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 AUTH. NAME: AUTHORITY AFFILIATION
 HUNTER, R.S. Indiana & Michigan Electric Co.
 RECIP. NAME: RECIPIENT AFFILIATION
 DENTON, H.R. Office of Nuclear Reactor Regulation, Director

DOCKET #
 05000315
 05000316

SUBJECT: Requests that WCAP-9748 & WCAP-9749, submitted 800630, be made part of facility dockets. Investigation concluded that realistically postulated flaw will not propagate circumference of pipe & cause guillotine break.

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October 8, 1980
AEP:NRC:0137C

Donald C. Cook Nuclear Plant Units 1 and 2
Docket Nos. 50-315 and 50-316
License Nos. DPR-58 and DPR-74

Mr. Harold R. Denton, Director
Office of the Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

- References:
- (1) NRC letter from Mr. Victor Stello, Jr., to Indiana & Michigan Electric Company dated January 25, 1978
 - (2) Letter No. AEP:NRC:00137B dated February 15, 1980
 - (3) Westinghouse letter No. NS-TMA-2265, dated June 30, 1980
 - (4) Westinghouse letter No. NS-TMA-2266, dated June 30, 1980.

Dear Mr. Denton:

This letter is in reference to condition C.3(a) to the Operating License No. DPR-74 for Unit No. 2 of the Donald C. Cook Nuclear Plant.

In reference (2), we informed your office that the last phase, that is Phase C, of the analytical work done by Westinghouse in response to reference (1) was in progress and anticipated to be complete by July 1, 1980. Phase 'C' analysis involved the evaluation of the structural integrity of the NSSS components and supports, primary system and ECCS piping, fuel, reactor vessel internals and CRDM's, and primary shield wall for breaks near the reactor vessel inlet nozzles. Westinghouse Electric Corporation has completed the detailed evaluation and submitted the results of this evaluation to the Commission with reference (3). The reports are entitled:

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WCAP-9748, "Westinghouse Owners Group Asymmetric LOCA Loads Evaluation - Phase C," June 1980 (proprietary)

WCAP-9749, "Westinghouse Owners Group Asymmetric LOCA Loads Evaluation - Phase C," June 1980 (non-proprietary)

For both Units of the Donald C. Cook Nuclear Plant, this evaluation demonstrates the capability of the NSS System to withstand the effects of the postulated reactor vessel nozzle rupture loads. Additionally, it has been demonstrated that the appropriate systems and components will maintain their functional capability and insure a safe plant shutdown during the postulated design accident condition. The evaluations performed in Phase 'C' incorporate, as part of the analysis assumptions, that break-limiting devices are installed around the nozzle in the concrete primary shield wall. At this time these devices are not installed pending the completion of the Mechanistic Fracture Evaluation of the weld metal.

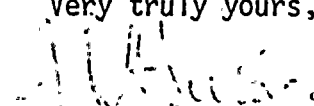
The primary shield wall structure was also evaluated by Westinghouse to account for the differential pressurization of the reactor cavity and was found capable of resisting the overturning and shearing forces. This completes the analytical evaluation of the effects of certain postulated break loads on the reactor coolant system and internals, as required by Mr. V. Stello's letter of January 25, 1978 (Reference 1).

As reported to your office earlier, concurrent with the Phase B and C evaluations, Westinghouse has conducted experimental and analytical investigations to determine the need to include a guillotine rupture of the reactor coolant piping as a reasonable design basis for their plants. The results of these efforts were submitted to the Commission in February 1980 in WCAP Reports No. 9558 (proprietary) and 9570 (non-proprietary). Upon receiving the Commission's request for additional information, Westinghouse has submitted revision 1 to WCAP 9558 (proprietary) and WCAP 9570 (non-proprietary) with reference 3. The analytical and experimental work reported in WCAP 9558, demonstrates that flaws large enough to cause significant asymmetric loads will not occur, and that flaws can be detected prior to unstable flaw growth leading to a double-ended circumferential break. All the additional information requested by the staff with the exception of the fracture toughness characteristics of the weld metal have been addressed. The weld metal testing is in progress and the results will be submitted to the NRC by Westinghouse Electric Corporation.

The overall conclusion of this investigation is that under the worst combination of loadings, including the effects of the safe shutdown earthquake, a realistically postulated flaw will not propagate around the circumference of the pipe and cause a guillotine break. Any postulated flaw that might exist can be detected based on the leak criteria. We feel that the "leak-before-break" is a realistic criterion for the evaluation of the NSS System and thus do not feel it is necessary to install the break limiting devices assumed in Phase 'C' analysis.

We request that the above cited WCAP reports be made a part of Donald C. Cook Nuclear Plant Dockets.

Very truly yours,


R. S. Hunter
Vice President

cc: R. C. Callen
G. Charnoff
John E. Dolan
R. W. Jurgensen
D. V. Shaller - Bridgman
NRC Region III Resident Inspector at Cook Plant - Bridgman