



UNITED STATES
 NUCLEAR REGULATORY COMMISSION
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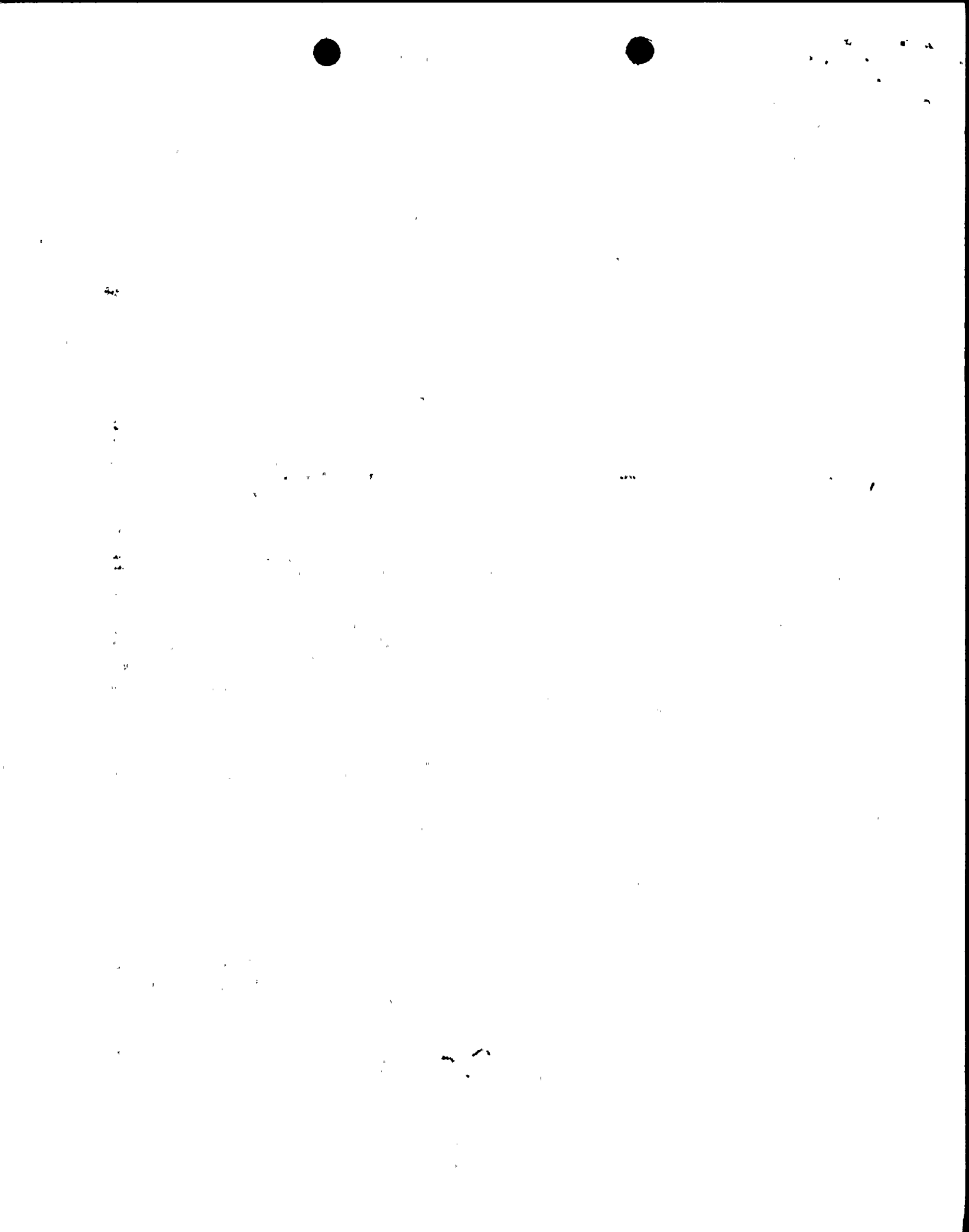
SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
OF THE SECOND 10-YEAR INTERVAL INSERVICE INSPECTION
PROGRAM PLAN AND RELIEF REQUESTS
NIAGARA MOHAWK POWER CORPORATION
NINE MILE POINT NUCLEAR STATION UNIT NO. 1
DOCKET NO. 50-220

1.0 INTRODUCTION

Nine Mile Point Nuclear Station Unit No. 1 (NMP-1) Technical Specification (TS) 4.2.6.a requires that inservice inspection of the American Society of Mechanical Engineers (ASME) Code Class 1, 2, and 3 components be performed in accordance with Section XI of the ASME Boiler and Pressure Vessel Code and applicable Addenda as required by 10 CFR 50.55a(g), except where specific written relief has been granted by the Commission pursuant to 10 CFR 50.55a(g)(6)(i). The Code of Federal Regulations at 10 CFR 50.55a(a)(3) states that alternatives to the requirements of paragraph (g) may be used, when authorized by the NRC, if (i) the proposed alternatives would provide an acceptable level of quality and safety, or (ii) compliance with the specified requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

