Reference Value Range (gpm)	7700-7800	
Three times the reference value	(3 x 7700) =23100 gpm	Note 1
Effective accuracy of installed instrument	(± 0.87%) of (25000/7700) = ± 2.8 %	
Actual accuracy required by the Code	(± 2%) x (23100/7700) = ± 6.0 %	
Acceptable alternative to the Code requirement	Yes	
Note 1: Actual value range is between 7700 gpm for Unit 1 and 7800 gpm for Unit 2 ; 7700 gpm is used for conservative results.		

The use of the existing flow instrument is supported by NUREG-1482, “Guideline for Inservice Testing at Nuclear Power Plants,” paragraph 5.5.1, which states that when the combination of range and accuracy yields a reading at least equivalent to the reading achieved from instruments that meet the OM Code requirements, relief may be granted by the NRC staff. This authorization does not apply to digital instrumentation.

The existing RHR pump flow instruments yield readings at least equivalent to the readings achieved from instruments that meet OM Code requirements, and thus, provide an acceptable level of quality and safety.

3.3.6 Conclusion

The proposed alternative to the OM Code requirements of ISTB-3510(b)(1) for the RHR pumps is authorized pursuant to 10 CFR 50.55a(a)(3)(i) on the basis that the proposed alternative discussed in Section 3.3.4 provides an acceptable level of quality and safety. This authorization is for Group A, comprehensive, and preservice pump testing, and does not apply to digital instrumentation. The proposed alternative is authorized for Hatch 1 and 2's fourth 10-year IST interval.

3.4 Pump Relief Request RR-P-5

3.4.1 OM Code Requirement

The licensee requested relief from the OM Code requirements of ISTB-3540(b). Paragraph ISTB-3540(b) requires that on vertical line shaft pumps, vibration measurements shall be taken on the upper motor-bearing housing in three approximately orthogonal directions, one of which is the axial direction.

3.4.2 Component Identification

The components affected by this relief request are for the RHR and plant service water (PSW) pumps as identified in Table 4.

Table 4

Hatch Nuclear Plant	Pump Number	Description	Code Class	OM Code Category
Units 1 & 2	1(2) E11-C001A	RHR Pump	2	Group A
	1(2) E11-C001B	RHR Pump	2	Group A
	1(2) E11-C001C	RHR Pump	2	Group A
	1(2) E11-C001D	RHR Pump	2	Group A
Units 1 & 2	1(2)P41-C001A	PSW Pump	2	Group A
	1(2)P41-C001B	PSW Pump	2	Group A
	1(2)P41-C001C	PSW Pump	2	Group A
	1(2)P41-C001D	PSW Pump	2	Group A

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3.4.3 Licensee's Basis for Requesting Relief

The licensee states that obtaining the OM Code required vibration measurements on these vertical line shaft pumps are impractical because of the following reasons:

1. Plant design did not include permanent scaffolding or ladders which provide access to the top of the motors for the subject pumps.

2. Physical layout of the pumps and interference with adjacent components does not allow for the installation of temporary scaffolding or ladders which are adequately safe for routine use.

3. There is a relatively thin cover plate bolted to the top-center of each motor which prevents measurements in line with the motor bearing. Measurement on the edge of the

motor housing would be influenced by eccentricity and may not be representative of actual axial vibration.

4. Special tools (extension rod) for placing the vibration transducers are not practical because placement would not be sufficiently accurate for trending purposes.

5. Research within the industry has indicated that vibration monitoring of vertical line shaft pumps has been of limited benefit for detecting mechanical degradation due to problems inherent with pump design. The OM Code imposes more stringent hydraulic acceptance criteria on these pumps than for centrifugal or positive displacement pumps. These more stringent hydraulic acceptance criteria place more emphasis on detection of degradation through hydraulic test data than through mechanical test data.

3.4.4 Licensee's Proposed Alternative Testing

Vibration will be measured in three orthogonal directions, one of which is in the axial direction in the area of the pump-to-motor mounting flange.

3.4.5 Evaluation of Relief Request RR-P-5

The licensee requests relief from the OM Code vibration measurement requirements of ISTB-3540(b) for the RHR and PSW pumps. ISTB-3540(b) requires that vibration measurements on vertical line shaft pumps be taken on the upper motor-bearing housing in three orthogonal directions, one of which is in the axial direction. The licensee has requested relief because the upper motor-bearing housing is inaccessible to test personnel.

The vibration measurements of vertical line shaft pump bearings cannot be measured directly without the installation of permanent instrumentation because the pumps are submerged in the fluid and are not accessible during pump operation. In vertical line shaft pumps, the motor is not an integral part of the pump. Therefore, ISTB-3540(b) requires that pump vibration measurements be taken on the upper motor-bearing housing. Table ISTB-5200-1 also includes more stringent hydraulic requirements for vertical line shaft pumps, when compared to Table ISTB-5100-1 for centrifugal pumps; Table ISTB-5300-1 for positive displacement pumps; and Table ISTB-5300-2 for reciprocating positive displacement pumps.

The licensee has proposed to take the required OM Code vibration measurements on the flange where the motor is mounted to the pump, which includes one axial directional measurement. It would be a hardship for the licensee to construct permanent access to these pumps to measure vibration from the upper motor-bearing housing because information obtained would not provide a compensating increase in the level of quality and safety. The proposed testing provides reasonable assurance of operational readiness because the licensee will be taking vibration measurements in three orthogonal directions at the pump-to-motor mounting flange, which provide some information as to the mechanical integrity of the pump. In addition, pump hydraulic performance requirements are more stringent for vertical line shaft pumps than for other types of pumps.

3.4.6 Conclusion

The proposed alternative to the OM Code vibration measurement requirements discussed in Section 3.4.4 above is authorized for those components listed in Table 4 of this section pursuant to 10 CFR 50.55a(a)(3)(ii), on the basis that compliance with specified requirements results in a hardship without a compensating increase in the level of quality and safety. The alternative is authorized for Hatch 1 and 2's fourth 10-year IST interval.

3.5 Pump Relief Request RR-P-6

3.5.1 OM Code Requirement

The licensee requested relief from the OM Code requirements of ISTB-3510(a). Paragraph ISTB-3510(a) requires that instrument accuracy shall be within the limits of Table ISTB-3500-1. Table ISTB-3500-1 requires an instrument accuracy for pressure instruments of ± 2 percent for Group B tests. Relief is requested for Group B testing of the core spray (CS) pumps.

3.5.2 Component Identification

The components affected by this relief request are associated with the CS pumps as identified in Table 5.

Table 5

Hatch Nuclear Plant	Pump Number	Description	Code Class	OM Code Category
Units 1 & 2	1(2)E21-C001A	CS Pump	2	Group B
	1(2)E21-C001B	CS Pump	2	Group B

3.5.3 Licensee's Basis for Requesting Relief

The licensee states that the originally installed pressure instrumentation associated with the CS pumps was not designed with the accuracy, as specified in Table ISTB-3500-1, taken into consideration. The actual pressure instrument ranges and loop accuracies associated with the CS pumps are as follows:

Pump No.	Instrument	Range psig	Test Range psig	Code Allowed Range, psig	Accuracy
1E21-C001A/B	1E21-PI-R600A/B	0-500	. 290	0-870	±2.06%
2E21-C001A/B	2E21-PI-R600A/B	0-500	. 308	0-927	±2.06%

Pump No.	Component/ Accuracy	Component/ Accuracy	Loop Accuracy ISTA-2000
1E21-C001A/B	1E21-PT-N001A/B 0.5%	1E21-PI-R600A/B 2%	2.06%
2E21-C001 A/B	1E21-PT-N001A/B 0.5%	1E21-PI-R600A/B 2%	2.06%

The licensee states that the indicators used have full scale ranges less than that allowed by the OM Code. The maximum OM Code-allowed variance in measurement is 17 psig (870 x 2 percent) for Unit 1 and 18 psig (924 x 2 percent) for Unit 2. By using an indicator with a range less than allowed, the actual maximum variance is 11 psig (500 x 2.06 percent) which is more accurate than required by the OM Code. Therefore, the actual accuracy of the instruments is within the OM Code allowable as specified in Table ISTB-3500-1 for a Group B test.

3.5.4 Licensee's Proposed Alternative Testing

CS pumps 1(2)E21-C002A & B's pressure will be measured with the currently installed instrumentation. This request for relief applies only to Group B testing of the CS pumps.

3.5.5 Evaluation of Relief Request RR-P-6

The licensee requests relief from the OM Code instrumentation accuracy requirements of ISTB- 3510(a) and Table ISTB-3500-1 for pressure instruments used to measure CS pump pressure. ISTB-3510(a) requires that instrument accuracy shall be within the limits of Table ISTB-3510-1. Table ISTB-3500-1 requires a pressure instrument accuracy of ± 2 percent for Group B tests.

Table RR-P-6 below contains details related to CS pump instrumentation as provided by the licensee, the OM Code requirements, and their evaluation.

The use of the existing flow instrument is supported by NUREG-1482, Paragraph 5.5.1, which states that when the combination of range and accuracy yields a reading at least equivalent to the reading achieved from instruments that meet the OM Code requirements, relief may be granted by the staff. This authorization does not apply to digital instrumentation.

The existing RHR pump flow instruments yield readings at least equivalent to the readings achieved from instruments that meet OM Code requirements, and thus provide an acceptable level of quality and safety.

Table RR-P-6

Items	CS Pumps: Discharge	Remark
Pump No.	Unit 1 (2A, and 2B) Unit 2 (2A, and 2B)	
Type of Inservice Test	Group B Test	
Pressure Instrument(s) Range (psig)	0-500	
Pressure Reference Value Range (psig)	290-308	
Three times the reference value	(3 x 290) =870 psig	Note 1
Effective accuracy of installed instrument	(± 2.06%) of (500/290) = ± 3.6 %	
Actual accuracy required by the Code	(± 2%) x (870/290) = ± 6 %	
Acceptable alternative to the Code requirement	Yes	
Note 1: Actual value range is between 290 psig for Unit 1 and 308 psig for Unit 2; 290 psig is used for conservative results.		

3.5.6 Conclusion

The proposed alternative to the OM Code requirements of ISTB-3510(a) and Table ISTB-3500-1 is authorized for the CS pumps discussed in Table 5 above pursuant to 10 CFR 50.55a(a)(3)(i) on the basis that the alternative provides an acceptable level of quality and safety. The proposed alternative discussed in Section 3.5.4 is authorized for the Hatch 1 and 2's fourth 10-year IST interval. This authorization does not apply to digital instrumentation.

