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NRC Research and/or Technical Assistance Report

SAFETY EVALUATION REPORT, PUMPS AND VALVES INSERVICE TESTING PROGRAM, NINE MILE POINT NUCLEAR STATION, UNIT 1

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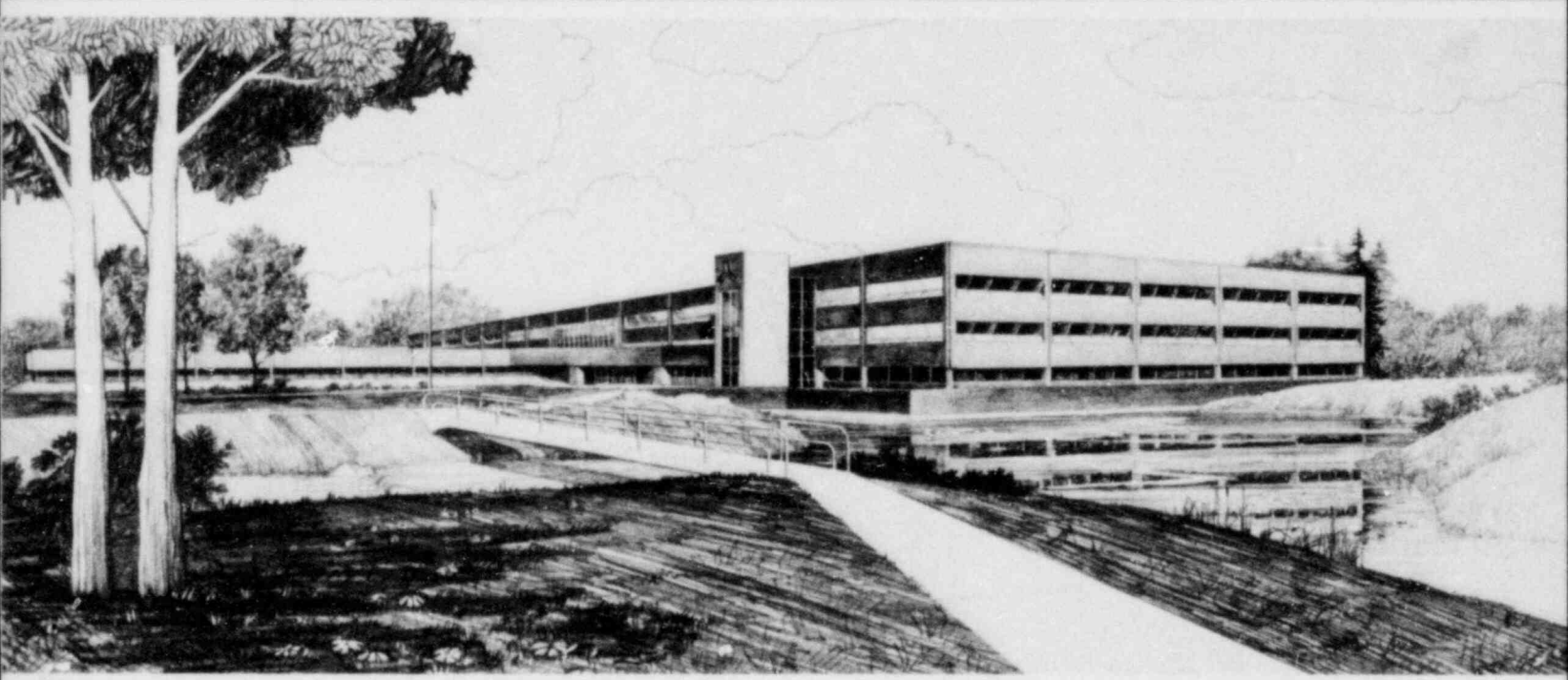

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February 1982

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Docket No. 50-220

ABSTRACT

This EG&G Idaho, Inc. report presents the results of our evaluation of the Nine Mile Point Nuclear Station, Unit 1, Inservice Testing Program for safety-related pumps and valves.

FOREWORD

This report is supplied as part of the "Systems Engineering Support" being conducted for the U.S. Nuclear Regulatory Commission, Office of Nuclear Reactor Regulation, Division of Engineering, by EG&G Idaho, Inc., Reliability and Statistics Branch.

