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AUTH.NAME AUTHOR AFFILIATION
ZIMMERMAN,S.R. Carolina Power & Light Co.
RECIP.NAME RECIPIENT AFFILIATION
VARGA,S.A. Operating Reactors Branch 1

SUBJECT: Forwards proprietary Suppl 3 to XN-NF-84-74(P), "Confirmatory Analysis of Steamline Break Event" & RELAP 5 input deck,per commitments in 841107 ltr.Rept withheld (ref 10CFR2.790).

"All Subject Matter"

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SERIAL: NLS-85-033

Director of Nuclear Reactor Regulation
Attention: Mr. Steven A. Varga, Chief
Operating Reactors Branch No. 1
Division of Licensing
United States Nuclear Regulatory Commission
Washington, DC 20555

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2
DOCKET NO. 50-261/LICENSE NO. DPR-23
CONFIRMATION OF MAIN STEAMLINE BREAK EVENT AND
SCRAM SHUTDOWN MARGIN ANALYSIS

Dear Mr. Varga:

SUMMARY

Carolina Power & Light Company committed, in our letter dated November 7, 1984, to submit by January 31, 1985 the consequences of postulated steamline break events, including documentation of methodology and a copy of the RELAP 5 input deck. The Company also committed to provide confirmation of the scram shutdown margin analysis during 1985. The purpose of this letter is to respond to both commitments.

DISCUSSION

Main Steamline Break Analysis

The enclosed Supplement 3 to XN-NF-84-74(P) provides the results of the main steamline break confirmatory analysis using a new steamline break methodology recently developed by Exxon Nuclear Company (ENC). The analysis confirms the acceptability of Cycle 10 operation for H. B. Robinson Unit 2 (HBR2) and demonstrates that the results are bounded by prior ENC analysis. Also enclosed is a copy of the RELAP 5 input deck.

Exxon Nuclear Company considers the information in XN-NF-84-74(P) to be proprietary. In accordance with the Commission's regulation 10 CFR 2.790(b), the enclosed affidavit executed by Dr. Richard B. Stout of ENC, provides the necessary information to support the withholding of the report from public disclosure.

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Scram Shutdown Margin Analysis

Confirmation of the scram shutdown margin analysis is required because Event 15.1.4, Inadvertent Opening of a Steam Generator Relief or Safety Valve, relied on maintaining excess shutdown margin. The inadvertent opening of a steam generator relief or safety valve at hot zero power is bounded by the large steamline break event. The steamline break results in reduced moderator cooldown, reduced return to power, and larger minimum departure from nucleate boiling ratio (MDNBR) values. A double ended guillotine steamline break has greater than an order of magnitude more steam release capacity than the highest capacity single safety, relief, or dump valve at HBR2. Since an event involving the inadvertent opening of one of these valves while at hot zero power is equivalent to a small steamline break, this event is bounded by the limiting, large steamline break event.

Enclosed report XN-NF-84-74(P), Supplement 3 analyzes the limiting steamline break event initiated from hot zero power at the end of cycle. The break was the complete severance of a steamline for one steam generator (i.e., double ended guillotine break). The steamline break analysis assumed the minimum required shutdown margin at the end of cycle for HBR2 of 1770 PCM. Analysis of this limiting steamline break event resulted in a MDNBR of 2.000, compared to a 95/95 MDNBR safety limit of 1.135 using the modified Barnett correlation. This is significantly above the limit; therefore no fuel rod failures would be anticipated for the steamline break event.

The large steamline break analysis confirms that there is adequate shutdown margin at the end of the cycle to preclude penetration of the DNBR SAFDL during an inadvertent opening of a steam generator relief or safety valve event initiated from hot zero power. Therefore, no further analysis of this event is required.

Should you have any further questions regarding these issues, please contact Mr. S. D. Floyd at (919) 836-6901.

Yours very truly,

S. R. Zimmerman
Manager
Nuclear Licensing Section

SDF/ccc (1090SDF)

Enclosures

cc: Mr. J. P. O'Reilly (NRC-RII)
Mr. G. Requa (NRC)
Mr. H. Krug (NRC Resident Inspector - RNP)

A F F I D A V I T

STATE OF WASHINGTON)
ss.
COUNTY OF BENTON

I, Richard B. Stout being duly sworn, hereby say and depose:

1. I am Manager, Licensing and Safety Engineering for Exxon Nuclear Company, Inc. ("ENC"), and as such I am authorized to execute this Affidavit.

2. I am familiar with ENC's detailed document control system and policies which govern the protection and control of information.

3. I am familiar with the document XN-NF-84-74(P) entitled "Plant Transient Analysis for H.B. Robinson Unit 2 at 2300 MWt with Increased $F^N_{\Delta H}$, Supplement 3: Confirmatory Analysis of the Steam Line Break Event," referred to as "Document." Information contained in this Document has been classified by ENC as proprietary in accordance with the control system and policies established by ENC for the control and protection of information.

4. The Document contains information of a proprietary and confidential nature and is of the type customarily held in confidence by ENC and not made available to the public. Based on my experience, I am aware that other companies regard information of the kind contained in the Document as proprietary and confidential.

5. The Document has been made available to the U.S. Nuclear Regulatory Commission in confidence, with the request that the information contained in the Document will not be disclosed or divulged.

6. The Document contains information which is vital to a competitive advantage of ENC and would be helpful to competitors of ENC when competing with ENC.

7. The information contained in the Document is considered to be proprietary by ENC because it reveals certain distinguishing aspects of the transient analysis methodology which secure competitive advantage to ENC for fuel design optimization and marketability, and includes information utilized by ENC in its business which affords ENC an oppurtunity to obtain a competitive advantage over its competitors who do not or may not know or use the information contained in the Document.

8. The disclosure of the proprietary information contained in the Document to a competitor would permit the competitor to reduce its expenditure of money and manpower and to improve its competitive position by giving it extremely valuable insights into the transient analysis methodology and would result in substantial harm to the competitive position of ENC.

9. The Document contains proprietary information which is held in confidence by ENC and is not available in public sources.

10. In accordance with ENC's policies governing the protection and control of information, proprietary information contained in the Document has been made available, on a limited basis, to others outside ENC only as required and under suitable agreement providing for non-disclosure and limited use of the information.

11. ENC policy requires that proprietary information be kept in a secured file or area and distributed on a need-to-know basis.

12. This Document provides information which reveals the transient analysis methodology developed by ENC over the past several years. ENC has invested millions of dollars and many man-years of effort in developing the transient analysis methodology revealed in the Document. Assuming a competitor had available the same background data and incentives as ENC, the competitor might, at a minimum, develop the information for the same expenditure of manpower and money as ENC.

13. Based on my experience in the industry, I do not believe that the background data and incentives of ENC's competitors are sufficiently similar to the corresponding background data and incentives of ENC to reasonably expect such competitors would be in a position to duplicate ENC's proprietary information contained in the Document.

THAT the statements made hereinabove are, to the best of my knowledge, information, and belief, truthful and complete.

FURTHER AFFIANT SAYETH NOT.

Richard B. Stout

SWORN TO AND SUBSCRIBED
before me this 23rd day of
January, 1985.

Gloria R. Fitzgerald
NOTARY PUBLIC