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DENTON,H. Office of Nuclear Reactor Regulation, Director

SUBJECT: Submits revised schedule for testing requirements of 10CFR50,App J mods & requests relief from certain App J requirements,Summary status of 10CFR50,App J issues & relief requests encl.

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Iowa Electric Light and Power Company

December 7, 1984
NG-84-5036

Mr. Harold Denton, Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Subject: Duane Arnold Energy Center
Docket No. 50-331
Operating License No. DPR-49
Revised Schedule for 10 CFR Part 50, Appendix J
Modifications and Requests for Relief

References:
1) Letter, R. W. McGaughy (Iowa Electric) to H. R. Denton (NRC), March 16, 1984 (NG-84-0668), RTS-112B
2) Safety Evaluation Report, D. Eisenhut (NRC) to L. Liu (Iowa Electric), January 17, 1984
3) Letter, R. W. McGaughy (Iowa Electric) to H. R. Denton (NRC), August 24, 1984 (NG-84-3601)
4) Letter, M. Thadani (NRC) to L. Liu (Iowa Electric), August 24, 1984
5) Letter, R. W. McGaughy (Iowa Electric) to H. R. Denton (NRC), October 29, 1984 (NG-84-4469)

File: A-286

Dear Mr. Denton:

The purpose of this letter is to inform you of the revised status of modifications required to conform to the testing requirements of 10 CFR Part 50, Appendix J and to request relief from certain portions of Appendix J. This letter is being submitted at the request of our NRC Project Manager so that all issues pertaining to the subject matter are addressed in a single document.

In our letter dated March 16, 1984 (Reference 1), we requested revision to the Technical Specifications (TS) for the Duane Arnold Energy Center (DAEC). The TS revisions were required to incorporate the findings of the NRC staff's Safety Evaluation Report (SER) (Reference 2). During the review of Reference 2, it was determined that several plant modifications were needed to fully implement the TS changes required by the NRC staff.

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In our letter of August 24, 1984 (Reference 3), it was noted that we had previously discussed the scope of the modifications with our NRC Project Manager in a March 15, 1984, telephone call and had agreed to provide, by September 15, 1984, a schedule for their completion. (Please note that our August 24 letter fulfilled our September 15 commitment.)

In Reference 3, we stated that three (3) modifications were needed to comply with the testing requirements of 10 CFR Part 50, Appendix J and that the modifications would be completed during the Cycle 8/9 refueling outage. The scope and schedule of these modifications were determined as a result of an ongoing Appendix J engineering evaluation.

Following our submittal of Reference 3, our NRC Project Manager requested that we expedite the completion of the modifications prior to the Cycle 8/9 refueling outage. Because our engineering evaluation was still in progress, we later determined that instead of three (3) modifications being needed, only two (2) were required to conform to the testing requirements of Appendix J (our engineering evaluation concluded that modification of the Main Steam Line Drain (Penetration No. X-8, Valve MO-4423) was not needed). In addition, it was found that the modifications needed for the Torus Drain Lines (Penetration No. N-213A/B, expansion bellows) and the RCIC and HPCI Steam Supply (Penetration No. X-10 and X-11, Valves CV-2410 and CV-2211) could be implemented during the upcoming Cycle 7/8 refueling outage instead of the Cycle 8/9 refueling outage.

On the same date that Iowa Electric transmitted Reference 3 to the NRC, we received Amendment No. 106 (Reference 4) to the Facility Operating License for the DAEC. Amendment No. 106 incorporated those changes that were requested via Reference 1. The transmittal letter of Reference 4 noted that implementation of other requested changes (Type B testing of containment penetrations N-213 A and B, and Type C testing of containment isolation valves MO-4423, CV-2410, MO-2400, MO-2238, CV-2211, MO-2000, MO-1902, MO-1933 and MO-2006) required completion of plant modifications scheduled in the future and that those changes would be considered in a future action when the required plant modification schedules were established. We agree with the NRC philosophy that Amendment No. 106 should have incorporated those TS changes which could be immediately implemented. However, the other changes which required modification to conform to 10 CFR Part 50, Appendix J, were still undergoing an engineering evaluation to determine if modifications were necessary. Thus, until Iowa Electric had concluded its engineering evaluation, we could not identify, with a high degree of confidence, those plant systems which required modifications to comply with the testing requirements of 10 CFR Part 50, Appendix J.

