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AUTH.NAME AUTHOR AFFILIATION
MCGAUGHY,R.W. Iowa Electric Light & Power Co.
RECIP.NAME RECIPIENT AFFILIATION
DENTON,H.R. Office of Nuclear Reactor Regulation, Director

SUBJECT: Application for amend to License DPR-49,revising Tech Specs re operating limits of new bundle types,LOCA design basis, MAPLHGR & min critical power ratio for Cycle 8 reload.
SEE SUBJECT FILES FOR NEDO-21082-03/23A1739
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Iowa Electric Light and Power Company
August 17, 1984
NG-84-3525

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

Subject: Duane Arnold Energy Center
Docket No: 50-331
Op. License No: DPR-49
Reload Licensing Submittal for the Duane Arnold Energy Center, Cycle 8

Dear Mr. Denton:

Transmitted herewith, in accordance with the requirements of 10 CFR 50.59 and 10 CFR 50.90, is an application for amendment to Appendix A (Technical Specifications) to Operating License DPR-49 for the Duane Arnold Energy Center.

The enclosed amendment request, RTS-164, has been reviewed by the Duane Arnold Energy Center Operations Committee and the Safety Committee. Per the revised fee schedule for license amendments (10 CFR 170), a check for $150 is enclosed. The balance of the application fee will be paid upon billing.

Three signed and 37 additional copies of this application are transmitted herewith. Pursuant to the requirements of 10 CFR 50.91, a copy of this application and analysis of no significant hazards considerations is being sent to our appointed state official. This application, consisting of the foregoing letter and enclosures, is true and accurate to the best of my knowledge and belief.

IOWA ELECTRIC LIGHT AND POWER COMPANY

BY R W McDaugh
Richard W. McGaughy
Manager, Nuclear Division

Subscribed and sworn to Before Me on this 17th day of August 1984.

Kathleen M. Furman
Notary Public in and for the State of Iowa

RWM/RAB/rh*
Attachments:
1) Proposed Change RTS-164
2) Evaluation of Change per 10CFR50.92
3) NEDO-21082-03: LOCA Accident Anslysis Report for DAEC (Lead Plant), June 1984
4) 23A1739: Supplemental Reload Licensing Submittal for DAEC Unit 1, Reload 7, June 1984
5) Technical Specification Affected Pages

cc: R. Browning
L. Liu
S. Tuthill
M. Thadani
NRC Resident Office
T. Houvenagle

w/check $150.00 #41960
A001
3/1

EVALUATION OF CHANGE WITH RESPECT TO 10 CFR 50.92

In accordance with the requirements of 10 CFR 50.92, the enclosed application is judged to involve no significant hazards based upon the following information:

(1) Does the proposed license amendment involve a significant increase in the probability or consequences of an accident previously evaluated?

(a) LOCA Analysis (MAPLHGR curves)

No, this change principally affects Sections 3.1.2.4.6, 6.3.3, and 15.6.6 of the Updated Final Safety Analysis Report (UFSAR). These sections deal with the Loss-of-Coolant Accident (LOCA) analysis and specify the performance limits on the fuel for the design basis event. The UFSAR limits are consistent with those specified in 10 CFR 50.46.

General Electric (GE) has re-evaluated the design basis event for the new bundle types being used in Cycle 8 in accordance with the methods specified in 10 CFR Part 50, Appendix K. The results of this analysis are presented in the attached updated LOCA analysis report for the Duane Arnold Energy Center (DAEC) (NEDO-21082-03) and are within the limits specified in the UFSAR.

The purpose of this change is to add the MAPLHGR (Maximum Average Planar Linear Heat Generation Rate) operating limits, based on the GE analysis, to the Technical Specifications to assure that the UFSAR limits are maintained. In addition, the probability of an accident is judged not to be increased by this change.

(b) Transient Analysis (MCPR Curve)

No, this change principally affects Sections 4.4 and 15.0 of the UFSAR. These sections deal with the analysis of abnormal operating transients and specify the performance limits on the fuel for such events.

GE has re-evaluated these transients for all the bundle types being used in Cycle 8 in accordance with the methods specified in Section 4.4.4.5 and 15.0.8 of the UFSAR. The results of this analysis are presented in the attached supplement to the Reload Licensing Submittal for the DAEC (23A1739, June 1984) and are within the limits specified in the UFSAR.

The purpose of this change is to add the new MCPR (Minimum Critical Power Ratio) operating limits for Cycle 8, based on the GE analysis, to the Technical Specifications to assure that the UFSAR limits are maintained. In addition, the probability of an accident is judged not to be increased by this change.

(c) Scram Time Testing

No, the new scram insertion times are based upon a statistically-derived distribution developed by GE and approved by the NRC as part of the licensing basis for transient analysis conducted under ODYN-Option B as described in Section 5.2.2 of the General Electric Standard Application for Reactor Fuel, NEDE-24011-P-A-6-US. These scram times ensure, with a 95% probability at the 95% confidence level, that the resulting ΔCPRs calculated using ODYN methodology will not cause the Safety Limit MCPR to be violated. Therefore, use of these new scram times will not increase the probability of occurrence or the magnitude of the consequences of an accident previously analyzed in the UFSAR.