Pursuant to 10 CFR 50.55a(g)(4), ASME Code Class 1, 2, and 3 components (including supports) shall meet the requirements, except the design and access provisions and the preservice examination requirements, set forth in the ASME Code, Section XI, *Rules for Inservice Inspection of Nuclear Power Plant Components*, to the extent practical within the limitations of design, geometry, and materials of construction of the components. The regulations require that inservice examination of components and system pressure tests conducted during each 10-year interval comply with the requirements in the latest edition and addenda of Section XI of the ASME Code incorporated by reference in 10 CFR 50.55a(b) on the date 12 months prior to the start of the 120-month inspection interval, subject to the limitations and modifications listed therein. The components (including supports) may meet the requirements set forth in subsequent editions and addenda of the ASME Code incorporated by reference in 10 CFR 50.55a(b) subject to the limitations and modifications listed therein.

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Pursuant to 10 CFR 50.55a(g)(5), if the licensee determines that conformance with an examination requirement of Section XI of the ASME Code is not practical for its facility, information shall be submitted to the Commission in support of that determination and a request made for relief from the ASME Code requirement. After evaluation of the determination, pursuant to 10 CFR 50.55a(g)(6)(i), the Commission may grant relief and may impose alternative requirements that are determined to be authorized by law, will not endanger life, property, or the common defense and security, and are otherwise in the public interest, giving due consideration to the burden upon the licensee that could result if the requirements were imposed.

By letter dated March 30, 1992, the licensee, Niagara Mohawk Power Corporation (NMPC) submitted the NMP-1 *Second Ten-Year Interval Inservice Inspection (ISI) Program Plan, Component Support Program Plan, and Pressure Testing Program Plan*, all Revision 0, to meet the requirements of the 1983 Edition through Winter 1983 Addenda of Section XI of the ASME Boiler and Pressure Vessel Code, except that ASME Code Case N-408 has been used to determine the examination requirements for Code Class 2 piping welds as permitted by NRC Regulatory Guide 1.147, *Inservice Inspection Code Case Acceptability, ASME Section XI, Division 1*, Revision 9, April 1992. The Second 10-Year Interval began in June 1986 and ends in December 1998 due to an extended outage from December 1987 to June 1990. The NRC staff, with technical assistance from its contractor, the Idaho National Engineering Laboratory (INEL), has evaluated the NMP-1, *Second Ten-Year Interval Inservice Inspection Program Plan, Component Support Program Plan, and Pressure Testing Program Plan*, all Revision 0, additional information related to the Program Plans, and the requests for relief from certain ASME Code requirements determined to be impractical for NMP-1 during the second inspection interval.

2.0 EVALUATION

The ISI Program Plan has been evaluated for (a) application of the correct Section XI Code edition and addenda, (b) compliance with examination and test requirements of Section XI, (c) acceptability of the examination sample, (d) compliance with prior ISI commitments made by the licensee, (e) correctness of the application of system or component examination exclusion criteria, and (f) adequate information in support of requests for relief from certain Section XI Code requirements deemed impractical by the licensee.

The information provided by the licensee in support of requests for relief has been evaluated and documented in INEL Technical Evaluation Report (TER) EGG-MS-10769 (Enclosure 2). We concur with the findings and recommendations contained in the subject report regarding the granting of the requested reliefs. However, the TER also concluded that the ISI Program Plan was unacceptable and not in compliance with 10 CFR 50.55a(g)(4) because the control rod drive (CRD) hydraulic, high-pressure coolant injection (HPCI), reactor feedwater, condensate pump inlet, and reactor shutdown cooling systems (RSCS) had been reclassified as nonsafety-related without prior NRC review and



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approval. Therefore, the NRC staff initiated a further review of this reclassification issue.

In a letter dated December 3, 1992, the NRC staff requested additional information regarding the rationale for these reclassifications. NMPC provided its rationale in its response dated February 5, 1993. For the original safety classification of systems for NMP-1, the CRD hydraulic and HPCI systems were classified as safety-related because these systems were relied upon to mitigate the consequences of a small break loss-of-coolant accident (LOCA). The HPCI system is a mode of the feedwater system during accident conditions. However, in later analyses, no credit is taken for the CRD or the HPCI systems to mitigate the consequences of a LOCA. Therefore, the portions of the CRD hydraulic and HPCI systems, including the condensate pump inlet, outside the second isolation valve are not required to assure: 1) the integrity of the reactor coolant pressure boundary, 2) the capability to shut down the reactor and maintain it in a safe shutdown condition, or 3) the capability to prevent or mitigate the consequences of an accident which could result in potential offsite exposures in excess of 10 CFR Part 100 guidelines. Thus, the HPCI/feedwater system outside the second isolation valve and the components for the CRD high-pressure injection need not be considered safety-related.