3.6 Pump Relief Request RR-P-7

3.6.1 OM Code Requirement

The licensee requested relief from the OM Code requirements of ISTB-3510(b)(1). Paragraph ISTB-3510(b)(1) requires that the full-scale range of each analog instrument shall not be greater than three times the reference value. Relief is requested for Group B pump testing.

3.6.2 Component Identification

The components affected by this relief request are associated with the high pressure coolant injection (HPCI) pumps identified in Table 6.

Table 6

Hatch Nuclear Plant	Pump No.	Description of Pump	Code Class	OM Code Category
Unit 1	1E41-C001	HPCI Pump	2	Group B
Unit 2	2E41-C002	HPCI Pump	2	Group B

3.6.3 Licensee's Basis for Requesting Relief

The licensee states that the original installed pressure instrumentation 1(2)E41-PI-R004 exceeds the three times range limit of ISTB-3510(b)(1). The actual instrument ranges are as follows:

Pump No.	Instrument	Range	Test Range	Allowed Range	Accuracy
1E11-C001	1E41-PI-R004	30" Hg -100 psig	. 27 psig	0-81psig	± 1%
2E11-C001	2E41-PI-R004	30" Hg -100 psig	. 30 psig	0-90 psig	± 1%

The licensee states that the instrumentation exceeds the range limit of three times the reference value. The indicators are calibrated to ± 1 percent which results in the final variance being within the maximum allowable by the OM Code (i.e. 1 psig versus 1.6 psig for Unit I and 1 psig versus 1.8 psig for Unit 2) when performing a Group B pump test.

The installed pressure indicators provide measurements that are within the OM Code allowable accuracy specified in Table ISTB-3500-1 for quarterly Group B pump tests.

The licensee states that the above proposed alternative provides an acceptable level of quality and safety since the variance in the actual test results is less than the maximum variance allowed by the OM Code.

3.6.4 Licensee's Proposed Alternative Testing

Suction pressure will be measured with the currently installed instrumentation. This request for relief applies only to Group B testing of the HPCI pumps.

3.6.5 Evaluation of Relief Request RR-P-7

The licensee requests relief from the OM Code instrumentation requirements of ISTB-3510(b)(1) for pressure gauges that are used to measure suction pressure of the HPCI pumps. ISTB-3510(b)(1) requires that the full-range of each instrument be no greater than three times the reference value. The licensee proposes to use existing instrumentation which does not meet these OM Code requirements.

Table RR-P-7 below contains details related to HPCI pump instrumentation as provided by the licensee, the OM Code requirements, and their evaluation:

Table RR-P-7

Items	HPCI Pumps: Suction	Remark
Pump No.	Unit 1 (1E41-C001) Unit 2 (2E41-C001)	
Type of Inservice Test	Group B Test	
Suction Pressure Gauge(s) Range	30" Hg -100 psig	
Suction Reference Value Range (psig)	(27+14.7) -(30+14.7)	Note 2
Three times the reference value	(3 x 41.7) = 125.1 psig	Note 1
Effective gauge accuracy of installed instrument	(± 1%) of (114.7/27) = ± 2.75 %	
Actual accuracy required by the Code	(± 2%) x (125.1/41.7) = ± 6 %	
Acceptable alternative to the Code requirement	Yes	
Note 1: Actual value range is between 27 and 30 psig; 27 psig is used for conservative results. Note 2: The vacuum range for the pressure indicators was converted to psi for determining the ratio. 30" Hg Vacuum = 14.7 psi; the range = 100 + 14.7 psi. The same principle was applied to the reference value of 27 psi, the reference value used for the ratio determination is 27+ 14.7 = 41.7 psi		

The use of the existing pressure instrument is supported by NUREG-1482, paragraph 5.5.1, which states that when the combination of range and accuracy yields a reading at least equivalent to the reading achieved from instruments that meet the OM Code requirements, relief may be granted by the NRC staff. This authorization does not apply to digital instrumentation.

The existing HPCI pump suction pressure instruments yield readings at least equivalent to the readings achieved from instruments that meet OM Code requirements, and thus, provide an acceptable level of quality and safety.

3.6.6 Conclusion

The proposed alternative to the OM Code requirements of ISTB-3510(b)(1) is authorized for the pump listed in Table 6 above pursuant to 10 CFR 50.55a(a)(3)(i) on the basis that the proposed alternative discussed in Section 3.6.4 provides an acceptable level of quality and safety. The proposed alternative is authorized for Hatch 1 and 2's fourth 10-year IST interval. This authorization does not apply to digital instrumentation.

3.7 Pump Relief Request RR-P-8

3.7.1 OM Code Requirement

The licensee requested relief from the OM Code requirements of ISTB-3510(a). Paragraph ISTB-3510(a) requires that instrument accuracy shall be within the limits of Table ISTB-3500-1. Table ISTB-3500-1 requires an accuracy for flow instruments of ± 2 percent. Relief is requested for Group B, comprehensive, and preservice tests.

3.7.2 Component Identification

The components affected by this relief request are associated with the HPCI pumps identified in Table 7.

Table 7

Hatch Nuclear Plant	Pump Number	Description	Code Class	OM Code Category
Unit 1	1E41-C001	HPCI Pump	2	Group B
Unit 2	2E41-C001	HPCI Pump	2	Group B

3.7.3 Licensee's Basis for Requesting Relief

The flow instrument for the HPCI pump(s) is 1(2)E41-FI-R612. The licensee states that the flow indicators 1(2)E41-FI-R612 exceed the maximum OM Code allowable total loop accuracy. The actual instrument loop accuracies are itemized as follows:

Pump No.	Instrument	Range gpm	Test Range gpm	Code Allowed Range gpm	Accuracy
1E41-C001	1E41-FI-R612	0-5000	. 4250	0-12750	±2.12%
2E41-C001	2E41-FI-R612	0-5000	. 4250	0-12750	±2.12%

Pump No.	Component/ Accuracy	Component/ Accuracy	Component/ Accuracy	Loop Accuracy ISTA-2000
1E41-C001	1E41-FT-N008 0.5%	1E41-K601 0.5%	1E41-FI-R612 2%	2.12%
2E41-C001	2E41-FT-N008 0.5%	2E41-K601 0.5%	2E41-FI-R612 2%	2.12%

The indicator used has a full scale range less than that allowed. The maximum variance allowed by the OM Code is 255 gpm (12750 x 2 percent), whereas the actual maximum variance is 106 gpm (5000 x 2.12 percent). Therefore, the actual accuracy of the instrument loop is better than that allowed by the OM Code.

3.7.4 Licensee's Proposed Alternative Testing

The licensee states that as an alternative to the instrument accuracy requirements of paragraph ISTB-3510(a) and Table ISTB-3500-1, flow will be measured with the currently installed instrumentation.

3.7.5 Evaluation of Relief Request RR-P-8

The licensee requests relief from the OM Code instrumentation accuracy requirements of ISTB-3510(a) and Table ISTB-3500-1 for flow instruments which are used to measure HPCI pump flow. ISTB-3510(a) requires that instrument accuracy shall be within the limits of Table ISTB-3500-1. Table ISTB-3500-1 requires an instrument accuracy for flow instruments of ± 2 percent for Group B, comprehensive, and preservice tests.

Table RR-P-8, below, contains details related to HPCI pump instrumentation as provided by the licensee, the OM Code requirements, and their evaluation:

Table RR-P-8

Items	CS Pumps: Discharge	Remark
Pump No.	1E41-C001 2E41-C001	
Type of Inservice Test	Group B Test, comprehensive Test, or preservice test	
Flow Instrument(s) Range (gpm)	0-5000	
Flow Reference Value Range (gpm)	4250	
Three times the reference value (gpm)	(3 x 4250) =12750	
Effective accuracy of installed instrument	(± 2.12%) of (5000/4250) = ± 2.49 %	
Actual accuracy required by the Code	(± 2%) x (12750/4250) = ± 6 %	
Acceptable alternative to the Code requirement	Yes	

The use of the existing flow instruments is supported by NUREG-1482, paragraph 5.5.1, which states that when the combination of range and accuracy yields a reading at least equivalent to

the reading achieved from instruments that meet the OM Code requirements, relief may be granted by the NRC staff. This authorization does not apply to digital instrumentation.

The existing flow instrument readings are at least equivalent to the readings achieved from instruments that meet OM Code requirements, and thus provide an acceptable level of quality and safety.

3.7.6 Conclusion

The proposed alternative to the OM Code requirements of ISTB-3510(a) and Table ISTB-3500-1 is authorized for the components in Table 7 above pursuant to 10 CFR 50.55a(a)(3)(i) on the basis that the proposed alternative provides an acceptable level of quality and safety. The proposed alternative as discussed in Section 3.7.4 above is authorized for Hatch 1 and 2's fourth 10-year IST interval. This authorization does not apply to digital instrumentation.

3.8 Pump Relief Request RR-P-9

3.8.1 OM Code Requirement

The licensee requested relief from the OM Code requirements of ISTB-3540(b). Paragraph ISTB-3540(b) requires that on vertical line shaft pumps, vibration measurements shall be taken on the upper motor-bearing housing in three approximately orthogonal directions, one of which is the axial direction.

3.8.2 Component Identification

The component affected by this relief request is the standby diesel generator service water pump as identified in Table 8.

Table 8

Hatch Nuclear Plant	Pump Number	Description	Code Class	OM Code Category
Unit 2	2P41-C002	Standby Diesel Generator Service Water Pump	3	Group B

3.8.3 Licensee's Basis for Requesting Relief

The licensee states that obtaining the OM Code required vibration measurements on the upper motor bearing housing on this vertical line shaft pump are impractical because of the following reasons:

1. The motor has a cooling fan mounted at the top which is attached to the rotating shaft. The fan is protected by a relatively thin cover plate which prevents access to the motor housing for vibration measurements. Removing the cover does not provide for transducer placement since the rotating fan would still be in the way.

2. Research within the industry has indicated that vibration monitoring of vertical line shaft pumps has been of limited benefit for detecting mechanical degradation due to problems inherent with pump design. The OM Code imposes more stringent hydraulic acceptance criteria on these pumps than for centrifugal or positive displacement pumps. These more stringent hydraulic acceptance criteria place more emphasis on detection of degradation through hydraulic test data than through mechanical test data.

