Iowa Electric Light and Power Company

October 15, 1993
NG-93-4296

JOHN F. FRANZ, JR.
VICE PRESIDENT, NUCLEAR

Dr. Thomas E. Murley, Director
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Mail Station P1-137
Washington, DC 20555

Subject: Duane Arnold Energy Center
Docket No: 50-331
Op. License No: DPR-49
Notification of Significant Change in Peak Fuel Cladding Temperature Pursuant to 10 CFR 50.46(a)(3)

Reference:
1) J. Franz (IELP) to Dr. T. Murley (NRC), "Notification of Significant Change in Peak Fuel Cladding Temperature Pursuant to 10 CFR 50.46(a)(3)", NG-93-3463, August 26,1993
2) R. McGaughy (IELP) to H. Denton (NRC), "Technical Specification Change RTS-211: Reload License for Cycle 9," NG-86-3473, dated October 31, 1986
3) J. Franz (IELP) to Dr. T. Murley (NRC), "Core Operating Limits Report for DAEC Cycle 13 Operation," NG-93-3776, September 21, 1993
4) A. Cappucci (NRC) to L. Liu (IELP), "License Amendment No. 142 - Cycle 9 Reload (TAC 63538)," dated May 7, 1987

File: A-105, A-225

Dear Dr. Murley:

The purpose of this letter is to inform you of certain errors which have been discovered in the Loss-of-Coolant Accident (LOCA) analysis for the Duane Arnold Energy Center (DAEC) which, when corrected, result in a net change in fuel Peak Cladding Temperature (PCT) in excess of the 50°F reporting criteria established in §50.46(a)(3).

A001
1/1

In Reference 1) we informed the Staff that we were revising the LOCA analysis for the DAEC, which was submitted in 1986 as part of the Reload License for Cycle 9 [Reference 2)]. During the resolution of our comments on General Electric's (GE) draft report of the re-analysis, GE discovered that certain plant-specific variables used in the earlier GE analysis [reported in Reference 2)] were incorrect although the correct values were specified in that report. Specifically, in one case the value of Peak Linear Heat Generation Rate (PLHGR) for the GE6 fuel design was used instead of that for the GE8 fuel design; the startup time used for the High Pressure Coolant Injection (HPCI) system was shorter than reported; and, an incorrect flowrate was used for the Low Pressure Core Spray (LPCS) pump run-out flow. Because the report identified the proper values, we did not know that the errors had occurred until GE so informed us after the detailed records of the earlier analysis were reviewed during resolution of our comments on the new analysis [docketed as part of Reference 3)].

GE has evaluated the impact of the above errors on the results of the 1986 analysis (see attached summary table). This evaluation concluded that the originai Licensing Basis PCT of 1570°F, which the Staff found acceptable in its Safety Evaluation Report [Reference 4)], remains bounding for the DAEC.

It should be noted that the recent analysis, which was submitted to the Staff in Reference 3), used the correct plant-specific inputs for all variables, in addition to the specific changes described in Section 2.0 of that report. Consequently, the results of that analysis are accurate and unaffected by the above errors. Therefore, no further action regarding our Reference 3) submittal is required to demonstrate compliance with 10 CFR 50.46 requirements.

Also, we want to inform you that as a follow-up action to the discovery of the above errors, we are performing a site audit of GE Nuclear Energy Group. During this audit we will review the design record files for the DAEC accident analyses. The objectives of the audit are to ensure that the proper plant-specific variables have been used and that proper corrective actions have been taken to prevent recurrence.

There are no new commitments in this letter.

If you have any further questions, please contact this office.

Very truly yours,

John F. Franz
Vice President, Nuclear

JFF/RAB/pjv

cc: R. Browning
L. Liu
L. Root
R. Pulsifer (NRC-NRR)
J. Martin (Region III)
NRC Resident Office
DCRC

Summary of Effects of Input Discrepancies

Item	Value Used in 1986 Analysis (Rev. 2)	Correct Value	Effect on PCT
PLHGR for GE8 Fuel	13.4 kw/ft	14.4 kw/ft	~100°F[1]
HPCI Startup Time	30 secs	45 secs	No Effect[2]
LPCS Runout Flow	3500 gpm	3173 gpm	~5°F(Est.)[3]

[1] This had no effect on the Licensing Basis PCT, which was based on the GE6 fuel design.

[2] This error has no effect on the calculated PCTs since the assumed single failure of the loss of 125 VDC renders the HPCI system inoperable. Consequently, no credit is taken in the analysis for HPCI system injection.

[3] This effect is an estimate based upon the calculated effect the correction had on the PCTs in the recent re-analysis.