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Docket No. 50-313

Mr. William Cavanaugh, III
Senior Vice President
Energy Supply
Arkansas Power & Light Company
P. O. Box 551
Little Rock, Arkansas 772203

Dear Mr. Cavanaugh:

We have reviewed your letters dated May 27, 1980 and July 3, 1981, concerning IE Bulletin 80-04 Main Steam Line Break With Continued Feedwater Addition for Arkansas Nuclear One, Unit No. 1. We have determined that we need additional information to complete our review. The attached Franklin Research Center report identifies the information which is requested. We request the information within 45 days of the date of this letter.

Sincerely,

"ORIGINAL SIGNED BY
JOHN F. STOLZ"

John F. Stolz, Chief
Operating Reactors Branch #4
Division of Licensing

Enclosure:
Request for Additional
Information

cc w/enclosure:
See next page

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OFFICE	ORB#4:DL	C-ORB#4:DL					
SURNAME	Gvissing;cf	JStolz					
DATE	4/10/82	4/21/82					

Arkansas Power & Light Company

cc w/enclosure(s):

Mr. John R. Marshall
Manager, Licensing
Arkansas Power & Light Company
P. O. Box 551
Little Rock, Arkansas 72203

Director, Bureau of Environmental
Health Services
4815 West Markham Street
Little Rock, Arkansas 72201

Mr. James P. O'Hanlon
General Manager
Arkansas Nuclear One
P. O. Box 608
Russellville, Arkansas 72801

Mr. William Johnson
U.S. Nuclear Regulatory Commission
P. O. Box 2090
Russellville, Arkansas 72801

Mr. Robert B. Borsum
Babcock & Wilcox
Nuclear Power Generation Division
Suite 220, 7910 Woodmont Avenue
Bethesda, Maryland 20814

Mr. Nicholas S. Reynolds
Debevoise & Liberman
1200 17th Street, NW
Washington, DC 20036

Arkansas Tech University
Russellville, Arkansas 72801

Honorable Ermil Grant
Acting County Judge of Pope County
Pope County Courthouse
Russellville, Arkansas 72801

Regional Radiation Representative
EPA Region VI
1201 Elm Street
Dallas, Texas 75270

Mr. John T. Collins, Regional Administrator
U. S. Nuclear Regulatory Commission, Region IV
611 Ryan Plaza Drive, Suite 1000
Arlington, Texas 76011

REQUEST FOR ADDITIONAL INFORMATION

PWR MAIN STEAM LINE BREAK WITH CONTINUED FEEDWATER ADDITION

ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE UNIT 1

NRC DOCKET NO. 50-313

NRC TAC NO. 46824

NRC CONTRACT NO. NRC-03-81-130

FRC PROJECT C5506

FRC ASSIGNMENT 5

FRC TASK 122

Prepared by

Franklin Research Center
20th and Race Street
Philadelphia, PA 19103

Author: F. Vosbury

FRC Group Leader: R. C. Herrick

Prepared for

Nuclear Regulatory Commission
Washington, D.C. 20555

Lead NRC Engineer: P. Hearn

April 5, 1982

CERTIFIED OFFICIAL RECORD COPY BY:
Guy S. Vissing



Franklin Research Center

A Division of The Franklin Institute

The Benjamin Franklin Parkway, Phila., Pa. 19103 (215) 448-1000

BACKGROUND

Evaluation of the information contained in the May 27, 1980 [1] and July 9, 1980 [2] letters from Arkansas Power and Light Company (APL) to the U.S. Nuclear Regulatory Commission (NRC) relating to IE Bulletin 80-04, Analysis of a PWR Main Steam Line Break with Continued Feedwater Addition, revealed several items of concern. Additional information relating to these concerns is needed before a final evaluation can be made regarding the potential for exceeding containment design pressure or worsening of reactor return-to-power response.

The concerns and the additional information needed to resolve the concerns are identified in this Request for Additional Information.

ITEM 1

CONCERN

IE Bulletin 80-04 directs the Licensee to review containment pressure response to a main steam line break (MSLB) accident to determine the impact of runout flow from the auxiliary feedwater (AFW) system and other energy sources. APL's response [1] concerning the MSLB analysis for Arkansas Nuclear One Unit 1 stated that, in the event of a MSLB, the safety-grade steam line break instrumentation and control (SLBIC) system would actuate, isolating the affected once-through steam generator (OTSG) by closing the respective feedwater isolation valve and both main steam block valves.

However, it is not apparent that the analysis considered the effects of a single active failure of the MPW system which would allow additional feedwater flow to the affected steam generator.

REQUEST

The following information concerning your analysis of containment pressure response to a MSLB with continued feedwater addition is required:

1. The failure of the feedwater isolation valve or the feedwater startup valve could cause additional feedwater to be added to the affected OTSG. Provide an evaluation of the potential for a single active failure in the MPW system which could cause the greatest feedwater flow to the affected steam generator during a MSLB accident and a determination of MPW flow rate to the affected generator if a single active failure were to occur.
2. Provide an evaluation of the potential for exceeding containment design pressure using the feedwater runout flow rate identified in Request 1 above.
3. Provide the time after the start of a MSLB that containment design pressure will be exceeded if no operator action is taken to terminate the accident. Provide the magnitude of the peak pressure and the time at which the peak occurs.
4. Provide justification for the time at which credit is taken for operator action.

ITEM 2

CONCERN

IE Bulletin 80-04 directs the Licensee to review the reactivity increase which results from a MSLB inside or outside containment.

If it is determined from Item 1 that a single active failure of the MPW isolation system would provide additional feedwater flow to the affected steam generator during a MSLB, then the reactivity analysis would have to be reevaluated.

REQUEST

The following information concerning your analysis of reactivity response which results from a MSLB with continued feedwater addition is required:

1. Provide an analysis of the core reactivity response to a MSLB considering the effects determined in Item 1, Request 1.
2. Provide the time at which peak reactivity and minimum departure from nucleate boiling ratio (DNBR) are obtained assuming no operator action prior to 20 minutes after initiation of the accident.