Therefore, application of the OM Code hydraulic testing criteria along with radial and axial vibration monitoring in the area of the pump-to-motor mounting flange should provide adequate data for assessing the condition of the subject pumps and for monitoring degradation.

The above proposed alternative provides reasonable assurance of operational readiness since vibration measurements will be taken in three orthogonal directions at the pump-to-motor mounting flange which will provide information as to the mechanical integrity of the pump.

3.8.4 Licensee's Proposed Alternative Testing

Vibration measurements will be taken in three orthogonal directions, one of which is in the axial direction in the area of the pump-to-motor mounting flange.

3.8.5 Evaluation of Relief Request RR-P-9

The licensee requests relief from the OM Code vibration measurement requirements of paragraph ISTB- 3540(b) for the standby diesel generator service water pump. ISTB-3540(b) requires that the vibration measurements on vertical line shaft pumps be taken on the upper motor-bearing housing in three orthogonal directions, one of which is in the axial direction. The licensee has requested relief for the standby diesel generator service water pump because the upper motor-bearing housing is inaccessible to test personnel.

The vibration measurements cannot be measured directly because the motor has a cooling fan mounted at the top that is attached to the rotating shaft. The fan is protected by a relatively thin cover plate which prevents access to the motor housing for vibration measurements. Removing the cover does not provide for transducer placement since the rotating fan would still be in the way. Therefore, the ISTB-3540(b) requirement that the pump vibration measurements of vertical line shaft pumps be taken on the upper motor-bearing housing is not feasible.

The licensee has proposed to take the required OM Code vibration measurements on the flange where the motor is mounted to the pump, which includes one axial directional measurement. It would be a hardship for the licensee to modify this pump to measure vibration from the upper motor-bearing housing because information obtained would not provide a compensating increase in the level of quality and safety. The proposed testing provides reasonable assurance of operational readiness because the licensee will be taking vibration measurements in three orthogonal directions at the pump-to-motor mounting flange which provides some information as to the mechanical integrity of the pump. In addition, pump hydraulic performance requirements are more stringent for vertical line shaft pumps than for other types of pumps.

3.8.6 Conclusion

The proposed alternative to the OM Code vibration measurement requirements as discussed in Section 3.8.4 is authorized for the component listed in Table 8 above pursuant to 10 CFR 50.55a(a)(3)(ii) on the basis that compliance with the OM Code requirements results in a hardship without a compensating increase in the level of quality and safety. The proposed alternative is authorized for Hatch 1 and 2's fourth 10-year IST interval.

3.9 Pump Relief Request RR-P-11

3.9.1 OM Code Requirement

The licensee requested relief from the OM Code requirements of ISTB-3520(b). Paragraph ISTB-3520(b) requires that dP be determined by the difference between the pressure at a point in the inlet pipe and the pressure at a point in the discharge pipe if a direct indicating instrument is not provided. Relief is requested for the RHR pump Group A test and the CS pump Group B test.

3.9.2 Component Identification

The components affected by this relief request are associated with the RHR and CS pumps as identified in Table 9.

Table 9

Hatch Nuclear Plant	Pump Number	Description	Code Class	OM Code Category
Units 1 & 2	1(2)E11-C002A	RHR Pump	2	Group A
	1(2)E11-C002B	RHR Pump	2	Group A
	1(2)E11-C002C	RHR Pump	2	Group A
	1(2)E11-C002D	RHR Pump	2	Group A
	1(2)E21-C001A	CS Pump	2	Group B
	1(2)E21-C001B	CS Pump	2	Group B

3.9.3 Licensee's Basis for Requesting Relief

The RHR and CS pumps are aligned to the suppression pool (torus) during all modes of normal plant operation which results in a virtually constant suction pressure. IST is performed utilizing a full flow test line which circulates water to and from the suppression pool. The Hatch 1 and 2 Technical Specifications require that the suppression pool be maintained within a narrow range of level, temperature, and internal pressure during plant operation which results in a suction

pressure of approximately 5 psig. The Technical Specification operability limits for the suppression pool are itemized below:

Level $ 146 inches and # 150 inches
Internal Pressure # 1.75 psig
Water Temperature # 100EF

These Technical Specification operability limits for the suppression pool result in a maximum difference in calculated pump suction pressure of < 2 psig. This 2 psig maximum difference is insignificant when performing quarterly Group A or Group B tests considering the normal discharge pressure of the RHR and CS pumps (see Table RR-P-3, in Section 3.2.5).

The 2 psig variance is also insignificant in the calculation of dP (dP = Po-Pi) when considering the Group A pump test OM Code acceptable operating range (95-110 percent for vertical line shaft pumps from Table ISTB-5200-1 and 90-110 percent for centrifugal pumps from Table ISTB-5100-1) and the allowable ± 2 percent instrument accuracy from Table ISTB-3500-1; or when considering the Group B pump test acceptable operating range (i.e., 90-110 percent for centrifugal and vertical line shaft pumps from Table ISTB-5100-1 and Table ISTB-5200-1) and the allowable ±2 percent instrument accuracy from Table ISTB-3500-1.

Therefore, measurement of dP provides no added benefit for determining pump operational readiness or for monitoring pump degradation.

Pump	Reference Discharge Pressure	Maximum Variance
Unit 1 RHR	180 -193 psig	1.11 percent max.
Unit 1 CS	305 -310 psig	0.66 percent max.
Unit 2 RHR	172 -190 psig	1.16 percent max.
Unit 2 CS	285 -290 psig	0.70 percent max.

The following table (Table RR-P-11) summarizes several years worth of pump 1ST data. This summary confirms that the RHR and CS pump's suction pressures are consistent and are relatively insignificant in comparison with the pumps' discharge pressure. Applying an average suction pressure of 5 psig, when calculating dP, will provide data that is meaningful for assessing operational readiness and for monitoring pump degradation.
Additionally, a test gage is required to be installed to perform IST of each pump. The permanently installed pump suction pressure gages encompass a wider range of pressures than does IST and thus exceed the OM Code allowable range limit (3 times the reference value). The installed RHR pump gages must account for the pressure experienced with the RHR loop in the shutdown cooling mode of operation. The installed CS pump gages must account for the pressure experienced with the CS suction aligned to the Condensate Storage Tank. Therefore, a test gage that satisfies the OM Code range limits must be temporarily installed each time that IST is required.

Table RR-P-11

Pump No.	Minimum Suction Pressure psi	Maximum Suction Pressure psi	Average Suction Pressure psi (Note 1)	Remark (Note 3)
1E11-C002A	3.9	6.8	5.1(52)	Qr = 8000 gpm [a]Pr = 166 psid
1E11-C002B	3.2	6.25	4.8(47)	Qr = 7700 gpm [a]Pr = 185 psid
1E11-C002C	3.0	6.2	4.8(46)	Qr = 7700 gpm [a]Pr = 176 psid
1E11-C002D	3.4	6.0	4.6(40)	Qr = 7700 gpm [a]Pr = 183 psid
1E21-C001A	2.5	5.8	4.1(68)	Qr = 4625 gpm [a]Pr = 289 psid
1E21-C001B	1.7 (Note 2)	5.9	3.7(47)	Qr = 4625 gpm [a]Pr = 282 psid
2E11-C002A	3.0	6.8	5.2(50)	Qr = 8000 gpm [a]Pr = 187 psid
2E11-C002B	4.3	7.1	5.3(48)	Qr = 7800 gpm [a]Pr = 180 psid
2E11-C002C	3.0	6.9	5.3(55)	Qr = 7900 gpm [a]Pr = 182 psid
2E11-C002D	3.8	6.2	4.9(47)	Qr = 7700 gpm [a]Pr = 175 psid
2E21-C002A	4.15	6.9	5.1(43)	Qr = 4750 gpm [a]Pr = 302 psid
2E21-C002B	3.3	6.4	5.0(53)	Qr = 4750 gpm [a]Pr = 303 psid
Average	3.3	6.4	4.9	N/A

Note 1. Number in parenthesis "( )" indicates the number of test values averaged to get indicated value.
Note 2. * One time occurrence only.
Note 3. Qr is pump reference flow and [a]Pr is differential pressure

Applying a constant pump suction pressure when calculating dP will allow the IST to be performed with the installed pressure gages thus lessening the burden on operations personnel responsible for the testing. Since test gages are required to be calibrated both prior to and after usage, it also eliminates the possibility of invalidating test data due to a gage being damaged during transportation, installation or removal. Mechanical degradation of centrifugal pumps, which experience significant differences in suction (inlet) pressure, would be indicated by changes in the dP. However, for these pumps, the suction pressure variance is insignificant in comparison to the developed head (pressure). Therefore, monitoring discharge pressure and calculating dP, assuming a constant 5 psig suction pressure, provides an adequate method to determine operational readiness and detect potential degradation.

3.9.4 Licensee's Proposed Alternative Testing

The pump suction pressure will be assumed to be 5 psig based on a review of several years of IST data which support suction pressure being virtually constant. During IST, pump dP will be calculated by measuring pump discharge pressure and subtracting 5 psig. This value will then be compared to the corresponding reference value.

3.9.5 Evaluation of Relief Request RR-P-11

The licensee requests relief from the OM Code instrumentation requirements of ISTB-3520(b) for dP measurement for RHR pumps 1(2)E11-C002A, B, C & D and CS pumps 1(2)E21-C001A & B. ISTB-3520(b) requires that dP be determined by the difference between the pressure at a point in the inlet pipe and the pressure at a point in the discharge pipe if a direct indicating instrument is not provided. The licensee proposes to measure the discharge pressure and calculate the dP by assuming a constant suction pressure of 5 psig (based on historical data).

The range of the permanently installed pressure gauges at the pumps' inlet exceed the OM Code allowable range limit (3 times the reference valve), and so temporary gauges would need to be installed for each test. Accordingly, these temporarily installed gauges would need to be calibrated both prior to and after usage. These extra steps, which are necessary for compliance with the requirements of ISTB-3520(B), create a hardship for the licensee without a compensating increase in the level of quality and safety.