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I. INTRODUCTION

Contained herein is a safety evaluation of the pump and valve inservice testing (IST) program submitted by the Niagara Mohawk Company for its Nine Mile Point Unit 1 Nuclear Station. The working session with Nine Mile Point Unit 1 representatives was conducted on October 7 and 8, 1980. The licensee resubmittal was issued on August 7, 1981, and reviewed by EG&G Idaho, Inc., to verify compliance of proposed tests of safety-related Class 1, 2, and 3 pumps and valves with requirements of the ASME Boiler and Pressure Vessel Code, Section XI, 1974 Edition, through the Summer of 1975 Addenda. Nine Mile Point Unit 1 has also requested relief from the ASME Code from testing specified pumps and valves because of practical reasons. These requests have been evaluated individually to determine whether they have significant risk implications and whether the tests, as required, are indeed impractical.

The evaluation of the pump testing program and associated relief requests is contained in Section II; the evaluation of the valve testing program and associated relief requests is contained in Section III. All evaluations for Sections II and III are the recommendations of EG&G Idaho, Inc.

A summary of valve-testing requirements is provided in Appendix A.

Appendix J exemption requests for Category A valves currently being reveiwed by the NRC are contained in Attachment I.

Category A, B, and C valves that meet the requirements of the ASME Code Section XI and are not exercised every three months are contained in Attachment II.

A listing of P&IDs used for this review are contained in Attachment III.

II. PUMP TESTING PROGRAM

The IST program submitted by Nine Mile Point Unit 1 was examined to verify that Class 1, 2, and 3 safety-related pumps were included in the program and that those pumps are subjected to the periodic tests as required by the ASME Code, Section XI. Our review found that all Class 1, 2, and 3 safety-related pumps were included in the IST program and, except for those pumps identified below for which specific relief from testing has been requested, the pump tests and frequency of testing comply with the code. Each Nine Mile Point Unit 1 basis for requesting specific relief and the EG&G evaluation of that request is summarized below.

1. Safety-Related Pumps

1.1 Relief Request

Relief is requested from the monthly pump testing requirements of Section XI for the following safety-related pumps.

Core Spray Injection Pumps	111, 112, 121, 122
Core Spray Topping Pumps	111, 112, 121, 122
Containment Spray Pumps	111, 112, 121, 122
Control Rod Drive Pumps	11, 12
Containment Spray Raw Water Pumps	111, 112, 121, 122

1.1.1 Code Requirement. IWP-3400 states the following:

(a) An inservice test shall be run on each pump, nominally each month during normal plant operation. It is recommended that this test frequency be maintained during shutdown periods where this can reasonably be accomplished, although this in not mandatory. If it is not tested during plant shutdown, the pump shall be tested within one week after plant is returned to normal operation.

(b) Pumps that are operated more frequently than every month need not be run or stopped for a special test, provided the plant log shows each such pump was operated at least once every month at the reference conditions and the quantities specified were measured, observed, recorded, and analyzed.

1.1.2 Licensee's Basis for Requesting Relief. The past record at NMP-1 indicates the reliability of the pumps would not improve by monthly cycling. Monthly cycling would promote excess stress and strain on pump/motor design life. As an alternate, testing will be scheduled quarterly to ensure continued operability.

1.1.3 Evaluation. The licensee has stated that the past record of pump testing at NMP-1 indicates monthly pump testing would promote excess stress and strain on the pump/motor design life but has failed to provide the data to support this determination. Therefore, we feel relief should not be granted from the Section XI requirements to perform monthly pump tests until the licensee provides the supporting data that led to these conclusions.

III. VALVE TESTING PROGRAM EVALUATION

The IST program submitted by Nine Mile Point Unit 1 was examined to verify that Class 1, 2, and 3 safety-related valves were included in the program and that those valves are subjected to the periodic tests required by the ASME Code, Section XI, and the NRC positions and guidelines. Our review found that all Class 1, 2, and 3 safety-related valves were included in the IST program and, except for those valves identified below for which specific relief from testing has been requested, the valve tests and frequency of testing comply with the code requirements and the NRC positions and guidelines listed in Section 1. Also included in Section 1 is the NRC position and valve listings for the leak testing of valves that perform a pressure isolation function and a procedure for the licenee's use to incorporate these valves into the IST program. Each Nine Mile Point Unit 1 basis for requesting relief from testing valves and the EG&G evaluation of that request is summarized below and grouped according to system.