It is our understanding that Amendment No. 106 was issued based on a July 24, 1984, telephone conversation with our NRC Project Manager. During the telephone conversation, we informed our NRC Project Manager of the status of our Appendix J compliance effort with the best information available at the time. As discussed above, we were unaware that the modifications described in Reference 3 could be reduced from three to two and that we could expedite the modification schedules pursuant to our NRC Project Manager's request. We hope the revised modifications and schedules have not inconvenienced the Staff.

Iowa Electric has concluded its engineering evaluation and is providing, in Attachment 1, the latest status of our Appendix J effort.

Furthermore, as a result of our engineering evaluation, we have also concluded that two additional requests for relief are needed. These requests are presented in Attachments 2 and 3.

Because an application fee of $150 was submitted with our October 29, 1984, letter (Reference 5), additional application fees are not being submitted with this letter.

We appreciate the opportunity to discuss the status and background of Iowa Electric's efforts to comply with the testing provisions of 10 CFR Part 50, Appendix J.

Should you require any additional assistance, please feel free to contact my staff.

Very truly yours,

Richard W McGaughy

Richard W. McGaughy
Manager, Nuclear Generation

RWM/MG/ta*
Attachments: 1) Summary Status of 10 CFR Part 50, Appendix J Issues
2) Request for Exemption from Type C Testing Requirements
3) Request for Exemption from Type B Testing Requirements

cc: M. Grim
L. Liu
S. Tuthill
S. Swails
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Commitment Control No. 84-0110

IOWA ELECTRIC LIGHT AND POWER COMPANY
DUANE ARNOLD ENERGY CENTER
DOCKET NO: 50-331
OPERATING LICENSE NO: DPR-49

SUMMARY STATUS OF 10 CFR PART 50, APPENDIX J ISSUES

I. The following items require modification to conform to the testing requirements of 10 CFR Part 50, Appendix J. This attachment supersedes the information contained in Reference 3.

A) Torus Drain Lines

1) Modifications to the expansion bellows on Penetrations N-213 A and B are required to permit testing in accordance with 10 CFR Part 50, Appendix J.

Schedule: The modification to the expansion bellows will be completed by the Cycle 7/8 refueling outage.

Reference: Letter, R. W. McGaughy (Iowa Electric) to H. R. Denton (NRC) dated August 24, 1984 (NG-84-3601)

B) RCIC and HPCI Steam Supply

1) Modifications to the test connections to permit leaktesting of valves CV-2410 and CV-2211 (Penetrations X-10 and X-11) in the correct direction are required to meet the requirements of 10 CFR Part 50, Appendix J.

Schedule: The modifications to relocate the test connections will be completed by the Cycle 7/8 refueling outage.

Reference: Letter, R. W. McGaughy (Iowa Electric) to H. R. Denton (NRC) dated August 24, 1984 (NG-84-3601)

II. The following valves can be leak tested in accordance with 10 CFR Part 50, Appendix J. The DAEC Technical Specifications will be revised accordingly:

MO-4423
MO-2238
MO-2400

III. Relief is requested from the testing requirements of 10 CFR Part 50, Appendix J for the following areas:

1) Torus and Containment Spray Isolation Valves MOV-1902, 1933, 2000 and 2006 (Penetrations X-39 A/B and N-211 A/B).

Justification for the relief request is provided in Attachment 2.

2) Torus Drain Line Piping Flanges (Penetrations N-213 A and B).

Justification for the relief request is provided in Attachment 3.

IOWA ELECTRIC LIGHT AND POWER COMPANY
DUANE ARNOLD ENERGY CENTER
DOCKET NO: 50-331
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REQUEST FOR EXEMPTION FROM TYPE C TESTING REQUIREMENTS

Introduction

Pursuant to 10 CFR 50.55a(g)(5)(iv) and 10 CFR 50.12, Iowa Electric Light and Power Company requests exemption from the requirements of 10 CFR Part 50, Appendix J, Paragraph III.C (Type C Testing Requirements) for the Duane Arnold Energy Center (DAEC) Containment Spray Isolation Valves MOV-1902, 1933, 2000 and 2006.