Discharge pressure can be used in lieu of dP for evaluating pump hydraulic performance if variations in pump suction (inlet) pressure are small. NUREG/CR-6396, "Examples, Clarifications, and Guidance on Preparing Requests for Relief from Pump and Valve Inservice Testing Requirements," Section 3.3.2 provides items to consider for justifying the use of discharge pressure instead of dP. It includes:

1. The inlet pressure is small in comparison with the discharge pressure (maximum deviation of 2 percent).

2. The maximum expected variation in the inlet pressure from test to test is relatively small as determined by control procedures and technical specification limits and as verified by historical data.

3. The OM Code required acceptance criteria are not relaxed.

4. Even though some uncertainty is introduced by this method, applying the OM Code acceptance criteria for dP to discharge pressure for this application adds conservatism.

5. If a significant blockage occurs at the pump suction, this condition would affect the discharge pressure and/or flow rate measurement and would be detected.

The licensee's submittal meets all the above criteria. The licensee proposes to measure the discharge pressure and calculate the dP by assuming a constant suction pressure of 5 psig (based on historical data). The maximum difference in calculated pump suction pressure is < 2 psig. This 2 psig maximum difference is insignificant when performing quarterly Group A or Group B tests considering the normal discharge pressure range (maximum variation 1.1 percent) of the RHR and CS pumps.

The 2 psig variance is insignificant in the calculation of dP (dP = Po-Pi) when considering the Group A pump test OM Code acceptable operating range (95-110 percent for vertical line shaft pumps from Table ISTB-5200-1 and 90-110 percent for centrifugal pumps from Table ISTB-5100-1) and the allowable ± 2 percent instrument accuracy from Table ISTB-3500-1; or when considering the Group B pump test acceptable operating range (i.e., 90-110 percent for centrifugal and vertical line shaft pumps from Table ISTB-5100-1 and Table ISTB-5200-1) and the allowable ±2 percent instrument accuracy from Table ISTB-3500-1.

The proposed alternative testing method provides an acceptable means of evaluating pump performance without causing a significant decrease in the ability to monitor operational readiness.

3.9.6 Conclusion

The proposed alternative to the OM Code requirement of ISTB-3520(b) as described in Section 3.9.4 is authorized for the components listed in Table 9 above pursuant to 10 CFR 50.55a(a)(3)(ii) on the basis that compliance with the OM Code requirements results in hardship without a compensating increase in the level of quality and safety. The proposed alternative is authorized for Hatch 1 and 2's fourth 10-year IST interval.

3.10 Pump Relief Request RR-P-12

3.10.1 OM Code Requirement

The licensee requested relief from the OM Code requirements of ISTB-3510(b)(1). Paragraph ISTB-3510(b)(1) requires that the full-scale range of analog instruments shall not be greater than three times the reference value, and Table ISTB-3510-1 requires a total instrument loop accuracy for pressure instruments of ± 2 percent for Group B tests.

3.10.2 Component Identification

The component affected by this relief request is associated with the standby diesel service water (SDSW) pump as identified in Table 10.

Table 10

Hatch Nuclear Plant	Pump Number	Description	Code Class	OM Code Category
Unit 2	2P41-C002	SDSW Pump	2	Group B

3.10.3 Licensee's Basis for Requesting Relief

The licensee states that the flowrate for SDSW pump 2P41-C002 is determined by measuring the dP, in inches of water, across a flow element and then using the vendor correlation chart to convert dP to flowrate in gpm. The dP indicator (2P41-R383) has a full-scale range of -178 inches of water to +178 inches of water, which is greater than three times the reference value, and is calibrated to ± 4 inches of water (1.125 percent of full-scale). The indicator has a range which allows measurement of the flowrate in either direction across the flow element, thus the negative and positive scale ranges. The vendor supplied dP to flow correlation chart has a range of 50 -145 inches of water which corresponds to a flowrate range of 500 - 850 gpm.

The reference dP for this pump is presently 82 inches of water which corresponds to a flow rate of 640 gpm. The OM Code would allow a full-scale range of 0 -246 inches of water (3 x 82) and a calibration accuracy of ± 4.92 inches of water (0.02 x 246).

The combined range and accuracy of the installed instruments is within the maximum allowable of ISTB-3510(b)(1) and Table-3500-1. The maximum OM Code allowable dP variance would be + 4.92 inches of water whereas the actual dP variance is + 4 inches of water. Therefore, use of the existing dP indicators and the vendor correlation chart provides flowrate measurements for IST that are at least as accurate as measurements required by the OM Code.

The use of this instrumentation is supported by the guidance contained in NUREG-1482, Section 5.5.1, since the combined range and accuracy variance of the installed instrumentation is within the maximum allowable variance of the OM Code. This relief request was developed for documentation purposes as described in NUREG-1482.

3.10.4 Licensee's Proposed Alternative Testing

The SDSW pump flowrate will be measured with the currently installed instrumentation. This request for relief applies to flowrate measurement for Group B, comprehensive, and preservice testing.

3.10.5 Evaluation of Relief Request RR-P-12

Table RR-P-12, below, contains details related to SDSW pump instrumentation as provided by the licensee, the OM Code requirements, and their evaluation:

Table RR-P-12

Items	SDSW Pump: Discharge	Remark
Pump No.	2P41-C002	
Type of Inservice Test	Group B, Comprehensive Pump and Preservice Tests.	
Differential Pressure (dP) Indicator		
Differential Pressure Indicator (2P41-R383) Range (inch of water)	-178 ! +178	Actual Range = 178+178 = 356
Reference Value Range (inch of water)	82	
Three times the reference value (inch of water)	(3 x 82) =246	
Effective accuracy of installed instrument	(± 1.125%) of (356/82) = ± 4.88 %	
Actual accuracy required by the Code	(± 2%) x (246/82) = ± 6 %	
Acceptable alternative to the Code requirement	Yes	
Vendor's dP and flow correlation Chart		Note 1
Flow Range (gpm) corresponds to Range 50 - 145 inch of water	500-850	
dP 82 inch of water corresponds to gpm	640	
Note 1:For gallon per minute values read against the measured dP would not contribute any additional error.		

The use of the existing flow instrument is supported by NUREG-1482, Paragraph 5.5.1, which states that when the combination of range and accuracy yields a reading at least equivalent to the reading achieved from instruments that meet the OM Code requirements, relief may be granted by the staff. This authorization does not apply to digital instrumentation.

The existing flow instrument readings are at least equivalent to the readings achieved from instruments that meet OM Code requirements, and thus provide an acceptable level of quality and safety.

3.10.6 Conclusion

The proposed alternative to the OM Code requirements of ISTB-3510(b)(1) and Table ISTB-3500-1 as described in Section 3.10.4 is authorized pursuant to 10 CFR 50.55a(a)(3)(i) for the component listed in Table 10 above on the basis that the alternative provides an

acceptable level of quality and safety. The alternative is authorized for Hatch 1 and 2's fourth 10-year IST interval. This authorization does not apply to digital instrumentation.

3.11 Valve Relief Request RR-V-1

3.11.1 OM Code Requirement

The licensee requested relief from ISTC-5131, which requires active valves have their stroke times measured and that limiting values of valve stroke time be established.

3.11.2 Component Identification

Relief was requested for the following valves:

1C11-F010A, 1C11-F010B
1C11-F011
1C11-F035A, 1C11-F035B
1C11-F037

3.11.3 Licensee's Basis for Requesting Relief

A limiting value of stroke time cannot be specified for the air operated scram discharge volume vent and drain valves and they cannot be individually stroked and timed. In order to prevent water hammer induced damage to the system during a full control rod drive scram, plant Technical Specifications require that system valve operation be adjusted so that the outboard vent and drain valves fully close at least five seconds after each respective inboard vent and drain valve. All valves must be fully closed in less than forty-five seconds. Additionally, the system is adjusted so that the inboard vent and drain valves start to open at least five seconds after each respective outboard vent and drain valve upon reset of a full core scram. The valves are not equipped with individual valve control switches and cannot be individually stroke timed. Because of the adjustable nature of the valve control system, individual valve stroke timing would not provide any meaningful information for monitoring valve degradation.

3.11.4 Licensee's Proposed Alternative Testing

The valves will be exercised quarterly but not timed. The total valve sequence response time will be verified to be less than Technical Specification requirements during each refueling outage when a complete stroke time test is performed.

3.11.5 Evaluation of Relief Request RR-V-1

The OM Code requires that the limiting stroke time for power operated valves be specified by the licensee and measured within limits based on the full-stroke time of the valves. The scram discharge volume vent and drain valves are not designed to be individually actuated. The valves are required by technical specifications to close within 45 seconds upon receipt of a scram signal. The valves are currently tested quarterly by cycling the valves to ensure operability and performing a valve sequence response time test during each refueling outage. The testing that is currently performed is essentially a design basis test of the valve combination. Requiring these valves to be stroke timed individually is impractical and a burden

on the licensee because of the extensive modifications that would be required to the system to individually stroke the valves. In addition, jumpering the control circuit during plant operation to test these valves individually would be impractical because of the potential for a reactor scram.

The licensee has proposed to use the technical specification required limiting closure time for the scram discharge volume vent and drain valves as the limiting stroke time and to verify that all valves as a group fall below this value. Technical specifications require that if the scram discharge vent and drain valves are not operable, then an orderly shutdown shall be initiated and the reactor shall be placed in hot shutdown. The technical specifications require that the vent and drain valves close within 45 seconds. The technical specification requirements provide a reasonable assurance of operational readiness because the timing will provide an indication of when one of the valves in the group has degraded above the technical specification requirements.

3.11.6 Conclusion

Based on the above evaluation, the NRC staff concludes that the licensee's request for relief is granted pursuant to 10 CFR 50.55a(f)(6)(i) on the basis that compliance with the OM Code requirements is impractical. The NRC staff further concludes that granting the relief will not endanger life or property or the common defense and security and is otherwise in the public interest giving due consideration to the burden upon the licensee that could result if the requirements were imposed on the facility. The licensee's proposed alternative decribed in Section 3.11.4 provides reasonable assurance of the operational readiness of the valves identified in Section 3.11.2. Relief request RR-V-1 is authorized for Hatch 1 and 2's fourth 10-year IST Interval.

3.12 Valve Relief Request RR-V-2

3.12.1 Code Requirements

The licensee requested relief from ISTC-3620, which requires containment isolation valves be periodically leak tested.