1. General Considerations

1.1 Testing of Valves which Perform a Pressure Isolation Function

Several safety systems connected to the reactor coolant pressure boundary have design pressures below the reactor coolant system operating pressure. Redundant isolation valves within the Class 1 boundary forming the interface between these high- and low-pressure systems isolate low-pressure systems from pressures which exceed their design limit. In this role, the valves perform a pressure isolation function.

The NRC considers the redundant isolation provided by these valves to be important. The NRC considers it necessary to assure that the condition of each of these valves is adequate to maintain this redundant isolation and system integrity. For these reasons, the NRC believes that some method, such as pressure monitoring, leak testing, radiography, or ultrasonic testing, should be used to assure that the condition of each valve is satisfactory in maintaining this pressure isolation function.

If leak testing is selected as the appropriate method for achieving this objective, the NRC and EG&G Idaho, Inc., believe that the following valves should be categorized as A or AC and leak tested according to IWV-3420 of Section XI of the applicable edition of the ASME Code. These valves are:

34-01	Reactor Head Spray Isolation Valve
34-02	Reactor Head Spray Isolation Valve
37-01	Reactor Vent Line Isolation Valve
37-02	Reactor Vent Line Isolation Valve
37-06	Reactor Vent Line Isolation Valve
31-01	Reactor Feedwater Header Check Valve

31-02 Reactor Feedwater Header Check Valve

38-12 Shutdown Cooling to Reactor Isolation

38-13 Shutdown Cooling to Reactor Check Valve

38-01 Shutdown Cooling from Reactor Isolation

38-02 Shutdown Cooling from Reactor Isolation

40-01 Core Spray to Reactor Isolation Valve

40-03 Core Spray to Reactor Check Valve

40-09 Core Spray to Reactor Isolation Valve

40-10 Core Spray to Reactor Isolation Valve

40-11 Core Spray to Reactor Isolation Valve

40-13 Core Spray to Reactor Check Valve

40-05 Core Spray to Reactor Isolation Valve

40-06 Core Spray to Reactor Isolation Valve

The NRC and EG&G Idaho, Inc., have discussed this matter with the licensee and identified the valves listed above. The licensee agreed to consider testing and categorizing each of these valves with the appropriate designation, depending on the testing method selected. Whatever method the licensee selects for determining the condition of each valve, the licensee will provide to the NRC, for evaluation, the details of the testing method which clearly demonstrates the condition of each valve.

1.2 Stroke Testing of Check Valves

The NRC stated its position to the licensee that check valves whose safety function is to open are expected to be full stroked. If only limited operation is possible (and it has been demonstrated by the licensee and agreed to by the NRC), the check valve shall be partial stroked. Since disc position is not always observable, the NRC staff stated that verification of the plant's safety analysis design flow rate through the check valve would be an adequate demonstration of the full stroke requirement. Any flow rate less than design will be considered part stroke exercising unless it can be shown that the check valve's disk position at the lower flow rate would be equivalent to or greater than the design flow rate through the valve. The licensee agreed to conduct flow tests to satisfy the above position.

1.3 Test Frequency of Check Valves Tested at Cold Shutdowns

The Code states that, in the case of cold shutdowns, valve testing need not be performed more often than once every three months for Category A and B valves and once every nine months for Category C valves. It

is the NRC's position that the Code is inconsistent and that Category C valves should be tested on the same schedule as Category A and B valves. The licensee has agreed to modify his procedures on cold shutdowns to read, "In the case of frequent cold shutdowns, valve testing need not be performed more often than once every three (3) months for Category A, B, and C valves."

1.4 Licensee Request for Relief to Test Valves at Cold Shutdowns

The Code permits valves to be tested at cold shutdowns, and the conditions under which this is permitted is noted in Appendix A. These valves are specifically identified by the licensee and are full stroke exercised during cold shutdowns; therefore, the licensee is meeting the requirements of the ASME Code. Since the licensee is meeting the requirements of the ASME Code, it will not be necessary to grant relief. However, during our review of the licensee's IST program, we have verified that it was not practical to exercise these valves during power operation and that we agree with the licensee's basis.

It should be noted that the NRC differentiates, for valve testing purposes, between the cold-shutdown mode and the refueling mode. That is, for testing purposes, the refueling mode is not considered as a cold shutdown.