NMPC stated that during normal operation the RSCS is designed to cool reactor water to temperatures and pressures below which the main condenser is capable of cooling, following reactor shutdown. Once the reactor water has been cooled to approximately 350 °F by the main condenser, the RSCS is manually initiated to cool the reactor water to approximately 125 °F and maintain it at this temperature. The RSCS functions as a residual heat removal system to remove decay heat when the reactor is shut down and depressurized. The licensee has determined that the RSCS beyond the containment isolation valve does not perform a safety function and can be designated nonsafety-related. This determination was based, in part, on the following information:

1. The RSCS connects directly to the reactor coolant system (RCS) and is provided with automatic isolation on Lo-Lo reactor water level or a high area temperature. RCS boundary conditions are provided by automatic isolation valves.
2. The RSCS is manually initiated after the temperature is below approximately 350 °F. This implies the plant is already in a safe shutdown condition.
3. No credit is taken for the RSCS in the NMP-1 Updated Final Safety Analysis Report (UFSAR, Section XV).
4. During accident conditions, the emergency condensers, automatic depressurization system (ADS), and core spray are capable of establishing and maintaining safe shutdown automatically without the use of the RSCS.



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The NRC staff requested additional information from the licensee by letter dated September 29, 1993. This request for additional information (RAI) requested an estimate of the change in reliability of the subject systems, any actions that may be taken to assure continued reliability of the subject systems, and an estimate of the change in risk associated with the reclassification of the subject systems. The licensee responded by letter dated November 3, 1993. The licensee reiterated their position with regard to safety significance, but also provided a discussion on the risk aspects of their proposed reclassification of the above mentioned subject systems.

The licensee stated that with regard to system reliability the reclassification and removal of associated ISI requirements does not result in any physical changes to the plant that would affect system reliability or performance. System reliability and the reliability of the active components in the subject systems is assured through various means. The HPCI and CRD pumps are included in the NMP-1 TSs and are demonstrated operable on a quarterly basis. The systems are auto-initiated once per operating cycle demonstrating the operational readiness of the valves that need to be realigned. The RSCS has no TSs but is used during plant shutdown, thereby demonstrating system availability. System reliability is dominated by active component failures, and not passive failures such as line breaks. If a pipe break were to occur in the subject piping, it would be outside containment and isolable. The passive failures are relatively unaffected by ISI requirements and are negligible contributors to system reliability, and the testing required by the TSs assures adequate reliability of the active components. Therefore, plant risk is not significantly affected. The NRC staff agrees with the licensee's assessment of change in system reliability and plant risk with the subject systems reclassification.

3.0 CONCLUSION

Pursuant to 10 CFR 50.55a(g)(6)(i), it has been determined that certain inservice examinations cannot be performed to the extent required by Section XI of the ASME Code. In those cases where the licensee has demonstrated that specific Section XI requirements are impractical, Requests for Relief No. ISI-9, ISI-3(REV 1), ISI-12(REV 2), and ISI-6(REV 1) have been granted. The granting of this relief will not endanger life, 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.

The NRC staff finds the licensee's withdrawal and deletion from the ISI Program Plan of Requests for Relief ISI-1, ISI-2, ISI-4, ISI-5, ISI-7, ISI-8, ISI-10, ISI-11, ISI-13, ISI-14, ISI-15, and ISI-16 acceptable.

The NRC staff has determined that the HPCI, RSCS, and the CRD systems are important to safety and provide a defense-in-depth even though they are not required for accident mitigation for the design bases accidents evaluated in the UFSAR. However, since these systems are not safety-related, their proposed reclassifications are acceptable and these systems need not be



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included in the NMP-1 ISI Program Plan. Although the HPCI and CRD high-pressure injection systems are not required to be included in the NMP-1 ISI Program Plan, the surveillance requirements contained in the TSs provide added safety by adequately assuring that these systems will perform reliably if and when required. The RSCS is also important to safety and because of this, shutdown risk in nuclear plants is currently being reviewed by the NRC staff on a generic basis. This review may conclude with additional requirements for the RSCS at a later date.

The NRC staff concludes that nothing contained in these relief requests will compromise the safety aspects of these systems at this time. As discussed above, the plant risk is not significantly affected and the reclassification of these systems is acceptable.

Based on the review of the NMP-1 *Second Ten-Year Interval Inservice Inspection Program Plan*, *Component Support Program Plan*, and *Pressure Testing Program Plan*, all Revision 0 and dated March 1992, the licensee's response to NRC's RAI, and recommendations for granting relief from the ISI examination requirements that have been determined to be impractical, it is concluded that the NMP-1 *Second Ten-Year Interval Inservice Inspection Program Plan*, Revision 0, is acceptable and in compliance with 10 CFR 50.55a(g)(4).

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