3.12.2 Component Identification

Relief was requested for the following valves:

1C51-Shear A, 1C51-Shear B, 1C51-Shear C, 1C51-Shear D
2C51-Shear A, 2C51-Shear B, 2C51-Shear C, 2C51-Shear D

3.12.3 Licensee's Basis for Requesting Relief

These valves are explosive actuated shear valves. The shear valve isolates the traversing incore probe (TIP) tubing by shearing the tube and TIP drive cable and by jamming the sheared ends of the tubing into a teflon coating on the shear valve disc. The shear valves cannot be local leakrate tested without destroying the drive tube.

Each lot of shear valves will be sample tested by the manufacturer prior to delivery. This sample leakrate testing satisfies the requirements of the 10 CFR Part 50, Appendix J leakrate program for Hatch 1 and 2.

3.12.5 Evaluation of Relief Request RR-V-2

Each TIP drive mechanism has a shear valve located between the mechanism and a ball valve in the guide tube to provide outboard isolation of the guide tube in the event that containment isolation is required. When the TIP probe is beyond the ball valve, which is normally used to provide outboard isolation, and power to the TIP system has failed, the shear valve is actuated manually from the control room. This action actuates the shear valve detonation squib which shears the guide tube and drive cable and isolates the guide tube.

Valves which are classified as Category A are required to be leak tested in accordance with OM Code requirements. Upon actuation, the subject valves shear the guide tube in order to achieve containment isolation. Requiring the licensee to actuate the shear valves to conduct leakrate testing would be a hardship on the licensee that is not compensated by an increase in the level of quality and safety because the shear valves would have to be replaced and the associated guide tube and drive cable repaired.

The licensee has proposed to use the manufacturer's leakrate testing to satisfy the OM Code leakrate testing requirements. The licensee stated that the sample leakrate testing performed by the manufacturer satisfies Hatch 1 and 2's 10 CFR Part 50, Appendix J leakrate program requirements. The proposed testing provides a reasonable assurance of operational readiness because the manufacturer's testing provides an adequate assessment of leaktightness for the containment isolation valves.

3.12.6 Conclusion

Based on the above evaluation, the NRC staff concludes that the licensee's proposed alternative is authorized for the components listed in Section 3.12.2 pursuant to 10 CFR 50.55a(a)(3)(ii) on the basis that compliance with the OM Code requirements results in hardship or unusual difficulty without a compensating increase in the level of quality and safety. The licensee's proposed alternative described in Section 3.12.4 provides reasonable assurance of the operational readiness of the identified valves. The proposed alternative is authorized for Hatch 1 and 2's fourth 10-year IST Interval.

3.13 Valve Relief Request RR-V-3

3.13.1 OM Code Requirements

The licensee requested relief from ISTC-3530, which requires verification of valve obturator movement by observing an appropriate indicator, such as indicating lights, or by observing other evidence, such as changes in system pressure, flow rate, level, or temperature, that reflect changes in obturator movement.

3.13.2 Component Identification

Relief was requested for the following valves:

1P41-F035A, 1P41-F035B, 1P41-F036A, 1P41-F036B, 1P41-F037A, 1P41-F037B, 1P41-F037C, 1P41-F037D, 1P41-F039A, 1P41-F039B,
2P41-F035A, 2P41-F035B, 2P41-F036A, 2P41-F036B, 2P41-F037A, 2P41-F037B, 2P41-F037C, 2P41-F037D, 2P41-F039A, 2P41-F039B,
2P41-F0339A, 2P41-F0339B, 2P41-F340.

3.13.3 Licensee's Basis for Requesting Relief

These valves are normally closed, fail-open, air-operated valves, which have a safety function to open and provide cooling water flow to the associated safety-related equipment. System design did not provide indicating lights, instrumentation, or direct valve control switches. The valves receive an open signal upon initiation of the associated equipment and a close signal upon termination of the equipment. The 2P41-F39A&B valves are equipped with local control switches, but do not have position indicating lights. Verification of obturator movement and stroke time measurement can only be performed by observation of actual stem movement.

3.13.4 Licensee's Proposed Alternative Testing

Verification of obturator movement and measurement of valve stroke time will be performed by observing actual valve stem movement. Stroke time will be considered to be the time from start to stop of valve stem movement. Each valve is equipped with either a stem mounted pointer and a yoke mounted position indicating scale, or a percent open/closed indicator. This position indicating device will be observed during stroke timing to determine full open/full close operation. The requirements of ISTC-5130 will be applied to monitor valve degradation.

3.13.5 Evaluation of Relief Request RR-V-3

The equipment cooling water supply valves are air-operated valves which have a safety function to open. The OM Code requires that stroke timing of Category B valves be measured from the initiation of the actuation cycle to the completion of the actuation cycle. The OM Code requirements are impractical because these valves are not equipped with any type of position indication instrumentation that would facilitate timing the valves in accordance with the OM Code requirements. Imposition of the OM Code requirements would be a burden because new valves equipped with position indication or instrumentation would have to be procured and installed.

Typically, valves with position indication are timed by an operator using a stopwatch. The operator times the valve stroke time interval based on position indication lights in the control room. The licensee has proposed to measure the stroke time of these valves from the time the valve stem starts to move until the stem completes full travel. Switch-to-light timing involves visual observation and therefore has the same potential inaccuracy as the licensee's proposed method. However, switch-to-light timing provides electronic verification of full valve travel. The licensee's proposed method also provides verification of full valve travel. The licensee's proposed alternative testing provides reasonable assurance of operational readiness because the actual stroke time of the valve movement is being measured in a repeatable manner.

3.13.6 Conclusion

Based on the above evaluation, the NRC staff concludes that the licensee's request for relief is granted for the components listed in Section 3.13.2 pursuant to 10 CFR 50.55a(f)(6)(i) on the basis that compliance with the OM Code requirements is impractical. The NRC staff further concludes that granting the relief will not endanger life or property or the common defense and security and is otherwise in the public interest giving due consideration to the burden upon the licensee that could result if the requirements were imposed on the facility. The licensee's proposed alternative described in Section 3.13.4 provides reasonable assurance of the operational readiness of the identified valves. The proposed alternative is authorized for Hatch 1 and 2's fourth 10-year IST Interval.

3.14 Valve Relief Request RR-V-4

3.14.1 OM Code Requirements

The licensee requested relief from Appendix I, paragraph 3410(d), which requires that valves that have been maintained or refurbished in place, removed for maintenance and testing, or both, and reinstalled shall be remotely actuated at reduced or normal system pressure to verify open and close capability of the valve before resumption of electric power generation.

3.14.2 Component Identification

Relief was requested for the following safety relief valves (SRVs):

1B21-F013A, 1B21-F013B, 1B21-F013C, 1B21-F013D, 1B21-F013E, 1B21-F013F, 1B21-F013G, 1B21-F013H, 1B21-F013J, 1B21-F013K, 1B21-F013L, 2B21-F013A, 2B21-F013B, 2B21-F013C, 2B21-F013D, 2B21-F013E, 2B21-F013F, 2B21-F013G, 2B21-F013H, 2B21-F013K, 2B21-F013L, 2B21-F013M.

3.14.3 Licensee's Basis for Requesting Relief

Exercising the main disk of the SRV after reinstallation can only be performed during reactor startup when there is sufficient steam pressure to actuate the main disk. Past history indicates that the main and pilot disks routinely do not re-seat properly after being exercised during reactor startup resulting in steam leakage into the suppression pool. This leakage results in a decrease in plant performance and the potential for increased suppression pool temperatures which could force a plant shutdown to repair a leaking SRV. Past operating history indicates that the exercising performed during reactor startup is of no significant benefit in ensuring the proper operation of the individual SRV assemblies.

Testing of Hatch 1 and 2's SRVs is performed to satisfy Technical Specifications Surveillance Requirements (SRs) and the OM Code. Certain tests are performed with the SRVs installed (in situ), while others are performed as "bench tests" after the valve is removed and transported to a maintenance and testing facility. SRs 3.5.1.12 and 3.6.1.6.1 provide SRV manual actuation testing requirements to demonstrate operability of the SRV relief mode. Remote manual actuation is also required by the OM Code, Appendix I, paragraph I-3410(d), to verify open and close capability of the valve before resumption of electric power generation. This applies to

valves that have been either maintained or refurbished in place, or removed for maintenance and testing and reinstalled. This remote manual actuation is performed at zero system pressure. Hatch 1 and 2 currently meets the two above testing requirements by opening and closing each SRV by defeating the control room switches and leakrate testing the pilot air operators and associated accumulator piping. Valve opening and closing capability is then confirmed by measuring the change in depth of the pilot rod. Hatch I and 2 SRs 3.5.1.11 and 3.6.1.6.2 require that the SRVs be opened on an actual or simulated automatic initiation signal to demonstrate that the solenoids operate when initiated by a signal. Actual valve actuation is excluded from these tests which are performed on a once-per-operating cycle frequency. Hatch 1 and 2 currently meets the above testing requirement by performing the test in conjunction with Logic System Functional Tests for the initiating instrument logic, which are also required by Technical Specifications. The OM Code requires that SRV auxiliary components be tested in place. Hatch 1 and 2 satisfies the requirement by tests performed following maintenance on the valves which demonstrate operability of the valve pneumatic actuation system.

During each refueling outage, all 11 SRV pilot assemblies and approximately one-third of the main stages are removed and shipped to Wyle Laboratories for "as-found" testing, which includes visual inspection, leakage testing, pilot disc-to-seat sticking testing, and set pressure testing. The tests are performed on a valve prior to maintenance on the valve. The leakage and set pressure tests are performed at a steam pressure of approximately 1035 psig. Following the "as-found" testing, the SRVs are given a dimensional inspection followed by refurbishment, if required. This work is performed by the valve supplier, Target Rock Corporation. Valve warming for post maintenance testing is performed at a steam pressure of approximately 1010 psig. Post maintenance testing includes initial valve leakage testing, safety mode valve actuation to satisfy requirements for set pressure, reseat pressure, main disc stroke time, and final leakage testing. Final seat leakage tests are performed at approximately 1070 psig. Upon successful test completion, each valve receives written certification from the lab and is returned the licensee for reinstallation. To receive certification, the valve must have zero seat leakage and meet the acceptance criteria for set pressure.

