Docket File

Docket No. 50-331

July 2, 1981

Mr. Duane Arnold, President
Iowa Electric Light & Power Company
P.O.Box 351
Cedar Rapids, Iowa 52406

Dear Mr. Arnold:

By letter dated October 17, 1980 (LDR-80-277) you submitted an application to permit Duane Arnold to be operated with a single recirculation loop in service rather than both loops. Three other facilities have requested similar authorization and we expect other BWRs will request approval for single loop operation in the near future.

Several BWRs have previously been authorized to operate for a short period of time with one recirculation loop and two BWRs are currently authorized to operate routinely on a single recirculation loop. In all but one case, power level has been been limited to 50 percent; the one exception was Browns Ferry Unit No. 1. On September 29, 1979, based on analyses performed for TVA by the General Electric Company (GE), we authorized TVA to operate Browns Ferry 1 for about two months at power levels up to 82 percent of full rated power. During power ascension with Browns Ferry 1 in single loop operation, jet pump flow variations were noted in the active loop above a pump speed of 65 percent of rated flow (about 59 percent of rated power). Whenever TVA tried to increase the power level above this point, they noted variations in jet pump flow, neutron flux, and related parameters. Accordingly, TVA administratively limited Browns Ferry Unit 1 operation to less than 60 percent for the approximately two months the unit operated on a single loop.

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While analyses indicate that it should be safe to operate BWRs on a single loop in the range of 85 percent of rated power, the experience at Browns Ferry Unit 1 has raised concerns about authorizing single loop operation for BWRs above 50 percent rated power until there is a better understanding of what may have caused the variations in this facility.

OFFICE ▶							
SURNAME ▶							
DATE ▶							

To try to develop a better understanding of what occurred at Browns Ferry 1 in the fall of 1979, we are proposing a meeting with you and the other licensees who have requested approval for single loop operations. We also propose to invite other BWR applicants and licensees since they may desire to have approval for single loop operation of their facilities in the future. The questions we wish to address in the proposed meeting are discussed in the enclosure to this letter. Since GE has provided the analysis to you to support your application, it appears highly desirable that representatives of GE be present in trying to determine what occurred at Browns Ferry Unit 1 and the implications, if any, to other BWRs.

To accommodate the appropriate personnel from your organization and other licensees, we have proposed a range of dates for the above meeting, specifically, the weeks of either July 27, 1981, August 10, 1981, August 17, 1981, August 24, 1981, or September 8, 1981. If you will advise your project manager of the date or dates most convenient to you, we will try to find a day that is most suitable to all parties and so advise you.

Sincerely yours,

Thomas A. Ippolito, Chief
Operating Reactors Branch #2
Division of Licensing

Enclosure:
Proposed Meeting Agenda

cc w/enclosure - See next page

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Mr. Duane Arnold
Iowa Electric Light & Power Company

cc:

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Resident Inspectors Office
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Palo, Iowa 52324

Mr. Ron E. Engel, Manager
Reload Fuel Licensing (MC 682)
General Electric Company
San Jose, California 95125

Proposed Meeting with BWR Applicants and Licensees on Single Loop Operation

Purpose of Meeting:

1. To determine what may have caused the jet pump flow variations and other variations experienced by Browns Ferry Unit 1 during single loop operation and

2. Evaluate whether the Browns Ferry experience should result in power limits for other BWRs operating on a single loop.

Agenda:

1. Discussion of what may have caused the unexpected variations in operating parameters when Browns Ferry Unit 1 exceeded about 60 percent rated power while operating with only one recirculation loop.

2. Discussion of parameters affected at Browns Ferry [redacted] (i.e., jet pump flow, neutron flux, core flow, core pressure drop, etc.)

3. Discussion of whether the Browns Ferry 1 experience would be expected at other BWRs operating on one recirculation loop. If so, are safety limits likely to be violated or cause complications with respect to core stability, core flow symmetry, pump cavitation or damage to the jet pumps and reactor vessel internals.

4. Discussion of the benefits vs. potential problems and cost of testing single loop operation in another BWR that is instrumented to detect what parameters are affected.

5. Evaluation of whether single loop operation at power levels above 50 to 55 percent is a safe and prudent means of reactor operation.