1.5 Technical Specification Changes

In a November 1976 letter to the licensee, the NRC provided an attachment entitled, "NRC Guidelines for Excluding Exercising (Cycling) Tests of Certain Valves During Plant Operation." The attachment stated that, when one train of a redundant system such as in the Emergency Core Cooling System (ECCS) is inoperable, nonredundant valves in the remaining train should not be cycled if their failure in a non-safe position would cause a loss of total system function. For example, during power operation in some plants, there are stated minimum requirements for systems which allow certain limiting conditions for operation to exist at any one time and, if the system is not restored to meet the requirements within the time period specified in a plant's Technical Specifications (T.S.), the reactor is required to be put in some other mode. Furthermore, prior to initiating repairs, all valves and interlocks in the system that provide a duplicate function are required to be tested to demonstrate operability immediately and periodically thereafter during power operation. For some plants, this situation could be contrary to the NRC guideline as stated in the document mentioned above. It should be noted that a reduction in redundancy is not a basis for a T.S. change nor is it by itself a basis for relief from exercising in accordance with Section XI.

The licensee has agreed to review the plant's T.S. and to consider the need to propose T.S. changes which would have the effect of precluding such testing.

After making this review, if the licensee determines that the T.S. should be changed because the guidelines are applicable, the licensee will submit to the NRC, in conjuction with the proposed T.S. change, the inoperable condition for each system that is affected which demonstrates that the

valve's failure would cause a loss of system function or if the licensee determines that the T.S. should not be changed because the guidelines are not applicable or cannot be followed, the licensee will submit the reasons that led to their determination for each potentially affected section of the T.S.

1.6 Safety-Related Valves

This review was limited to safety-related valves. Safety-related valves are defined as those valves that are needed to mitigate the consequences of an accident and/or to shut down the reactor and to maintain the reactor in a shutdown condition. Valves in this category would typically include certain ASME Code Class 1, 2, and 3 valves and could include some non-code class valves.

It should be noted that the licensee may have included non-safety-related valves in their IST program as a decision on the licensee's part to expand the scope of their program.

1.7 Valve Testing at Cold Shutdowns

Inservice valve testing at cold shutdowns is acceptable when the following conditions are met:

1. It is understood that the licensee is to commence testing as soon as the cold-shutdown condition is achieved but not later than 48 hours after shutdown, and continue until complete or the plant is ready to return to power. Completion of all valve testing is not a prerequisite to return to power.

2. Any testing not completed at one cold shutdown should be performed during any subsequent cold shutdowns that may occur before refueling to meet the code-specified testing frequency.

3. For planned cold shutdowns, where the licensee will complete all the valves identified in his IST program for testing in the cold-shutdown mode, exceptions to the 48 hours may be taken.

1.8 Category A Valve Leak Check Requirements for Containment Isolation Valves (CIVs)

All CIVs shall be classified as Category A valves. The Category A valve-leak rate test requrements of IWV-3420(a-e) have been superseded by Appendix J requirements for CIVs. The NRC has concluded that the applicable leak-test procedures and requirements for CIVs are determined by 10 CFR 50, Appendix J. Relief from Paragraph IWV-3420(a-e) for CIVs presents no safety problem since the intent of IWV-3420(a-e) is met by Appendix J requirements.

The licensee shall comply with IWV-3420 (f and g) until relief is requested from these paragraphs. It should be noted that these paragraphs are only applicable where a Type C, Appendix J leak test is performed.

Based on the considerations discussed above, the NRC concludes that the alternate testing proposed above will give the reasonable assurance of valve operability intended by the Code and that the relief thus granted will not endanger life or property or the common defense and security of the public.

1.9 Application of Appendix J Testing to the IST Program

The Appendix J review for this plant is a completely separate review from the IST program review. However, the determinations made by that review are directly applicable to the IST program. Our review has determined that the current IST program, as submitted by the licensee correctly reflects the NRC's interpretation of Section XI vis-a-vis Appendix J. The licensee has agreed that, should the Appendix J program be amended, they will amend their IST program accordingly.

