

Mr. D. L. Farrar  
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SUBJECT: REQUEST FOR ADDITIONAL INFORMATION (RAI) ON THE QUAD CITIES STATION, UNITS 1 AND 2, THIRD 10-YEAR INTERVAL INSERVICE INSPECTION PROGRAM PLAN, REVISION 0, AND ASSOCIATED REQUESTS FOR RELIEF(TAC NOS. M85764 AND M85765)

The Nuclear Regulation Commission staff, with assistance from its contractor, Idaho National Engineering Laboratory (INEL), is reviewing and evaluating the third ten-year interval inservice inspection program plan, Revision 0, and the associated requests for relief from the ASME Boiler and Pressure Vessel Code, Section XI requirements for Quad Cities Station, Units 1 and 2. Additional information is required from Commonwealth Edison Company in order for the staff to complete its review. We request that you provide a response within sixty days from the date of this letter to meet the staff's inservice inspection program plan review schedule.

In addition, to expedite the review process, please send a copy of your response to NRC's contractor, INEL, at the following address:

Boyd W. Brown  
EG&G Idaho, Inc.  
INEL Research Center  
2151 North Boulevard  
PO Box 1625  
Idaho Falls, Idaho 83415-2209.

If you have any questions, please contact me.

Original signed by:  
Chandu P. Patel, Project Manager  
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Quad Cities Nuclear Power Station  
Unit Nos. 1 and 2

cc:

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COMMONWEALTH EDISON COMPANY  
QUAD CITIES STATION, UNITS 1 AND 2  
DOCKET NUMBERS 50-254 AND 265  
REQUEST FOR ADDITIONAL INFORMATION - THIRD 10-YEAR INTERVAL INSERVICE  
INSPECTION PROGRAM PLAN

1. Scope/Status of Review

Throughout the service life of a water-cooled nuclear power facility, 10 CFR 50.55a(g)(4) requires that components (including supports) that are classified as American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code) Class 1, Class 2, and Class 3 meet the requirements, except design and access provisions and 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. This section of the regulations also requires that inservice examinations of components and system pressure tests conducted during the successive 120-month inspection interval shall comply with the requirements in the latest edition and addenda of the Code incorporated by reference in 10 CFR 50.55a(b) on the date 12 months prior to the start of a successive 120-month interval, subject to the limitations and modifications listed therein. The components (including supports) may meet requirements set forth in subsequent editions and addenda of the Code that are incorporated by reference in 10 CFR 50.55a(b) subject to the limitations and modifications listed therein. The licensee, Commonwealth Edison Company, has prepared the Quad Cities Station, Units 1 and 2, Third 10-Year Interval Inservice Inspection (ISI) Program Plan to meet the requirements of the 1989 Edition of Section XI of the ASME Code. The selection of the 1989 Edition is a voluntary upgrade from the Code in effect (1986 Edition) 12 months prior to the start of the successive interval.

As required by 10 CFR 50.55a(g)(5), if the licensee determines that certain Code examination requirements are impractical and requests

relief, the licensee shall submit information to the Nuclear Regulatory Commission (NRC) to support that determination.

The staff has reviewed the available information in the Quad Cities Station, Units 1 and 2, Third 10-Year Interval ISI Program Plan, Revision 0, submitted January 7, 1993, and the requests for relief from the ASME Code Section XI requirements that the licensee has determined to be impractical.

2. Additional Information Required

Based on the above review, the staff has concluded that the following information and/or clarification is required to complete the review of the ISI Program Plan:

- A. Boundary diagrams for all ASME Code Class 1, 2, and 3 systems. These diagrams should define the ISI boundaries for all systems in the Quad Cities Station, Units 1 and 2, Third 10-Year Interval ISI Program Plan.
- B. Isometric and/or component drawings showing the Code Class 1 and 2 piping welds, components, and supports that Section XI of the ASME Code requires to be examined during the third 10-year inspection interval.
- C. An itemized listing of the components subject to examination during the third 10-year interval. Also include a list of Code Class 1, 2, and 3 piping and components that have been exempted from examination and the applicable exemption. The requested listing, along with the requested isometric/component drawings, will permit the staff to review the extent to which ISI examinations meet the applicable Code requirements.

