

CATEGORY 1

REGULATOR INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 9610110363 DOC. DATE: 96/09/27 NOTARIZED: YES DOCKET #
 FACIL: 50-315 Donald C. Cook Nuclear Power Plant, Unit 1, Indiana M 05000315
 50-316 Donald C. Cook Nuclear Power Plant, Unit 2, Indiana M 05000316
 AUTH. NAME AUTHOR AFFILIATION
 FITZPATRICK, E. American Electric Power Co., Inc.
 RECIP. NAME RECIPIENT AFFILIATION
 Document Control Branch (Document Control Desk)

SUBJECT: Provides addl info w/regard to license amend requests in
 ltrs dtd 960711 & 950526 to allow operation of plant SG tube
 plugging levels.

DISTRIBUTION CODE: A001D COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 5
 TITLE: OR Submittal: General Distribution

NOTES:

	RECIPIENT ID CODE/NAME	COPIES LTTR ENCL	RECIPIENT ID CODE/NAME	COPIES LTTR ENCL
	PD3-3 LA	1 1	PD3-3 PD	1 1
	HICKMAN, J	1 1		
INTERNAL:	<u>FILE CENTER</u> 01	1 1	NRR/DE/EMCB	1 1
	NRR/DRCH/HICB	1 1	NRR/DSSA/SPLB	1 1
	NRR/DSSA/SRXB	1 1	NUDOCS-ABSTRACT	1 1
	OGC/HDS2	1 0		
EXTERNAL:	NOAC	1 1	NRC PDR	1 1

C
A
T
E
G
O
R
Y

1

D
O
C
U
M
E
N
T

NOTE TO ALL "RIDS" RECIPIENTS:
 PLEASE HELP US TO REDUCE WASTE. TO HAVE YOUR NAME OR ORGANIZATION REMOVED FROM DISTRIBUTION LISTS
 OR REDUCE THE NUMBER OF COPIES RECEIVED BY YOU OR YOUR ORGANIZATION, CONTACT THE DOCUMENT CONTROL
 DESK (DCD) ON EXTENSION 415-2083

TOTAL NUMBER OF COPIES REQUIRED: LTTR 12 ENCL 11



September 27, 1996

AEP:NRC:1223A

Docket Nos. 50-315
 50-316

U. S. Nuclear Regulatory Commission
Document Control Desk
Washington, D.C. 20555

Gentlemen:

DONALD C. COOK NUCLEAR PLANT UNITS 1 AND 2
LICENSE NOS. DPR-58 AND DPR-74
CLOSURE OF OPEN ITEMS WITH REGARD TO PREVIOUS SUBMITTALS

References:

- (1) Letter from E. E. Fitzpatrick to the USNRC Document Control Desk dated July 11, 1996, AEP:NRC:1223, "Donald C. Cook Nuclear Plant Units 1 and 2 License Nos. DPR-58 and DPR-74 Proposed License and Technical Specification Changes Supported by Analyses to Increase Unit 2 Rated Thermal Power and Certain Proposed Changes for Unit 1 Supported by Related Analyses"
- (2) Letter from E. E. Fitzpatrick to the USNRC Document Control Desk dated May 26, 1995, AEP:NRC:1207, "Donald C. Cook Nuclear Plant Units 1 and 2 License Nos. DPR-58 and DPR-74 Proposed Technical Specification Changes Supported by Analyses to Increase Unit 1 Steam Generator Tube Plugging Limit and Certain Proposed Changes for Unit 2 Supported by Related Analyses"
- (3) Letter from Joe Waleko (Westinghouse) to V. VanderBurg (AEPNGG) dated August 29, 1996, AEP-96-116, "Evaluation of COSI Condensation Model Restrictions of the Small Break LOCA Analysis Results for Donald C. Cook Nuclear Plant Units 1 and 2," attached

This letter provides additional information with regard to the license amendment requests in references 1 and 2 to allow operation of Cook Nuclear Plant unit 1 with up to 30% steam generator tube plugging levels and of unit 2 at an uprated thermal power of 3600 MW.