2. Generic Relief Requests

2.1 Category A, A/C and A/E Valves

2.1.1 Relief Request. Relief is requested from the exercising requirements of Section XI for the following passive valves:

80-40	Containment Spray Header Vent Isolation
80-41	Containment Spray Header Vent Isolation
80-43	Containment Spray Header Vent Isolation
80-44	Containment Spray Header Vent Isolation
80-45	Containment Spray Header Vent Isolation
201-07	Suppression Chamber Air Vent and Purge Iso.
201-08	Suppression Chamber Air Vent and Purge Iso.
201-09	Drywell Vent & Purge Isolation
201-10	Drywell Vent & Purge Isolation
201-16	Suppression Chamber N_2 Vent and Purge Iso.
201-17	Suppression Chamber N_2 Vent and Purge Iso.
201-31	Drywell N_2 Vent and Fill Isolation
201-32	Drywell N_2 Vent and Fill Isolation
201.2-02	Drywell N_2 Vent and Fill Isolation
201.2-03	Drywell N_2 Vent and Fill Isolation

201.2-06 N_2 Make-up and Bleed to Suppression Chamber

201.2-33 N_2 Make-up and Bleed to Suppression Chamber

34-01 Reactor Head Spray Isolation Valve

34-02 Reactor Head Spray Check Valve

58.1-01 Core Spray Torus Makeup Isolation Valve

38-01 RCS to Shutdown Cooling Isolation Valve

38-02 RCS to Shutdown Cooling Isolation Valve

38-12 Shutdown Cooling to RCS Check Valve

38-13 Shutdown Cooling to RCS Isolation Valve

2.1.1.1 Code Requirement. Refer to Appendix A.

2.1.1.2 Licensee's Basis for Requesting Relief. These valves are not required to change position to fulfill their safety functions due to their passive nature.

2.1.1.3 Evaluation. These valves are in their safety-related postion and are not required to open or close to mitigate the consequences of an accident or safely shutdown the plant. Therefore, the operability of these valves is inconsequential with regard to the safety function which they perform. We feel relief should be granted from the exercising requirements of Section XI for these passive valves.

2.1.2 Relief Request. Relief is requested from the stroke timing and trend analysis requirements of Section XI for the following valves:

05-01 Emergency Condenser Vent to Main Steam Iso.

05-02 Emergency Condenser Vent to Main Steam Iso.

05-03 Emergency Condenser Vent to Main Steam Iso.

05-04 Emergency Condenser Vent to Main Steam Iso.

39-11 Emergency Condenser Vent to Main Steam Iso.

39-12 Emergency Condenser Vent to Main Steam Iso.

39-13 Emergency Condenser Vent to Main Steam Iso.

39-14 Emergency Condenser Vent to Main Steam Iso.

68-08 Drywell/Torus Vacuum Relief Iso. Valve

68-09 Drywell/Torus Vacuum Relief Iso. Valve

68-10 Drywell/Torus Vacuum Relief Iso. Valve

201.7-08 Containment Air Monitor Isolation Valve

201.7-09 Containment Air Monitor Isolation Valve

201.7-10 Containment Air Monitor Isolation Valve

201.7-11 Containment Air Monitor Isolation Valve

2.1.2.1 Code Requirement. IWV-3410(c)(2) and (3) states:

(2) The stroke time of all power-operated valves shall be measured to the nearest second or 10% of maximum allowable stroke time, whichever is less, whenever such a valve is full-stroke tested.

(3) If an increase in stroke time of 25% or more from the previous test for valves with stroke times greater than ten seconds or 50% or more for valves with stroke times less than or equal to ten seconds is observed, test frequency shall be increased to once each month until corrective action is taken, at which time the original test frequency shall be resumed. In any case, any abnormality or erratic action shall be reported.

2.1.2.2 Licensee's Basis for Requesting Relief. Trend analysis of fast acting valves is inconclusive of valve operation due to the speed at which these valves operate. As an alternate, corrective action will be taken if the stroke time exceeds 5 seconds.

2.1.2.3 Evaluation. The licensee has demonstrated that stroke timing of rapid-acting, solenoid-controlled, and air-operated valves whose stroke times are less than 5 seconds, would produce no meaningful data since these stroke times are extremely rapid and subject to considerable variation. Therefore, we feel relief should be granted from the stroke timing requirements of Section XI for these valves. We feel the licensee's proposed alternate test of verification of stroke times less than the 5-second maximum will adequately verify proper valve operation.