It has been determined that the Type C testing requirement is not practicable with the existing DAEC piping arrangement; therefore, exemption is requested from the Type C testing requirement with proposed alternate testing methods to determine the leakage rates for the valves. This relief request supersedes a similar request proffered in our letter dated October 29, 1984 (Reference 5).

The following information provides the background and justification pertinent to our request for relief from the requirements for Type C testing of the Torus/Containment Spray isolation valves.

Background

In letters dated October 13, 1975 (L. Liu (Iowa Electric) to K. Goller (NRC), IE-75-1103) and August 29, 1978 (L. Liu (Iowa Electric) to H. Denton (NRC), IE-78-1269), Iowa Electric Light and Power Company requested exemption from Type C testing requirements for penetrations X-39A/B and N-211A/B (Torus and Containment Spray Lines).

In a Safety Evaluation Report (SER) dated December 29, 1976, the NRC staff provided their disposition of the October 13, 1975, letter. The NRC staff stated,

> "IELPCo (Iowa Electric) maintains that several lines do not include containment isolation valves corresponding to the definition of valves requiring Type C tests in Appendix J because these valves do not receive containment isolation signals, are required to remain open for the duration of the accident, or would remain pressurized for the duration of the accident. The lines containing these valves are the RHR suppression pool suction, the core spray suction, the suppression pool suction for RCIC and HPCI, the LPCI injection, the suppression pool spray, the RHR test line, the vessel head spray, and the containment spray.

> In conclusion, the NRC staff stated, "We find that the licensee's proposed exemption from the requirements of Section II.H of Appendix J for the above cited valves is acceptable, provided that the licensee shows that these valves will continue to function even if a single active failure were to occur." (emphasis added)

By letter dated August 29, 1978, Iowa Electric responded to the Staff's request for additional information. In our response, we noted, "the containment isolation function is single active failure protected..."

The above noted Iowa Electric exemption request and clarification, and the Staff's subsequent disposition, are further embodied in the attachment to the Staff's SER dated January 17, 1984. The Staff's prime contractor for the review of the exemption request, Franklin Research Center (FRC), stated that the inboard isolation valves for both the containment spray and suppression pool (torus) are located outside containment (e.g., valves MOV 1902, 2000, 1933 and 2006) and that, "if any of these valves leak through the packing or body-to-bonnet seals, the leakage of containment air reaches the outside atmosphere. Consequently, Appendix J requires that these valves be tested. However, since the packing and body-to-bonnet seals are the only potential sources of leakage, the testing may be limited to these particular areas" (emphasis added).

The NRC staff, in their January 17, 1984, SER, agreed with FRC by stating,

> "for penetration X-39B (sic), the inboard isolation valves should be tested in the direction of accident pressure or by pressurizing between the inboard and outboard isolation valves in order to test the valve packing and body-to-bonnet seals of the inboard valve. For penetration (sic) N-211A & B, the inboard isolation valves should be tested in the direction of accident pressure or by pressurizing between the inboard and outboard valves provided that this testing will expose the packing and body-to-bonnet seal areas of the inboard valves to the test pressure."

Basis for Relief from Type C Testing Requirements

With regard to the foregoing background information and NRC guidance, Iowa Electric requests exemption from the requirements of Type C testing (as interpreted by the Staff) for valves MOV-1902, 1933, 2000 and 2006. In lieu of the Type C testing, we propose the following testing alternative.

1) During Type A testing, the subject valves will be placed in the open position, thereby exposing the gaskets and packing to the containment test pressure. While maintaining containment test pressure, leakage from the valve gaskets and stem packings will be locally identified by non-obtrusive leak detection techniques. Should excessive leakage be detected, corrective actions will be initiated, as appropriate, to eliminate any unacceptable leakage.

2) The subject valves will be leak tested by pressurizing between the inboard and outboard valves. Although there is no conclusive evidence that the packing and gaskets are pressurized during this test, it will provide an indication of the general condition of the valves.