Leaking SRVs result in challenges to Hatch 1 and 2 components and operation. Leakage during operation may cause the valve to inadvertently actuate, possibly resulting in an unplanned plant shutdown, with its attendant challenges to plant safety systems and components. Leaking SRVs create operational problems associated with the suppression pool. SRV leakage increases both pool temperature and level, requiring more frequent use of the suppression pool cooling mode of the RHR system. Plant efficiency is impacted because the transfer of heat to the suppression pool is a source of thermal heat loss from the power generation steam cycle, thereby reducing electrical generating capacity. SRV leakage results in radiological challenges since radioactive nuclides contained in the steam can become a potential source for personnel contamination. As described previously, each SRV pilot assembly and approximately one-third of the main stages are bench tested at Wyle Laboratories during each refueling outage. The valves are refurbished as necessary to meet the acceptance criteria of zero leakage, and are certified in writing as being leak free. The valves are then reinstalled in the plant and proper pilot operation is confirmed through leakrate testing of the pilot air operators and associated accumulator piping and in situ measurements of the pilot rod movement. Following this surveillance test, Hatch 1 and 2 has typically experienced one or more leaking valves from what was originally a leak-free population supplied by the vendor (Wyle Laboratories). Several aspects of SRV design and operation can

contribute to valve leakage, these include test pressure, pilot valve disc and rod configuration, and system and valve cleanliness. Actuation of the SRVs after laboratory testing by any means allows these contributors to impact the ability of the valve to re-close completely. The licensee has made significant efforts to minimize the effects of these contributors. However, elimination of in situ valve testing under any condition that disturbs the pilot disc/seat interface is expected to have the most positive impact in reducing SRV leakage. Additionally, reducing challenges to the SRVs is a recommendation of NUREG-0737, "TMI Action Plan Requirements." This recommendation is based on a stuck open SRV being a possible cause of a loss-of-coolant accident. This submittal is consistent with that NRC recommendation.

3.14.4 Licensee's Proposed Alternative Testing

The SRVs will be actuated in the relief mode at the test facility (i.e., Wyle Laboratory). The solenoid valve will be energized, the actuator will stroke, and the pilot rod lift will be measured. The test will verify, that given a signal to energize the solenoid, the pilot disc rod will lift. The rod movement measurement will be performed using calibrated equipment and will be recorded in the test documentation package for future reference, as needed.

The ability of the pilot disc to open is shown in the safety mode actuation bench test. The integrity of the pneumatic and solenoid system for the SRVs are verified by performance of post maintenance leakrate resting and the "click" test, respectively. Automatic valve actuation is proven operable by logic system functional tests which include verification that the solenoid actuates from the automatic signal.

3.14.5 Evaluation of Relief Request RR-V-4

Hatch 1 and 2 SRVs are the Target Rock Two-Stage, Model 7567F design. The SRVs are dual-function valves capable of being independently opened in either the safety or the relief mode of operation. A total of 11 SRVs are installed on each unit. In the safety mode of operation, each SRV opens when system pressure exceeds the valve's set-point pressure, which is controlled by pre-compression of the setpoint spring acting down on the pilot disc. Venting the volume on the reactor side of the pilot disc creates a differential pressure across the main piston, thereby, providing a force to open the main disc and relieve system overpressure. Hence, reactor vessel steam is allowed to flow directly through the main disc to seat opening and to the suppression pool via the discharge piping. All 11 SRVs operate in the safety mode, which provides the safety function of over-pressurization protection. The requirements for this mode are listed in Hatch 1 and 2 Technical Specification 3.4.3. In the relief mode of operation, each SRV is opened by an electro-pneumatic actuator, which consists of a three-way solenoid valve, an attachment manifold, and a pneumatic operator. When the solenoid valve is energized, pneumatic pressure is routed into the operator to lift the pilot rod against the force of the compressed set-point spring. This allows system pressure to lift the pilot disc, venting the volume on the reactor side of the disc, and opening the valve as in the safety mode discussed above. This mode of operation is used for Automatic Depressurization System (ADS), Low-Low-Set (LLS), and remote manual operation. Hatch 1 and 2 Technical Specifications 3.5.1 and 3.6.1.6 provide requirements for the ADS and LLS System. Manual operation is not safety related and is not addressed by Technical Specifications. In each unit, seven SRVs are part of ADS, while the remaining four constitute LLS.

The safety mode of the SRVs is to open when system pressure exceeds the valve's setpoint pressure. All 11 SRVs operate in the safety mode, providing the safety function of over-pressure protection. The staff finds that the OM Code requirement to perform in situ stroke testing of the SRVs may contribute to undesirable SRV leakage and could result in spurious actuation of the valves during power operation, failure to reseat, increased use of RHR for suppression pool cooling, decreased generating capacity, and increased radiation hazard. Although leakage from the SRVs is considered within the plant's design basis, the failure to reseat during reactor start-up would cause unnecessary heating of the suppression pool, and could result in a decrease in plant performance and a plant shutdown to repair the leaking SRV. The alternative testing method proposed by the licensee provides periodic verification of all of the individual SRV components that are currently being tested. However, some tests, including closure testing, would be performed at a test facility instead of in situ with reactor steam. The NRC staff finds that the proposed testing of the SRVs and associated components provide reasonable assurance of adequate valve operation and readiness. Therefore, the NRC staff finds that the proposed alternative testing method is acceptable.

3.14.6 Conclusion

Based on the above evaluation, the NRC staff concludes that the licensee's proposed alternative described in Section 3.14.4 is authorized for the components listed in Section 3.14.2 pursuant to 10 CFR 50.55a(a)(3)(ii) on the basis that compliance with the OM Code requirements results in hardship or unusual difficulty without a compensating increase in the level of quality and safety. The licensee's proposed alternative provides reasonable assurance of the operational readiness of the identified valves. The proposed alternative is authorized for Hatch 1 and 2's fourth 10-year IST Interval.

3.15 Valve Relief Request RR-V-5

3.15.1 OM Code Requirements

The licensee requested relief from Appendix I, paragraph 1360, which requires that Class 2 and 3 non-reclosing pressure relief devices (rupture discs) be replaced every 5 years unless historical data indicates a requirement for more frequent replacement.

3.15.2 Component Identification:

Relief was requested for the following HPCI system rupture discs:

1E41-D003, 1E41-D004
2E41-D003, 2E41-D004

3.15.3 Licensee's Basis for Requesting Relief

The subject rupture discs are supplied by Continental Disc Corporation and cyclic testing to destruction of a disc that had previously been installed in the HPCI system at Hatch 1 and 2 was performed by the supplier. The test disc was installed in an appropriate disc holder and flange assembly, which simulated the installed configuration. The rupture disc assembly was cycled from full vacuum to 70 percent of the ambient burst pressure. The test disc completed 2,788 cycles before failure occurred.

The HPCI system is tested monthly at a maximum. Monthly testing results in approximately 72 tests during three operating cycles. To meet the code replacement frequency, the disc must be replaced every second refueling outage, or after approximately 48 system tests. Therefore, a change from replacement every 48 months to every 72 months is insignificant when compared to the expected life of the disc, as proven by the number of cycles required for disc rupture demonstrated by vendor testing.

Hatch 1 and 2 operate on 24 month fuel cycles. Replacement every 6 years results in replacement every third refueling outage, whereas a 5-year replacement results in replacement every second refueling outage. As proven by the vendor testing, the subject rupture discs have adequate margin for operation well beyond the requested 6-year replacement frequency.

3.15.4 Licensee's Proposed Alternative Testing

The rupture discs will be replaced at least once every third refueling outage.

3.15.5 Evaluation of Relief Request RR-V-5

The licensee requests relief from the requirements of Appendix I, which requires that Class 2 and 3 rupture discs be replaced every 5 years, unless historical data indicates a requirement for more frequent replacement. This corresponds to the licensee replacing the discs every second refueling outage. The licensee proposes an alternative in which the rupture discs would be replaced every 6 years, resulting in their replacement every third refueling outage.

Cyclic testing of a previously installed rupture disc was performed by the licensee by Continental Disc Corporation. During testing, the rupture disc was cycled from full vacuum to 70 percent of the ambient burst pressure. Failure occurred after the disc was cycled 2,788 times. The cyclic testing performed was a conservative simulation of the pressure differential experienced by the rupture discs during monthly testing of the HPCI system. During monthly testing, the normal pressure exerted on the rupture disc is 50 psig, which corresponds to approximately 25 percent of the ambient burst pressure.

The licensee proposes a 6-year replacement frequency for these rupture discs. At this frequency, the discs would be exposed to approximately 72 HPCI system tests or cycles. This is significantly less than the 2,788 cycles needed for failure of the test disc to occur. The licensee's proposed alternative provides reasonable assurance of the operational readiness of the HPCI rupture discs. Therefore, the proposed alternative provides an acceptable level of quality and safety.

3.15.6 Conclusion

Based on the above evaluation, the NRC staff concludes that the licensee's alternative decribed in Section 3.15.4 is authorized for the components listed in Section 3.15.2 pursuant to 10 CFR 50.55a(a)(3)(i) on the basis that the proposed alternative provides an acceptable level of quality and safety. The alternative is authorized for Hatch 1 and 2 fourth 10-year IST Interval.

3.16 Valve Relief Request RR-V-6

3.16.1 OM Code Requirements

The licensee requested relief from ISTC-5221(c), which requires that disassembly and inspection of check valves in a sample disassembly examination program be conducted during refueling outages.

3.16.2 Component Identification:

Relief was requested for the following valves:

1E11-F046A, 1E11-F046B, 1E11-F046C, 1E11-F046D, 1E11-F125A, 1E11-F125B, 1E21-F036A, 1E21-F036B, 1E21-F039A, 1E21-F039B, 1E41-F022, 1E41-F040, 1E41-F046, 1E41-F048, 1E41-F057, 1E51-F021,1P41-F1074, 1P41-F1075, 2E11-F046A, 2E11-F046B, 2E11-F046C, 2E11-F046D, 2E11-F123A, 2E11-F123B, 2E21-F036A, 2E21-F036B, 2E21-F039A, 2E21-F039B, 2E41-F022, 2E41-F040, 2E41-F046, 2E41-F048, 2E41-F057, 2E51-F021, 2P41-F098, 2P41-F105.

3.16.3 Licensee's Basis for Requesting Relief

ISTC-5221(c)(1) and (c)(2) provide guidance for the grouping of check valves and sample disassembly as an alternative to the requirements specified in ISTC-5221(a) and ISTC-5221(b). The check valves identified in the relief request are specifically identified in the existing Hatch 1 and 2 IST program for application of the guidelines provided in the OM Code for sample disassembly. Each valve is scheduled for disassembly, visual examination, and manual full-stroke exercising during a refueling outage or when the plant is online pursuant to a previously approved relief request.