- D. A list of the ultrasonic calibration standards being used during the third 10-year interval ISI at Quad Cities Station, Units 1 and 2. The list should include the calibration standard identifications, material specifications, and sizes, with a correlation to the piping and/or components to which the calibration standards apply.
- E. Address the degree of compliance with augmented examinations that have been established by the NRC when added assurance of structural reliability is deemed necessary. Examples of documents that address augmented examinations are:
- (1) Branch Technical Position MEB 3-1, "High Energy Fluid Systems, Protection Against Postulated Piping Failures in Fluid Systems Outside Containment;"
  - (2) Regulatory Guide 1.150, *Ultrasonic Testing of Reactor Vessel Welds During Preservice and Inservice Examinations*;
  - (3) NUREG-0619, *BWR Feedwater Nozzle and CRD Return Line Nozzle Cracking*;
  - (4) NUREG-0803, *Integrity of BWR Scram System Piping*; and
  - (5) Generic Letter 88-01, "NRC Position on IGSCC in BWR Austenitic Stainless Steel Piping" (ref NUREG-0313).

Discuss these and any other augmented examinations that may have been incorporated in the Quad Cities Station, Units 1 and 2, Third 10-Year Interval Inservice Inspection Program Plan.

- F. Paragraph 10 CFR 50.55a(b)(2)(iv) requires that appropriate ASME Code Class 2 piping welds in the Residual Heat Removal (RHR), Emergency Core Cooling (ECC), and Containment Heat Removal (CHR)

systems shall be examined. Portions of these systems should not be completely omitted from inservice volumetric examination based on Section XI selection criteria (piping wall thickness) specified in Table IWC-2500-1. It appears that the licensee has not selected appropriate welds in the subject group for examination. The staff has previously determined that a 7.5% augmented volumetric sample constitutes an acceptable resolution at similar plants. Define the systems or portions of systems that provide RHR, ECC, and CHR functions at Quad Cities Station, Unit 1 and 2, and provide a list of the subject welds that have been excluded from selection based on wall thickness as allowed by Table IWC-2500-1. From this list, identify those welds that will be scheduled for examination that will provide an appropriate sampling of excluded examination areas.

- G. Technical Approach and Position Number CT-01 addresses the licensee's examination of pressure-retaining welds in the reactor vessel. It is noted that the licensee has not addressed augmented reactor vessel examination requirements. Effective September 8, 1992, new regulations were issued regarding augmented examination of reactor vessels. As a result of these regulations, all licensees must augment their reactor vessel examinations by implementing once, as part of the inservice inspection interval in effect on September 8, 1992, the examination requirements for reactor vessel shell welds specified in Item B1.10 of Examination Category B-A of the 1989 Code. In addition, all previously granted relief for Item B1.10, Examination Category B-A, for the interval in effect on September 8, 1992 is revoked by the new regulation. For licensee's with fewer than 40 months remaining in the interval on the effective date, deferral of the augmented examination is permissible with the conditions stated in the regulations. Please provide the staff with the projected schedule and a technical discussion describing how the regulation will be implemented for these welds at Quad Cities Station during the third interval. Include in the discussion a

description of the intended approach and any specialized techniques or equipment that will be used to complete the required augmented examination.

- H. Technical Approach and Position Number CT-02 addresses the preparation of inservice inspection summary reports. It is noted that the licensee's position on the submittal of NIS-2 forms is that they will be submitted to document repairs/replacements resulting from inservice activities only. All Code Class 1, 2, and 3 components and supports are subject to inservice inspection; however, not all are scheduled. Some repairs and replacements are performed during a refueling outage as a result of ISI activities. However, other plant activities may result in repairs or replacements of Code Class 1, 2, and 3 components not scheduled for examination during an outage or between refueling outages. Per IWA-6220(c), all repairs and replacements of Code Class 1, 2, and 3 components and supports, performed since the preceding summary report, shall be reported in the subsequent the inservice inspection report. The licensee should clarify whether Technical Approach Number CT-02 is a deviation from Code requirements and if the licensee is requesting relief from the Code-required submittal of NIS-2 forms.
  
