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DENTON,H.R. Office of Nuclear Reactor Regulation, Director

SUBJECT: Forwards 820101 submittals & implementation info required by NUREG-0737.

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TITLE: Response to NUREG -0737/NUREG-0660 TMI Action Plan Rqmts (OL's)

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Iowa Electric Light and Power Company
December 23, 1981
LDR-81-348

LARRY D. ROOT
ASSISTANT VICE PRESIDENT
OF NUCLEAR DIVISION

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

Dear Mr. Denton:

The enclosure to this letter contains the January 1, 1982 submittals and implementation information required by NUREG-0737. Attachment 1 presents our responses to NRC positions and our references. The remaining attachments contain the support information.

One signed and 39 copies of this letter and enclosure are transmitted herewith.

Very truly yours,

Larry D. Root

Larry D. Root
Assistant Vice President
Nuclear Generation

LDR/YB/dmh*
Attachments

cc: Y.Balas
NRC Resident Office
K. Eccleston (NRC)

A046 S1/1

NUREG-0737 ITEMS REQUIRING RESPONSE BY JANUARY 1, 1982

II.B.2 Plant Shielding

Iowa Electric Light and Power Company completed a conservative analysis and evaluation of plant shielding, and determined that no further modifications are needed for compliance with NUREG-0737 requirements. However, a rigorous confirmatory analysis is being conducted for further evaluation of certain areas of the plant. Final determination will be made when this study is concluded.

II.B.3 Post Accident Sampling

Iowa Electric Light & Power Company is currently proceeding with various stages of construction for the implementation of this item. While the majority of the package will be installed by 1/1/82, some component delivery dates have been delayed, and this will force a delay in the final implementation date. It is our intent to have the Post Accident Sampling System fully operational by 4/1/82. Existing procedures and practices will continue until the system is fully implemented.

II.F.1 Accident Monitoring

Iowa Electric Light & Power Company is currently proceeding with various stages of construction for the implementation of this item. Due to late delivery of equipment, installation will not be complete until late December 1981. Therefore, full implementation which includes training and procedures will not be complete until 5/1/82.

Existing procedures and practices will remain in full compliance until the system is fully implemented.

II.K.3.22 RCIC Suction

Iowa Electric Light & Power Company has completed the modifications required for this item. Attachment 2 provides the required documentation for the modified system.

II.K.3.24 Space Cooling

Iowa Electric Light & Power Company is in compliance with this item as discussed in attachment 3. This completes our efforts for this item.

II.K.3.25 Effect of Loss of Alternating-Current Power on Pump Seals

Iowa Electric Light & Power Company has addressed this item in Reference 1. A supplement to the evaluation has been transmitted subsequently by Reference 2. This completes our action on this item.

II.K.3.28 Qualification of ADS Accumulators

An evaluation conducted by Iowa Electric Light & Power Company is given in attachment 4. It was determined that no modifications are required for this item. A more detailed confirmatory study is underway by General Electric. Upon completion of this study we will re-evaluate our position as necessary.

II.K.3.30 SB LOCA Methods

Iowa Electric Light & Power Company concurs with General Electric's position on this item as given in Reference 3. This concludes our efforts on this item, as well as item II.K.3.31 compliance with 10CFR 50.46.

References

1. Larry D. Root to Harold Denton, letter dated July 1, 1981, LDR-81-223.

2 T. J. Dente to Darrel G. Eisenhut, letter dated September 21, 1981, BWROG-8157,"Supplement to BWR Owners' Group evaluation of NUREG-0737 requirement II.K.3.25."

3. R. H. Buchholz to D. G. Eisenhut, letter dated June 26, 1981, MFN-132-81, "NUREG-0737 II.K.3.30 Final Program Results."

4. D. B. Waters to D. G. Eisenhut, letter dated January 23, 1981, BWROG-8114.

Attachment 2

II.K.3.22 RCIC Suction Auto-Switchover Modification - Performance Evaluation

Prior to modification, the RCIC suction switchover from the condensate storage tank (CST) to the suppression pool (SP) required manual operator action. The switchover sequence began with control room annunciation of CST low water level provided by level switches LS-5218 and/or LS-5219. The operator was then required to (1) recognize the CST low level annunciation, (2) judge that RCIC suction switchover was called for, and (3) manually move the SP suction valve control switch from the "normal" to the "open" position. This opened the suppression pool suction valves (MO-2516 and MO-2517) and engaged a switchover interlock control which closed the CST suction valve (MO-2500) after the suppression pool suction valves had fully opened. Moving the switch to the "open" position generated the switchover initiate signal.