3. Main Steam System

3.1 Category A Valves

3.1.1 Relief Request. Relief is requested from the exercising requirements of Section XI for valves 01-01, 01-02, 01-03, and 01-04, main steam blocking valves.

3.1.1.1 Code Requirement. Refer to Appendix A.

3.1.1.2 Licensee's Basis for Requesting Relief. Full stroke testing at full power would cause a reactor scram on high pressure and subject the plant to undue thermal cycling stresses. Reduction in power to 40% should limit the adverse effects of testing. During rod swapping and other times when power is reduced to the 40% level, testing shall commence

(not to exceed once per quarter). Full stroke testing and stroke time verification will be performed during each refueling outage.

3.1.1.3 Evaluation. The licensee has demonstrated that full stroke exercising these valves during full power operation would cause a reactor scram and induce thermal cycle stresses on the reactor vessel and related components. Therefore, we feel relief should be granted from the exercising requirements of Section XI for these valves. We feel the licensee's proposed alternate test of partial stroke exercising during power operation (below 40% power) and full stroke exercising and stroke timing during refueling outages will adequatley demonstrate proper valve operability.

3.2 Category B/C Valves

3.2.1 Relief Request. Relief is requested from the exercising requirements of Section XI for valves NR-108A through F, Electromatic relief valves.

3.2.1.1 Code Requirement. Refer to Appendix A.

3.2.1.2 Licensee's Basis for Requesting Relief. Full stroke testing of the electromatic relief valves on a quarterly basis would cause undue thermal stresses on the suppression chamber. As an alternate, these valves will be tested at the beginning of every refueling outage.

3.2.1.3 Evaluation. The licensee has demonstrated that exercising these valves during power operation would cause thermal transients on the suppression chamber. During cold shutdown these valves cannot be exercised since steam must be available to exercise the valves. Therefore, we feel relief should be granted from the exercising requirements of Section XI for these valves. We feel the licensee's proposed alternate test of full stroke exercising these valves on a refueling outage frequency will adequately demonstrate proper valve operability.

4. Liquid Poison System

4.1 Category A/C Valves

4.1.1 Relief Request. Relief is requested from the exercising requirements of Section XI for valves 42.1-02 and 42.1-03, liquid poison to reactor vessel check valves.

4.1.1.1 Code Requirement. Refer to Appendix A.

4.1.1.2 Licensee's Basis for Requesting Relief. These valves do not have an attached position indicating device (local or remote), nor does the system have adequate sensing devices to give secondary indications of the valve position. These valves will be full stroke exercised during refueling outages when the liquid poison system is tested.

4.1.1.3 Evaluation. The licensee has demonstrated that the only method to exercise these valves is via flow into the RCS. During power

operation this would inject borated water into the reactor and cause a reactor shutdown. Additionally, during cold shutdown, injecting this borated water would require operating the explosive valves and injection of the borated water would cause extensive radwaste generation since the boron would have to be flushed from the RCS prior to startup. Therefore, we feel relief should be granted from the exercising requirements of Section XI for these valves. We feel the licensee's proposed alternate test of full stroke exercising these valves during refueling outages will adequately demonstrate proper valve operability.

5. Containment Spray and Raw Water Systems

5.1 Category C Valves

5.1.1 Relief Request. Relief is requested from the exercising requirements of Section XI for the following check valves:

80-17	Containment Spray Header Check Valve
80-18	Containment Spray Header Check Valve
80-37	Containment Spray Header Check Valve
80-38	Containment Spray Header Check Valve
80-19	Containment Spray Header Check Valve
80-65	Containment Spray Header Check Valve
80-66	Containment Spray Header Check Valve
80-67	Containment Spray Header Check Valve
80-68	Containment Spray Header Check Valve
80-39	Containment Spray Header Check Valve

5.1.1.1 Code Requirement Refer to Appendix A.

5.1.1.2 Licensee's Basis for Requesting Relief. These valves do not have an attached position indicating device (local or remote), nor does the system have adequate sensing devices to give secondary indications of the valve position. Testing would require pressurization of the drywell, necessitating shutdown quarterly. During the Appendix J type A test, which is conducted every refueling outage, each valve is stroked to the open position.

5.1.1.3 Evaluation. Exercising these valves with normal system flow would spray the drywell and torus with contaiminated water resulting in damage to lagging, electrical equipment, etc. in the drywell and torus. Therefore, we feel relief should be granted from the exercising requirements of Section XI for these valves. We feel the licensee's proposed alternate test of full stroke exercising these valves during refueling

outages when the Appendix J Type A test is performed will adequately demonstrate proper valve operability.