In references 1 and 2, it was identified to the NRC staff that the methodology used to perform the small break LOCA analysis employed the COSI model. At the time of the submittals, the COSI model had not been approved for use by the NRC. Subsequently, the NRC staff approved usage of the COSI model with the restriction that it be used only for small break LOCA analyses to a pressure range of 550 to 1200 psia, and to a maximum pumped safety injection flow rate of 40 lbm/sec per loop. An evaluation was performed by Westinghouse Electric Corporation (reference 3, attached) on the effect of this

9610110363 960927
PDR ADDCK 05000315
P PDR

1001
11/1

U. S. Nuclear Regulatory Commission
Page 2

restriction on the analyses submitted in references 1 and 2. It is concluded in this evaluation that the restrictions have a negligible impact.

Also, in reference 1, it was noted that our final review of two issues was incomplete at the time of submittal. These two issues were (1) the impact of power uprate on blowdown forces on ducting and cable trays in the containment and (2) the residual heat removal cooldown capability. We have since finalized our review on these items. With regard to the first issue, based on the applicability of "leak before break" methodology to Cook Nuclear Plant unit 2, the current basis for the restraint design for electrical and HVAC equipment remains bounding. With regard to the second issue, the cooldown capability review showed that the plant would be cooled to 140°F within 20 hours for two train operation and to 200°F within 36 hours for single train operation. Therefore, there is no change necessary to our license amendment request or to the supporting information.

We believe the proposed changes will not result in (1) a significant change in the types of any effluent that may be released offsite, or (2) a significant increase in individual or cumulative occupational radiation exposure.

In compliance with the requirements of 10 CFR 50.91(b)(1), copies of this letter and its attachments have been transmitted to the Michigan Public Service Commission and to the Michigan Department of Public Health.


Sincerely,



E. E. Fitzpatrick
Vice President

SWORN TO AND SUBSCRIBED BEFORE ME

THIS 27 DAY OF September 1996


Notary Public

My Commission Expires: _____

JANET K. DYKSTRA
NOTARY PUBLIC - BERRIEN COUNTY, MI
MY COMMISSION EXPIRES 07/01/00

jmb

Attachment

cc: A. A. Blind
A. B. Beach
NRC Resident Inspector
MDEQ - DW & RPD
J. R. Padgett

ATTACHMENT TO AEP:NRC:1223A

EVALUATION OF COSI CONDENSATION MODEL RESTRICTIONS ON
THE SMALL BREAK LOCA ANALYSIS RESULTS FOR
D. C. COOK UNITS 1 & 2



AEP-96-116

Westinghouse
Electric Corporation

Energy Systems

Box 355
Pittsburgh Pennsylvania 15230-0355

Mr. Vance VanderBurg
American Electric Power Service Corporation
500 Circle Drive
Buchanan, Michigan 49107

NSD-NT-OPL-96-398

August 29, 1996

AMERICAN ELECTRIC POWER SERVICE CORPORATION
DONALD C. COOK NUCLEAR PLANT UNITS 1 & 2
EVALUATION OF COSI CONDENSATION MODEL RESTRICTIONS ON
THE SMALL BREAK LOCA ANALYSIS RESULTS FOR D. C. COOK UNITS 1 & 2

- References:
- (1) WCAP-14285, Rev. 1, "Donald C. Cook Nuclear Plant Unit 1, Steam Generator Tube Plugging Program Licensing Report", dated May 1995.
 - (2) WCAP-14489, Rev. 1, "Donald C. Cook Nuclear Plant Unit 2, 3600 MWt Upgrading Program Licensing Report", dated May 1996.
 - (3) Thompson, C. M., et. al., "Addendum to the Westinghouse Small Break ECCS Evaluation Model Using the NOTRUMP Code: Safety Injection Into the Broken Loop and COSI Condensation Model", WCAP-10054-P, Addendum 2, Revision 1, (Proprietary) and WCAP-10081-NP, Addendum 2, Revision 1, (Non-Proprietary), October 1995.
 - (4) Shimeck, D. J., "COSI SI/Steam Condensation Experiment Analysis", WCAP-11767-P, (Proprietary), March 1988.
 - (5) USNRC letter from Robert C. Jones to N. J. Liparulo (Westinghouse), "WCAP-10054-P, Addendum 2, Revision 1, NOTRUMP SBLOCA Using the COSI Steam Condensation Model", August 12, 1996.