The DAEC RCIC suction auto-switchover modification changed only the sequence of events required to generate the switchover initiate signal. Other RCIC controls, including the switchover interlock, remain unchanged. The modification bypasses the SP suction valve control switch with the signal from the CST level switches (LS-5218 and/or LS-5219). As a result the signal which formerly provided only the CST low level annunciation for RCIC switchover, now provides the switchover initiate signal.

Based on the scope of the DAEC RCIC suction auto-switchover modification, only the sequence of events leading to the presence of an RCIC switchover initiate signal need by considered in the performance evaluation.

The presence of a RCIC suction switchover initiate signal is dependent upon two factors; the reliability of CST low level detection, and the reliability that a switchover initiate signal will result from CST low level detection.

CST low level detection (via LS-5218 and/or LS-5219) remains unchanged with the auto-switchover modification. Consequently, the reliability of CST low level detection is unchanged.

The auto-switchover modification eliminates the need for the operator actions previously discussed. The RCIC control logic now receives the switchover initiate signal via the circuitry which generates the high pressure coolant injection (HPCI) system auto-switchover initiate signal. Although the HPCI control circuits are Division II and the RCIC control circuits are Division I, the design is acceptable based on GE Design Specification (relay E41A-K17 is used as the Division II-I isolation device). As a result of the modification, the reliability that a RCIC switchover initiate signal will result from CST low level detection can be equated to that of the HPCI system. The changing from reliance on manual operator action to the logic circuitry of the HPCI system will not lessen the reliability of the RCIC system.

Therefore, it is concluded, based on the above analysis, that the reliability of the RCIC system has not been degraded.

Attachment 3

II.K.3.24 Space Cooling

For the Duane Arnold Energy Center (DAEC), all AC power support systems which are necessary for operation of the high pressure coolant injection (HCPI) and reactor core isolation cooling (RCIC) systems are supplied with onsite emergency power from the diesel generators. Therefore, the HPCI and RCIC systems at the DAEC are capable of operating for two hours with the loss of offsite AC power. Pursuant to Reference 4, only loss of offsite alternating-current (AC) power was assumed for this review.

Attachment 4

Results of Evaluation of Automatic Depressurization System (ADS) Nitrogen Accumulators for the Duane Arnold Energy Center NUREG 0737, Item II.K.3.28

At the Duane Arnold Energy Center (DAEC), each of the four automatic depressurization system (ADS) safety relief valves (SRV) is equipped with a dedicated Seismic Category I nitrogen accumulator. An analysis was performed to evaluate the post-accident capabilities of the accumulators per the requirements of NUREG 0737, Item II.K.3.28. The adequacy of the accumulators is based on satisfying the following two criteria:

1. Short-Term ADS Design Criteria: cycle the ADS valves five times at drywell design pressure.

2. Long-Term ADS Design Criteria: cycle the ADS valves five times at 100 days following a design basis LOCA.

The analysis was based on the following:

Equipment Data

Volume of each N_2 Accumulator: 200 gallons

Minimum Pressure Required to Actuate ADS Valves: 25 psid (Note 1)

Volume of N_2 Required to Actuate ADS Valves: 15 in^3 @84.7 psia

Initial Conditions

Accumulator Pressure (T=0): 104.7 psia

Drywell Pressure (T=0): 76.7 psia (Note 2)

Drywell Pressure (T=100 days): 20 psia (Note 3)

N_2 Leak Rate: 20 scc/min (Note 4)

Short-Term ADS Design Criteria

The results of the analysis demonstrate that the ADS accumulators are provided with sufficient capacity to cycle the ADS valves five times at the DAEC containment design pressure. No system leakage is assumed when evaluating this criteria because the peak drywell pressure occurs at a short time following a design basis LOCA.

Long-Term ADS Design Criteria

The results of the analysis demonstrate that following 100 days of system leakage as stated above, the pressure in the ADS accumulators will be approximately 48 psia. Based on the postulated drywell pressure (T=100 days, above) the ADS accumulators are provided sufficient capacity to cycle the ADS valves five times, 100 days after a postulated accident.

Notes:

1. Accumulator pressure minus drywell pressure.
2. DAEC containment design pressure (62 psig).
3. From DAEC Final Safety Analysis Report, Figure 14.6-6, curve d. The drywell pressure is conservatively assumed to be constant beginning approximately 11 days post accident.
4. Assumed to be constant. The conservative nature of this leak rate has been verified by the DAEC 1981 Reactor Containment Local Leak Rate test results. The ADS accumulator check valve leak testing is performed per Iowa Electric Light and Power Company's commitment to the NRC in response to IE Bulletin 80-1.