- I. The licensee has submitted requests for relief from Code requirements under 10 CFR 50.55a(g)(5). In order for a request for relief to be granted, the licensee must:
  - (1) Describe the impracticality of the Code-required examination or test;



- (2) Explain for each relief how adequate assurance of system integrity will be provided or maintained where compliance with Code requirements is not met; and
- (3) Explain how the proposed alternative will provide an acceptable level of quality and safety.

For all of the requests for relief submitted, the licensee should provide the above information. This information should clearly support a conclusion that such relief will not result in a reduction of integrity and safety of the components/systems.

- J. Request for Relief No. CR-09 requests the use of Technical Specifications for testing and visual examination of Code class snubbers. The licensee proposes the use of OMa-1988, Part 4, in lieu of the requirements of Section XI. Section XI specifies that a VT-3 visual examination by certified personnel be performed on component supports. The visual examination requirements of OMa-1988, 1.5.2, state that personnel who are required to witness, perform, and/or evaluate the examination and testing program shall be qualified in accordance with the Owner's administrative procedures. Discuss how the implementation of requirements of OMa-1988, Part 4, will provide an equivalent level of quality and safety and why the visual examination and reporting requirements of Section XI are impractical.
- K. Request for Relief No. CR-12 addresses reactor vessel closure stud examination requirements. The licensee has provided discussion on an enhanced ultrasonic examination technique for the reactor closure studs. It appears that the enhanced technique is being used in lieu of removal of additional studs when surface examinations of removed studs reveals flaws that exceed acceptance standards. It should be noted that the applicable requirement for volumetric examination of



studs is in Appendix VI of the 1989 Edition. This Appendix requires that the volumetric technique and personnel be qualified for examination of studs. Address compliance with Appendix VI and provide assurance that the enhanced volumetric technique provides an equivalent sensitivity to that of the Code-required surface examination for justification of the proposed in-place examination of additional studs.

- L. Request for Relief No. PR-04 addresses alternative testing for the residual heat removal heat exchanger tubes. The licensee's proposed alternative is to monitor radiation levels across the pressure boundary during shell-side pressure tests. Other utilities have proposed performing eddy current testing of the heat exchanger tubing and a VT-2 visual examination when the channel head cover is removed for maintenance activities. Discuss how the licensee's proposed alternative provides an acceptable level of quality and safety when the proposed alternative is essentially based on the loss of system integrity.
  
- M. Request for Relief No. PR-06 addresses alternative testing for the high pressure coolant injection (HPCI) turbine and connected steam inlet and discharge piping. The licensee states that the 4-hour hold time is impractical as the Technical Specifications for Torus level and temperature limits are reached in 45 minutes to 1 hour. As an alternative, the licensee proposes to perform a functional test that requires a hold time of 10 minutes. The purpose of the 4-hour hold time for insulated systems is to allow potential leakage sufficient time to migrate through the insulation. Discuss the duration of operation this system is designed for under emergency conditions. Discuss how the same level of confidence is achieved (i.e. reasonable assurance of structural integrity) with the proposed reduced hold time.

- N. Request for Relief No. PR-08 addresses an alternative to the system leakage test. A system leakage test is required following each refueling outage prior to plant startup. The Code does not require that this test be performed in conjunction with plant startup. It appears that the licensee is requesting relief, the result of having limited itself to performing the system leak test during plant startup. Provide justification for the impracticality of alternative scheduling to alleviate problems associated with the system leak test. It should be noted that a similar request for relief was submitted by the licensee for another plant and subsequently withdrawn.
- O. Verify that there are no relief requests in addition to those submitted. If additional relief requests are required, the licensee should submit them for staff review.

The schedule for timely completion of this review requires that the licensee provide, by the requested date, the above requested information and/or clarification with regard to the Quad Cities Station, Units 1 and 2, Third 10-Year Interval Inservice Inspection (ISI) Program Plan.