Section 50.65(a)(4) of 10 CFR requires licensees to assess and manage the increase in risk that may result from proposed maintenance activities. The licensee complies with the 10 CFR 50.65(a)(4) requirements via the application of a safety-related procedure governing maintenance scheduling. The procedure dictates the requirements for risk evaluations as well as the necessary levels of action required for risk management in each case. The procedure also controls operation of the on-line risk monitor system which is based on the Hatch 1 and 2 Probabilistic Risk Assessment (PRA). In addition, this procedure provides methods for risk assessing maintenance activities for components not directly in the Hatch 1 and 2 Probabilistic Safety Assessment (PSA) model. With the use of risk evaluation for virtually all aspects of nuclear plant operation, the licensee has initiated efforts to accomplish additional maintenance, surveillance, and testing activities during normal operation. Planned activities are evaluated utilizing risk insights to determine the impact on safe operation of the plant and the ability to maintain associated safety margins. Individual system components, a system train, or a complete system may be planned to be out of service to allow maintenance or other activities during normal operation.

All of the above listed check valves are located within systems that could be scheduled for maintenance during normal operation, thus allowing for their disassembly, examination, and full-stroke exercising.

3.16.4 Licensee's Proposed Alternative Testing

Check valve disassembly, inspection, and manual exercising will continue to be performed utilizing the guidance contained in the OM Code. Such disassembly, inspection, and manual exercising will be performed during normal operation or during refueling outages as appropriate. At least one valve from each group will be inspected on a refueling outage frequency (currently 24 months). Any check valve disassembly performed during normal plant operation will be managed in accordance with the requirements of 10 CFR 50.65(a)(4).

Any check valve that is not capable of full-stroke movement (e.g., due to binding), has failed, or has unacceptably degraded valve internals shall have the cause of failure analyzed and the condition corrected prior to return to service. If the group contains more than one check valve, valves in the same group that may also be affected by this failure mechanism shall be inspected during the refueling outage or within 180 days if the initial valve was disassembled during normal plant operation. An evaluation shall be performed to document justification for the continued operational readiness for each valve during this 180-day time period, if applicable. The evaluation shall include consideration of other tests or examinations (e.g., flow exercising, leak testing), and their frequency, that can be performed to support continued operational readiness until such time that other valves in the group can be inspected. This 180-day time period will allow for adequate planning, scheduling and parts procurement to support efficient inspection of the other valves in the group. In no instance shall inspection be deferred beyond the next refueling outage.

3.16.5 Evaluation of Relief Request RR-V-6

The licensee requests relief from ISTC-5221(c), which requires that disassembly and inspection of check valves in a sample disassembly examination program be conducted during refueling outages.

The regulations in 10 CFR 50.65(a)(4) require licensees to assess and manage the increase in risk that may result from maintenance activities, including surveillance, post-maintenance testing, and corrective and preventive maintenance. Hatch 1 and 2 complies with 10 CFR 50.65(a)(4) requirements by application of a safety-related procedure governing maintenance scheduling.

The safety-related procedure governing maintenance scheduling requires risk evaluations as well as the necessary levels of action required for risk management for each application. The procedure also controls operation of the on-line risk monitor system, which is based on the Hatch 1 and 2 PRA. The procedure further provides for risk-assessing maintenance activities for components not directly in the Hatch 1 and 2 PSA model.

The licensee has initiated efforts to accomplish additional maintenance, surveillance, and testing activities during normal operation. The licensee intends to optimize maintenance and IST activities by taking advantage of windows of opportunity, such as when one of the subject valve systems is isolated for maintenance during normal plant operation, to perform a required valve IST activity. Planned activities are evaluated utilizing risk insights to determine the impact on safe operation of the plant and the ability to maintain associated safety margins. Individual system components, a system train, or a complete system may be planned to be out-of-service to allow maintenance or other activities during normal operation.

All activities are performed in accordance with plant procedures that meet 10 CFR 50.65(a)(4) requirements and provide detailed instructions for disassembly, inspection, exercising, and considerations for corrective actions. The plant procedures, controls, and regulatory compliance used to prepare the associated system for maintenance or repair during normal operation are the same procedures, controls, and regulatory compliance that would be used to prepare for IST disassembly and inspection activities of the valve during refueling outages.

The licensee indicates that all of the check valves listed in the relief request are located in systems that could be scheduled for maintenance during normal operation and would allow for check valve disassembly during normal power operation.

In its review and evaluation of the proposed alternative, the NRC staff's findings are based on its evaluation of the information provided and the following considerations:

1. The valves are ASME Class 2 or 3, are relatively small, and are provided with component isolation from the Reactor Coolant System;

2. The valves are located in systems that could be isolated and scheduled for maintenance activities during normal power operation;

3. Hatch 1 and 2 complies with 10 CFR 50.65(a)(4) requirements by application of safety-related procedures governing maintenance scheduling;

4. 10 CFR 50.65(a)(4) requires licensees to assess and manage the increase in risk that might result from maintenance activities including surveillance, post-maintenance testing, and corrective and preventive maintenance;

5. Planned activities are evaluated utilizing risk insights to determine the impact on safe operation of the plant and the ability to maintain associated safety margins;

6. All activities are performed with plant procedures that provide detailed instructions for disassembly, inspection, exercising, and considerations for corrective actions; and

7. The plant procedures, controls, and regulatory compliance used to prepare the associated system for maintenance or repair during normal operation are the same procedures, controls, and regulatory compliance that would be used to prepare for IST of the valves during refueling outages.

ISTC-5224 requires that valves in a sample disassembly program that are not capable of full-stroke movement or have failed or have unacceptably degraded valve internals, shall have the cause of the failure analyzed and the condition corrected, and that other check valves in the sample group that may also be affected by this failure be examined or tested during the same refueling outage to determine the condition of internal components and their ability to function. The OM Code requires that all check valves in the group be inspected prior to returning the unit to power operation. The licensee proposes to inspect one valve in a valve group during normal operation on a refueling outage frequency and inspect additional valves in the group within 180 days if a check valve in a group containing more than one check valve is not capable of full-stroke movement or has failed or has unacceptably degraded valve internals. The NRC

staff finds that performing check valve disassembly and inspection of check valve groups containing more than one valve during normal operation does not provide an acceptable level of quality and safety based on the requirement to inspect additional check valves in a group to determine the condition of internal components and their ability to function. The licensee's proposed alternative allows inspection and disassembly of additional valves to be postponed for 180 days which exceeds the allowed system outage time specified by Technical Specifications. The OM Code requires that disassembly and inspection of valve groups be performed during refueling when system operability requirements are minimal, and plant pressure, temperature, and heat loads are reduced, and that additional valves be inspected prior to returning the unit to power operation. The NRC staff has determined that the proposed alternative is acceptable for the check valve groups containing only one valve based on the criteria discussed previously.

Based on its evaluation of the proposed alternative and the above considerations, the NRC staff finds that the proposed alternative provides an acceptable level of quality and safety for valves 1E41-F022, 1E41-F040, 1E41-F046, 1E41-F048, 1E41-F057, 1E51-F021, 2E41-F022, 2E41-F040, 2E41-F046, 2E41-F048, 2E41-F057, 2E51-F021, 2P41-F098, and 2P41-F105, which are in check valve groups containing only one valve, and is authorized for use at the Hatch 1 and 2, pursuant to 10 CFR 50.55a(a)(3)(i).

The application of the proposed alternative to valves 1E11-F046A, 1E11-F046B, 1E11-F046C, 1E11-F046D, 1E11-F125A, 1E11-F125B, 1E21-F036A, 1E21-F036B, 1E21-F039A, 1E21-F039B, 1P41-F1074, 1P41-F1075, 2E11-F046A, 2E11-F046B, 2E11-F046C, 2E11-F046D, 2E11-F123A, 2E11-F123B, 2E21-F036A, 2E21-F036B, 2E21-F039A, and 2E21-F039B at Hatch 1 and 2, is denied because the valves are in check valve groups containing more than one valve.

3.16.6 Conclusion

Based on the above evaluation, the NRC staff concludes that the licensee's proposed alternative is authorized pursuant to 10 CFR 50.55a(a)(3)(i) for valves 1E41-F022, 1E41-F040, 1E41-F046, 1E41-F048, 1E41-F057, 1E51-F021, 2E41-F022, 2E41-F040, 2E41-F046, 2E41-F048, 2E41-F057, 2E51-F021, 2P41-F098, and 2P41-F105, which are in check valve groups containing only one valve, on the basis that the proposed alternative provides an acceptable level of quality and safety. The proposed alternative as described in Section 3.16.4 is authorized for Hatch 1 and 2's fourth 10-year IST Interval.

The use of the proposed alternative for valves 1E11-F046A, 1E11-F046B, 1E11-F046C, 1E11-F046D, 1E11-F125A, 1E11-F125B, 1E21-F036A, 1E21-F036B, 1E21-F039A, 1E21-F039B, 1P41-F1074, 1P41-F1075, 2E11-F046A, 2E11-F046B, 2E11-F046C, 2E11-F046D, 2E11-F123A, 2E11-F123B, 2E21-F036A, 2E21-F036B, 2E21-F039A, and 2E21-F039B is denied because the valves are in check valve groups containing more than one valve.

3.17 Valve Relief Request RR-V-7

3.17.1 OM Code Requirements

The licensee requested relief from ISTC-5221(c), which requires that disassembly and inspection of check valves in a sample disassembly examination program be conducted during refueling outages.

3.17.2 Component Identification

Relief was requested for the following valves:

1E41-F045 and 2E41-F045

3.17.3 Licensee's Basis for Requesting Relief

ISTC-5221(c)(1) and (c)(2) provide guidance for the grouping of check valves and sample disassembly as an alternative to the requirements specified in ISTC-5221(a) and ISTC-5221(b). The check valves identified in the relief request are specifically identified in the existing Hatch 1 and 2 IST program for application of the guidelines provided in the OM Code for sample disassembly. Each valve is scheduled for disassembly, visually examination, and manual full-stroke exercising during a refueling outage or when the plant is online pursuant to a previously approved relief request.