6. CRD Hydraulics System

6.1 Category B and C Valves

6.1.1 Relief Request. Relief is requested from the exercising requirements of Section XI for the following valves:

CV-126	Low Side Scram Control Valve (129 Valves)
CV-127	High Side Scram Control Valve (129 Valves)
138	Cooling Water Header Check Valve (129 Valves)

6.1.1.1 Code Requirement. Refer to Appendix A.

6.1.1.2 Licensee's Basis for Requesting Relief. Exercising these valves quarterly would:

(1) Increase wear on the control rod drive seals due to isolation of cooling water.

(2) Cause undue termal shock.

(3) Cause fuel damage due to flux peaks.

Following each refueling outage all control rods are scram tested; following each scram from rated pressure, the mean 90% insertion time for at least 8 control rods is determined and after each outage not initiated by a scram, eight rods are scram tested. Results of the above listed test verifies proper operation of these valves.

6.1.1.3 Evaluation. The licensee has demonstrated that frequent exercising of these valves would increase wear on the control rod drive seals and cause thermal shock to rod drive mechanisms and could cause fuel damage due to flux peaks. Therefore, we feel relief should be granted from the exercising requirements of Section XI for these valves. We feel the Technical Specification identified scram testing method and frequency is sufficient to demonstrate proper operability for these valves.

7. Feedwater System

7.1 Category A/C Valves

7.1.1 Relief Request. Relief is requested from the exercising requirements of Section XI for valves 31-01 and 31-02, feedwater to the reactor check valves.

7.1.1.1 Code Requirement. Refer to Appendix A.

7.1.1.2 Licensee's Basis for Requesting Relief. These valves do not have an attached position indicating device (local or remote), nor does the system have adequate sensing devices to give secondary indications of the valve position. The valves shall be integrated leak rate tested every refueling outage.

7.1.1.3 Evaluation. The licensee has demonstrated that exercising these valves closed (their safety related position) during power operation could cause a reactor scram. Additionally, the only practical method to verify valve closure is during a valve leak rate test which is performed each refueling outage. Therefore, we feel relief should be granted from the exercising requirements of Section XI for these valves. We feel the licensee's proposed alternate test of verification of valve closure during the leak test performed during refueling outages will adequately verify proper valve operability.

8. Reactor Water Cleanup System

8.1 Category A/C Valves

8.1.1 Relief Request. Relief is requested from the exercising requirements of Section XI for valve 33-03, reactor water cleanup to the feedwater system check valve.

8.1.1.1 Code Requirement. Refer to Appendix A.

8.1.1.2 Licensee's Basis for Requesting Relief. This valve does not have an attached position indicating device (local or remote) nor does the system have adequate sensing devices to give secondary indication of the valve position. The valve is included in the Appendix J type A leak test which is performed every refueling outage.

8.1.1.3 Evaluation. The only practical method to verify valve closure is during a valve leak rate test which is performed each refueling outage. Therefore, we feel relief should be granted from the exercising requirements of Section XI for this valve. We feel the licensee's proposed alternate test of verification of valve closure during the leak test performed during refueling outages will adequately verify proper valve operability.

9. Drywell and Torus System

9.1 Category A/C Valves

9.1.1 Relief Request. Relief is requested from the exercising requirements of Section XI for the following check valves:

201.2-39 N_2 Purge to TIP System

201.2-40 N_2 Purge to TIP System

201.2-67 H_2-O_2 Sample Return to Containment

201.2-68 H_2-O_2 Sample Return to Containment

201.2-70 H_2-O_2 Sample Return to Torus

201.2-71 H_2-O_2 Sample Return to Torus

9.1.1.1 Code Requirement. Refer to Appendix A.

9.1.1.2 Licensee's Basis for Requesting Relief. These valves do not have attached position indicating devices (local or remote), nor do the systems have adequate sensing devices to give secondary indication of the valve position. Testing would require pressurization of the drywell, quarterly. These valves are included in the Appendix J, type A leak test which is performed every refueling outage.