Dear Mr. VanderBurg:

The purpose of this letter is to present the results of an evaluation to determine the effect of the NRC imposed COSI Model restrictions on the small break LOCA analyses performed for D. C. Cook Units 1 and 2.

A small break LOCA analysis was previously performed for D. C. Cook Unit 1 to support the 30% Steam Generator Tube Plugging (SGTP) Program, and the results are presented in WCAP-14285, Rev. 1 (Reference 1). A small break LOCA analysis was also performed for D. C. Cook Unit 2 to support the Upgrading Program to 3588 MWt, and the results are presented in WCAP-14489, Rev. 1 (Reference 2). The small break LOCA analyses for Units 1 and 2 modelled safety injection into the broken loop and incorporated a more realistic model for condensation of steam in the cold leg by pumped safety injection based on data from the COSI test facility. Although the methodology for modelling safety injection in the broken loop and the application of the COSI condensation model (References 3 and 4) had been submitted to the NRC, the methodology was not approved before the

NSD-NT-OPL-96-398
AEP-96-116
August 29, 1996

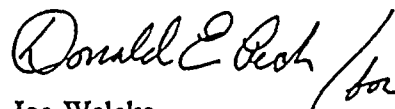
small break LOCA analyses in References 1 and 2 were issued. The NRC has recently issued a Safety Evaluation Report (SER) in Reference 5 approving the methodology, but the SER restricts the application of the COSI Model for small break LOCA analyses to a pressure range of 550 to 1200 psia, and to a maximum pumped safety injection flow rate of 40 lbm/sec per loop.

Since the NRC limitations were not applied in the small break LOCA analyses performed for D. C. Cook Units 1 and 2, an evaluation has been performed to determine the effect of the COSI Model restrictions on the results of the analyses. The COSI Model is only used in the NOTRUMP program when there is a vapor region in the cold legs, independent of the pressure. The evaluation indicates that a vapor region is not formed in the cold legs until after the pressure is below 1200 psia, and thus the COSI Model was not utilized for pressures above 1200 psia. Consequently, the COSI Model high pressure restriction of 1200 psia does not affect the analyses. It was also determined that the low pressure restriction of 550 psia for applying the COSI Model has a negligible effect on the analyses. In the small break LOCA analyses, accumulator injection occurs before the pressure decreases below 550 psia, which reverses the core uncover and the clad temperature transients, such that the PCT is also reached before the pressure goes below 550 psia. Since the condensation in the cold leg during accumulator injection is dominated by the accumulator jet (which does not use the COSI condensation model), the effect of applying the COSI condensation model to the pumped safety injection jet below 550 psia in the analyses is negligible. Thus, the lower limit of 550 psia for applying the COSI Model has a negligible effect on the clad temperature transients and does not affect the calculated PCT. The pumped safety injection flow rate used in the small break LOCA analyses was also well below the limit of 40 lbm/sec per loop throughout the transient. Therefore, the maximum pumped safety injection flow rate restriction does not affect the analyses.

Based on the results of this evaluation, it is concluded that the COSI Model restrictions do not affect the D. C. Cook Units 1 and 2 small break LOCA analyses presented in References 1 and 2, respectively.

If you have any questions, please call Mr. Don Peck (412-374-5683) or me.

Very Truly Yours,



Joe Waleko
Account Manager
North American Field Sales

DEP/bbp

cc: Ray Sartor - AEPSC