The NRC, in issuing Technical Specification Amendment 54, required additional scram time testing be performed at the end of the fuel cycle in order to verify that degradation of control rod scram performance was not taking place between refueling outages. This additional testing was required to be conducted only through Cycle 6. As we will be entering Cycle 8 after the next refueling outage, and given that no evidence of control rod drive performance degradation has been observed, the NRC requirement may be deleted without increasing the probability of occurrence or the magnitude of the consequences of an accident previously analyzed in the UFSAR.

(d) Administrative Changes

Administrative changes do not increase the probability of occurrence or the magnitude of the consequences of an accident previously analyzed in the UFSAR.

(2) Does the proposed license amendment create the possibility of a new or different kind of accident from any accident previously evaluated?

(a) LOCA Analysis

No, these bundle types (BP8DRB301L & BP8DRB299) are among the standard reload fuel types analyzed and approved for use in domestic reactors as part of the GE Standard Application for Reactor Fuel (NEDE-24011-P-A-6-US), as referenced in Sections 6.3.3 and 15.0 of the UFSAR and, therefore, introduce no new safety issues with respect to the UFSAR.

(b) Transient Analysis

No, these bundle types (BP8DRB301L & BP8DRB299) are among the standard reload fuel types analyzed and approved for use in

domestic reactors as part of the GE Standard Application for Reactor Fuel (NEDE-24011-P-A-6-US), as referenced in Sections 4.4 and 15.0 of the UFSAR and, therefore, introduce no new safety issues with respect to the UFSAR.

(c) Scram Time Testing

No, the scram insertion times affect only the abnormal operating transients described in Chapter 15 of the UFSAR. Therefore, use of the new scram times will not introduce the possibility of an accident or malfunction of a different type than previously analyzed.

The end-of-cycle scram time testing was performed to ensure that degradation in control rod drive performance was not taking place between refuelings. This requirement is being deleted because no degradation in control rod drive performance has been identified. Therefore, removing the requirement for conducting these tests will not introduce the possibility of an accident of a different type than previously evaluated.

(d) Administrative Changes

Administrative changes do not create the possibility of an accident of a different type than any evaluated previously in the UFSAR.

(3) Does the proposed amendment involve a significant reduction in a margin of safety?

(a) LOCA Analysis

No, the operating limits being added are to maintain the present margin of safety by restricting the operating domain for these bundle types.

(b) Transient Analysis

No, the operating limits being added are to maintain the present margin of safety by restricting the operating domain for these bundle types.

(c) Scram Time Testing

No, these scram times ensure, with a 95% probability at the 95% confidence level, that the Safety Limit MCPR will not be violated as the result of any abnormal operating transient. Therefore, the margin of safety will not be reduced by use of the new scram time requirements.

The results of previous tests conducted at the end-of-cycle indicate that no degrading trend in control rod scram

performance exists; therefore, deleting the requirement to conduct such tests will not reduce the margin of safety.

(d) Administrative Changes

Administrative changes do not reduce the margin of safety.

In the April 6, 1983 Federal Register, the NRC published examples of amendments that are not likely to involve a significant hazards concern. Example number (iii) of that list states:

> "For a nuclear power reactor, a change resulting from a nuclear reactor core reloading, if no fuel assemblies significantly different from those found previously acceptable to the NRC for a previous core at the facility in question are involved. This assumes that no significant changes are made to the acceptance criteria for the technical specifications, that the analytical methods used to demonstrate conformance with the technical specifications and regulations are not significantly changed, and that NRC has previously found such methods acceptable."

The new bundle types are being loaded into the DAEC for Cycle 8 (BP8DRB301L & BP8DRB299) and the analytical methods used to demonstrate conformance with the regulations have been found acceptable by the NRC (GE Standard Application for Reactor Fuel, NEDE-24011-P-A-6-US). Therefore, the Technical Specification changes requested in this amendment (revised MAPLHGR and MCPR limits and ODYN Option-B scram times) are judged to fall within the scope of this example.

Example number (iv) of that list states:

> "A relief granted upon demonstration of acceptable operation from an operating restriction that was imposed because acceptable operation was not yet demonstrated. This assumes that the operating restriction and the criteria to be applied to a request for relief have been established in a prior review and that it is justified in a satisfactory way that the criteria have been met."

The requirement to do scram time testing at the end-of-cycle was imposed by the NRC until such time, (End of Cycle 6) as enough data could be collected to demonstrate that a degradation in control rod drive performance did not exist between refueling outages. As compilation of this data has been completed and no degradation of control rod performance has been observed, this requirement is being deleted. Therefore, this example is judged to apply to this change request.

Example number (i) of that list states:

> "A purely administrative change to technical specifications: for example, a change to achieve consistency throughout the technical specifications, correction of an error, or a change in nomenclature."

The administrative changes being made in this application, such as revising figure numbers, updating the table of contents and correcting references, are clearly within the scope of this example.