The check valves are located in the respective unit's HPCI pump suction piping from the suppression pool. The HPCI pump suction piping is normally aligned to the Condensate Storage Tank (CST) during normal operation and the system is provided with automatic controls which swap the suction path to the suppression pool should CST level drop below a specific set-point. The suction path from the suppression pool is provided with two motor operated valves (MOVs) between the suppression pool and check valve 1/2E41-F045, and one MOV between the check valve and the CST suction line. These MOVs provide for normal isolation and the system automatic swap feature. Neither MOV from the suppression pool is required to be leakrate tested in accordance with10 CFR Part 50, Appendix J because the plant licensing basis assumes the suppression pool remains water-filled post accident. The MOV downstream of the check valve is not required to be leakrate tested to satisfy any code or regulatory requirements.

In order to isolate check valve 1/2E41-F045 for disassembly, Plant Hatch will close and disable both MOVs (1/2E41-F042 and F051) on the suppression pool side of the check valve and the MOV (1/2E41-F041) on the CST side of the check valve. Closing and disabling these valves provides a high level of confidence that the check valve is adequately isolated from the suppression pool, due to double valve isolation, and the CST to prevent any significant leakage and ensures that inadvertent operation, while the check valve is disassembled, does not occur. Additionally, the licensee will perform a leakrate type test of the 1/2E41-F041 valve at least once each cycle. This leakrate type test will be performed at containment accident pressure and the acceptance of the OM Code (0.5D gpm or 5 gpm, whichever is less) will be utilized for evaluation of leakrate test data. The disassembly procedure also requires that maintenance personnel ensure the check valve is adequately isolated before complete removal of the valve cover plate. No disassembly will be attempted unless the above leakage rate test criteria are satisfied.

Section 50.65(a)(4) of 10 CFR requires licensees to assess and manage the increase in risk that may result from proposed maintenance activities. The licensee complies with the 10 CFR 50.65(a)(4) requirements via the application of a safety related procedure governing maintenance scheduling. This procedure dictates the requirements for risk evaluations as well as the necessary levels of action required for risk management in each case. The procedure also controls operation of the on-line risk monitor system which is based on the Hatch 1 and 2

PRA. In addition, this procedure provides methods for risk assessing maintenance activities for components not directly in the Hatch 1 and 2 PSA model. With the use of risk evaluation for virtually all aspects of nuclear plant operation, the licensee has initiated efforts to accomplish additional maintenance, surveillance, and testing activities during normal operation. Planned activities are evaluated utilizing risk insights to determine the impact on safe operation of the plant and the ability to maintain associated safety margins. Individual system components, a system train, or a complete system may be planned to be out of service to allow maintenance, or other activities, during normal operation.

3.17.4 Licensee's Proposed Alternative Testing

Check valve disassembly, visual examination, and manual exercising will continue to be performed utilizing the guidance contained in the OM Code. However, such disassembly, visual examination, and manual exercising will be performed during normal operation in conjunction with appropriate system outages, or during refueling outages. Since there is only one valve per group, each valve will be inspected on a refueling outage frequency (currently 24 months). Check valve disassembly during normal plant operation will be managed in accordance with the requirements of 10 CFR 50.65(a)(4) in conjunction with the isolation and leakrate testing described above.

3.17.5 Evaluation of Relief Request RR-V-7

The OM Code requires that check valve disassembly and inspection IST activities be performed during refueling outages. The licensee proposes, as an alternative, to perform the IST disassembly and inspection activities during normal plant operation, in conjunction with appropriate system outages, or during refueling outages on a refueling outage frequency (currently 24 months). In any case, disassembly, inspection, and manual exercising will be performed at least once each operating cycle (i.e., 24 months). Check valve disassembly during normal plant operation will be managed in accordance with the requirements of 10 CFR 50.65(a)(4) in conjunction with system isolation and leakrate testing.

The HPCI system check valves 1E41-F045 and 2E41-F045 are 16-inch diameter check valves. These relatively large check valves are located in the respective unit's HPCI pump suction line from the suppression pool. The HPCI pump suction is normally aligned to the CST during normal operation and the system is provided with automatic controls which swap the suction to the suppression pool should CST level fall below a specific set-point or on suppression pool high level.

The NRC staff finds that disassembly and inspection of HPCI system check valves 1E41-F045 and 2E41-F045 are the appropriate methods to verify operability and can be accomplished during system outages when the plant is on-line or during refueling outages. The NRC staff's finding is based on the following considerations:

1. IST performed on a refueling outage frequency meets the intent of the OM Code for valve groups containing only one valve. By specifying testing activities on a frequency commensurate with each refueling outage, the OM Code recognizes and establishes an acceptable time period between testing. The refueling outages have provided a practical and definitive time period in which testing activities can be safely and effectively performed. An acceptable testing frequency can be maintained separately

without being tied directly to a refueling outage for valve groups containing only one valve. IST performed on a frequency (24 months) that maintains the acceptable time period between testing activities during the operating cycle (i.e., 24 months) is consistent with the intent of the OM Code.

2. Over time, approximately the same number of tests will be performed using the proposed operating cycle test frequency as would be performed using the current refueling outage frequency. Thus, inservice testing activities performed during the proposed operating cycle (i.e., 24 months) test frequency provide an equivalent level of quality and safety as IST performed at a refueling outage for valve groups containing only one valve.

3. During check valve 1/2E41-045 disassembly and inspection, the licensee will close and disable MOV 1/2E41-F042 and AOV 1/2E41-F051 on the suppression pool side of the check valve and MOV 1/2E41-F041 on the CST side of the check valve. Closing and disabling these valves will provide adequate isolation utilizing appropriate OM Code leakage criteria. As a result, all isolation valves will have been leak-tested and/or have double-isolation capability. The licensee states that its disassembly procedure also includes requirements for maintenance personnel to ensure the check valve is adequately isolated before complete removal of the check valve cover plate (bonnet). No disassembly will be attempted unless the OM Code specified leakage rate criteria are satisfied. The licensee's procedure provides adequate measures to ensure that the check valve will be properly isolated during disassembly and inspection activities.

On the basis of these considerations, the NRC staff finds that the proposed alternative provides reasonable assurance of the operational readiness of the identified valves and an acceptable level of quality and safety.

3.17.6 Conclusion

Based on the above evaluation, the NRC staff concludes that the licensee's proposed alternative described in Section 3.17.4 is authorized for the components listed in Section 3.17.2 pursuant to 10 CFR 50.55a(a)(3)(i) on the basis that the proposed alternative provides an acceptable level of quality and safety. The alternative is authorized for the fourth 10-year IST Interval.

4.0 REFERENCES

Code of Federal Regulations, Domestic Licensing of Production and Utilization Facilities," Part 50, Chapter I, Title 10, "Energy," Section 50.55a, Codes and standards.

U.S. Nuclear Regulatory Commission, "Guidance on Developing Acceptable Inservice Testing Programs, " Generic Letter 89-04, through Supplement 1, April 4, 1995.

U.S. Nuclear Regulatory Commission, "Guidance for Inservice Testing at Nuclear Power Plants," NUREG-1482, Revision 1.

U.S. Nuclear Regulatory Commission, "Examples, Clarifications, and Guidance on Preparing Requests for Relief from Pump and Valve Inservice Testing Requirements, NUREG/CR-6396.

Letter, H. L. Sumner, Southern Nuclear Operating Company, Inc. to NRC, “Edwin I. Hatch Nuclear Plant Fourth 10-year Interval Inservice Testing (IST) Program Update Submittal,” dated July 11, 2005 (TAC Nos. MC7626, and MC7627).

Letter, H. L. Sumner, Southern Nuclear Operating Company, Inc. to NRC, “Edwin I. Hatch Nuclear Plant Response to Request for Additional Information (RAI) for Fourth 10-year Interval Inservice Testing (IST) Program Relief Requests for Pump and Valves,” dated September 26, 2005.

Principal Contributor: G. Bedi, NRR

Date: February 14, 2006

Attachment 1
Summary of Relief Requests

Relief Request No.	10 CFR 50.55a; ASME OM Code 2001 Edition thru 2003 Addenda	Proposed Alternative	NRC Action	Remarks
RR-P-1	N/A	N/A	N/A	withdrawn
RR-P-2	ISTB-3510(e)	Use of existing vibration transducers	(a)(3)(ii)	authorized
RR-P-3	ISTB-3510(b)(1)	Use of existing pressure gauges	(a)(3)(i)	authorized
RR-P-4	ISTB-3510(b)(1)	Use of existing flow instrument	(a)(3)(i)	authorized
RR-P-5	ISTB-3540(b)	measurements at pumps's motor mounting flange	(a)(3)(ii)	authorized
RR-P-6	ISTB-3510(a); Table ISTB-3500-1	Use of existing instrument and accuracy	(a)(3)(i)	authorized
RR-P-7	ISTB-3510(b)(1)	Use of existing flow instrument	(a)(3)(i)	authorized
RR-P-8	ISTB-3510(a); Table ISTB-3500-1	Use of existing instrument and accuracy	(a)(3)(i)	authorized
RR-P-9	ISTB-3540(b)	measurements at pumps motor mounting flange	(a)(3)(ii)	authorized
RR-P-10	N/A	N/A	N/A	withdrawn
RR-P-11	ISTB-3520(b)	Use of existing instruments and historical data	(a)(3)(ii)	authorized
RR-P-12	ISTB-3510(b)(1)	Use of existing gauges and accuracy	(a)(3)(i)	authorized
RR-V-1	ISTC-5131	Stroke time during refueling outage	(f)(6)(i)	granted
RR-V-2	ISTC-3620	Sample shear valve testing by vendor prior to delivery	(a)(3)(ii)	(a)(3)(i)
RR-V-3	ISTC-3530	Observing actual valve stem movement	(f)(6)(i)	granted
RR-V-4	Appendix I, paragraph I-3410(d)	SRV will be actuated in relief mode at test facility,	(a)(3)(ii)	authorized
RR-V-5	Appendix I, paragraph I-1360	Rupture discs will be replaced at least every 3rd refueling outage	(a)(3)(i)	authorized
RR-V-6	ISTC-5221(c)	IST during refueling outage or online	(a)(3)(i)	Some of the check valves are authorized, and some of the check valves are denied
RR-V-7	ISTC-5221(c)	Use of valve disassembly during refueling outage or online	(a)(3)(i)	authorized

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