Conclusion

Iowa Electric believes the proposed alternate testing of the subject valves is acceptable and relief from Type C testing requirements should be granted because:

- The area of potential leakage and concern, as noted by FRC, is in the packing and body-to-bonnet seals. The proposed alternate testing will be effective in identifying leakage from the packing and seals; and,

- All four valves will be leak tested by pressurizing between the inboard and outboard valves. Pressurizing between the valves follows the Staff's guidance contained in the January 17, 1984, SER.

IOWA ELECTRIC LIGHT AND POWER COMPANY
DUANE ARNOLD ENERGY CENTER
DOCKET NO: 50-331
OPERATING LICENSE NO: DPR-49

REQUEST FOR EXEMPTION FROM TYPE B TESTING REQUIREMENTS

Introduction

In accordance with 10 CFR 50.12 and 10 CFR 50.55a(g)(5)(iii), Iowa Electric Light and Power Company requests exemption from the Type B testing requirements of 10 CFR Part 50, Appendix J, Paragraph II.G. Specifically, Iowa Electric requests relief from testing requirements for flanges connecting the torus and torus drain line piping (penetrations N-213A and B).

The following information provides justification for this exemption and describes alternative testing methodology. Iowa Electric believes this exemption is in the best interest of the public health and safety as modification of the flanges, to permit Type B testing, would downgrade the integrity of the containment system.

Paragraph II.G of 10 CFR Part 50, Appendix J describes Type B tests as, "...tests intended to detect local leaks and to measure leakage across each pressure-containing or leakage-limiting boundary for the following primary reactor containment penetrations:

1. Containment penetrations whose design incorporates resilient seals, gaskets, or sealant componds (sic), piping penetrations fitted with expansion bellows, and electrical penetrations fitted with flexible metal seal assemblies."

The Duane Arnold Energy Center (DAEC) torus drain line is connected to the torus at two locations with 150 pound ASA class flanges sealed with spiral-wound gaskets. These connections afford no mechanism for conducting conventional Type B testing, e.g., pressurizing between two concentric gaskets.

Performance of Type B testing on the flanges and gaskets would require their replacement. Iowa Electric believes modification or replacement of the flanges would downgrade the integrity of the containment system.

Basis for Relief from Type B Testing Requirements

As noted above, the torus drain connections afford no mechanism for performing conventional Type B testing. Flanges with spiral-wound gaskets are used throughout the power industry and have proven to be highly reliable. Due to the mild service conditions to which these gaskets are subjected, and because of their design specification, significant gasket degradation during the life of the plant is highly unlikely. To perform Type B testing pursuant to Paragraph II.G.1 of 10 CFR Part 50, Appendix J would require replacing the existing flanges and spiral-wound gaskets, composed of inorganic material such as asbestos and stainless steel, with new flanges whose design accommodates two

concentric O-ring gaskets composed of organic material. Iowa Electric believes such a modification, to permit Type B testing, would introduce an inferior gasket material subject to aging, deterioration and leakage. Thus, modifying the present connection would decrease the reliability and integrity of the containment system.

Relief from the Type B testing requirements of Paragraph II.G.1 of 10 CFR Part 50, Appendix J should be granted for the following reasons:

1) The gasket and flange assemblies are tested during performance of the DAEC Integrated Leakrate Test (ILRT) which is conducted at approximately one-half the frequency of the Local Leakrate Test (Type B). Pressurizing the torus during the ILRT places full accident pressure across the gaskets. Any leaks would be identified and corrected.

2) A constant internal pressure of approximately 5 psi is applied to the flanges and gaskets by the water head in the torus. Any gross leakage of the gaskets would be identified during routine plant inspection tours. (The existing type of gasket utilized at the DAEC is not known to be susceptible to gross, catastrophic failure).

3) These flanges are rarely disassembled either for maintenance or access; therefore, damage or errors during flange assembly do not increase the probability of these connections leaking.

4) The torus water provides a water seal for the submerged torus drain line. If the existing flanges should leak, the leakage rate would not be sufficient to expose the connection to the containment atmosphere within thirty (30) days, at a pressure of L_a, following a postulated accident.

Conclusion

Based on the foregoing information, relief should be granted from the Type B testing requirements of Paragraph II.G.1 of 10 CFR Part 50, Appendix J for these flanges since it would be in the best interest with regard to protection of the public health and safety.