9.1.1.3 Evaluation. The only practical method to verify valve closure (their safety-related position) is during the valve leak rate tests which are performed each refueling outage. Therefore, we feel relief should be granted from the exercising requirements of Section XI for these valves. We feel the licensee's proposed alternate test of verification of valve closure during the leak tests performed during refueling outages will adequately verify proper valve operability.

10. Emergency Cooling System

10.1 Category C Valves.

10.1.1 Relief Request. Relief is requested from the exercising requirements of Section XI for check valves 39-03 and 39-04, emergency cooling return to RCS check valves.

10.1.1.1 Code Requirement. Refer to Appendix A.

10.1.1.2 Licensee's Basis for Requesting Relief. Full-stroke exercise testing at power or standby conditions would subject the plant to undue termal cycling stress. Also, the valves do not have attached position indicating devices (local or remote). The valves will be full stroked dur- ing the hydrostatic test following each refueling outage.

10.1.1.3 Evaluation. The licensee has shown that exercising these check valves requires establishing flow through the emergency cooling system. During power operation this would induce severe thermal shock to the emergency cooling return to RCS nozzles and other RCS components. During cold shutdown, the thermal driving force does not exist to establish flow through the system. Therefore, we feel relief should be granted from the exercising requirements of Section XI for these valves. We feel the licensee's proposed alternate test of full stroke exercising these valves on a refueling outage frequency will adequately demonstrate proper valve operability.

IV. APPENDIX A

1. Code Requirement--Valves

Subsection IWV-3410(a) of the 1974 Edition of the Section XI ASME Code (which discusses full stroke and partial stroke requirements) requires that Code Category A and B valves be exercised once every three months, with exceptions as defined in IWV-3410(b)(1), (e), and (f). IWV-3520(a) (which discusses full stroke and partial stroke requirements) requires that Code Category C valves be exercised once every three months, with exceptions as defined in IWV-3520(b). In the above cases of exceptions, the Code permits the valves to be tested at cold shutdown where:

1. It is not practical to exercise the valves to the position required to fulfill their function or to the partial position during power operation.

2. It is not practical to observe the operation of the valves (with failsafe actuators) upon loss of actuator power.

Subsection IWV-3410(c) requires all Category A and B power-operated valves to be stroke-time tested to the nearest second or 10% of the maximum allowable owner-specified time.

V. ATTACHMENT I

The following is a list of valves that we feel should be reviewed by the NRC to determine if these valves meet the Appendix J criterion for containment isolation. If any of these valves are determined to be Appendix J valves then they should be included in the IST program and categorized A, A/C or A/E as applicable.

39-03
39-04
81-01
81-02
81-21
81-22
40-05
40-06
40-01
40-02
40-09
40-10
40-11
40-12
80-01
80-02
80-21
80-22
80-15
80-16
80-35
80-36
70-92
70-93
70-94
70-96
301-112
301-113
63.1-02
63.1-01

VI. ATTACHMENT II

The following are Category A, B, and C valves that meet the requirements of the ASME Code, Section XI, and are not full stroke exercised every three months during plant operation. These valves are specifically identified by the owner and are full stroke exercised during cold shutdowns and refueling outages. EG&G has reviewed all valves in this attachment and agrees with the licensee that testing these valves during power operation is not possible, due to the valve type and location, system design, or because this action would place the plant in an unsafe condition. We feel these valves should not be exercied during power operation. These valves are listed below and grouped according to the system in which they are located.

1. Emergency Cooling System

1.1 Category A Valves

39-05 and 39-06, emergency cooling outside containment isolation valves cannot be exercised during power operation since this would thermal shock the Reactor Coolant and emergency cooling systems and could ultimately result in component failures. As an alternate, these valves will be full stroke exercised during cold shutdowns.

VII. ATTACHMENT III

The P&ID's listed below were used during the course of this review.

System	P&ID Number	Revision
Main Steam	18002 Sh. 1	11
Feedwater	18003 Sh. 2	5
Drywell and Torus Isolation	18006 Sh. 1	3
Drywell and Torus Isolation	18006 Sh. 2	2
Reactor Core Spray	18007	11
Reactor Cleanup	18009 Sh. 1	7
Reactor Containment Spray	18012	6
Drywell and Torus Leak Rate and Analyzer	18014 Sh. 2	16
Control Rod Drive	18016	5
Emergency Cooling System	18017	9
Reactor Shutdown Cooling	18018	4
Reactor Liquid Poison	18019	6