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ACCESSION NBR: 8002260226 DOC. DATE: 80/02/15 NOTARIZED: NO DOCKET # 05000250
 FACIL: 50-250 Turkey Point Plant, Unit 3, Florida Power and Light C 05000250
 50-251 Turkey Point Plant, Unit 4, Florida Power and Light C 05000251
 AUTH. NAME AUTHOR AFFILIATION
 UHRIG, R.E. Florida Power & Light Co.
 RECIP. NAME RECIPIENT AFFILIATION
 EISENHUT, D.G. Division of Operating Reactors

SUBJECT: Informs of progress re NRC 780125 request for addl info on asymmetric LOCA loads analysis. Lists technical repts submitted by Westinghouse. Concludes RCS piping flow will not cause guillotine break during safe shutdown earthquake.

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 TITLE: Asymmetric Loca Loads

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February 15, 1980
L-80-58

Office of Nuclear Reactor Regulation
Attention: Mr. Darrell G. Eisenhut, Acting Director
Division of Operating Reactors
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Dear Mr. Eisenhut:

Re: Turkey Point Units 3 & 4
Docket Nos. 50-250 and 50-251
Asymmetric LOCA Loads Analysis

Your letter of January 25, 1978 requested that we provide additional information on the assessment of the ability of nuclear steam supply system components to accommodate asymmetric LOCA loads. It went on to request that this information be furnished in about two years of receipt of your request. Our letter of May 9, 1978 (L-78-167) informed you of the fact that we would pursue the requisite analyses as a member of the Westinghouse Users Group, and our letter of December 19, 1978 (L-78-392) provided a tentative schedule for completion of the Users Group program.

Westinghouse has submitted to the Staff the following technical reports which provide details as to the methodology and results of the various studies undertaken by the Westinghouse Users Group. These are:

- (1) WCAP-9558 (proprietary), "Mechanistic Fracture Evaluation of Reactor Coolant Pipe Containing a Postulated Circumferential Through-Wall Crack," August 1979.
- (2) WCAP-9570 (non-proprietary), "Mechanistic Fracture Evaluation of Reactor Coolant Pipe Containing a Postulated Circumferential Through-Wall Crack," October 1979.
- (3) WCAP-9628 (proprietary), "Westinghouse Owners Group Asymmetric LOCA Loads Evaluation - Phase B", November 1979.
- (4) WCAP-9662 (non-proprietary), "Westinghouse Owners Group Asymmetric LOCA Loads Evaluation - Phase B", January 1980.
- (5) Interim Report, "Asymmetric LOCA Loads Evaluation - Phase C, Reactor Nozzle Postulated Breaks," February 1980 (cf. Westinghouse letter NS-TMA-2206 dated February 14, 1980).

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- (6) "Phase B5 - Subcompartment Asymmetric Pressure Loads," February 1979 (cf. NRC/Westinghouse Users Group Meeting of February 21, 1979).

These reports are applicable to Turkey Point Units 3 & 4 and should be considered as part of our response to your January 1978 information request.

Phase A of the Users Group effort was devoted to data acquisition; phase B to postulated breaks outside the reactor cavity; and phase C to breaks within the reactor cavity. Generic analyses of fuel and internals, and other miscellaneous evaluations requested by your January 1978 letter are expected to be completed by July 1980. Submittal of a final Users Group report is expected in July 1980. It should provide the Staff with the analytical information requested on asymmetric LOCA loads.

The Users Group analyses have provided additional insight as to the ability of the involved facilities to accommodate asymmetric LOCA loads. Two conclusions can be reached based on the work completed to date, namely:

- (1) Under the worst combination of loadings including the effects of a safe shutdown earthquake, a realistically postulated flaw in the reactor coolant system (RCS) piping "will not" propagate around the pipe's circumference thereby causing a guillotine break.
- (2) The capability to accommodate asymmetric loads resulting from arbitrarily postulated guillotine breaks can be enhanced by backfitting reactor coolant system support modifications.

With regard to the first conclusion, the mechanistic pipe break evaluation reaffirms the industry position that RCS pipes will not fail in the manner postulated by the Staff. The WCAP-9558 report provides the technical basis for this conclusion. Thus, it is our belief that:

- (1) The Turkey Point design basis for RCS support design is proper. The instantaneous pipe break was utilized as a means of sizing the containment and ECCS system, and to provide piping thrust loads for support design.
- (2) The asymmetric loads that can be analytically predicted to result from an arbitrarily postulated guillotine break at a specific RCS location are not a design basis for the Turkey Point facility.
- (3) The Staff's review of the mechanistic pipe break evaluation should be completed prior to requiring any backfitting of the Turkey Point facility. This is consistent with the Commission's regulations (10 CFR 50.109) since the results of the Users Group mechanistic pipe break evaluation strongly suggest that substantial benefit to public health and safety will not result from backfitting of asymmetric load criteria.

Office of Nuclear Reactor Regulation
Attention: Mr. Darrell G. Eisenhut, Acting Director
Page 3

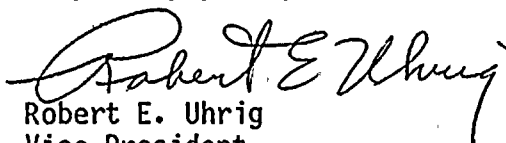
- (4) The mechanistic pipe break program reported in WCAP-9558 provides a sufficient basis to allow continued operation of the Turkey Point facility until this generic issue is resolved.

We now turn to the conclusion regarding potential support modifications. Although we believe it inappropriate to backfit the supports until the mechanistic pipe break evaluation is completed by the Staff, we are proceeding with engineering studies to evaluate the technical feasibility of these analytically indicated modifications, as well as the man-rem burden to be incurred as a result of implementing the modifications. We believe these preliminary design evaluations could also be completed by July 1980. However, final design activities cannot be completed until the Staff completes its review of asymmetric LOCA loads and it is concluded that any modifications required by the Staff fully resolve this generic issue.

The Staff requested during a November 28, 1979 meeting with the Users Group that schedular information be provided on the installation of potential modifications. Precise information cannot be provided since the specific modifications, if any, to be required by the Staff are unknown, and the design of modifications is strongly dependent upon in situ plant measurements. Based on the types of modifications implied by the User Group analyses and our knowledge of in situ plant conditions, it is reasonable to assume that the installation of modifications could be completed during the second refueling outage of each unit after the Staff has approved actions to fully resolve this issue.

In summary we are proceeding as expeditiously as possible with the remaining analyses required to provide the Staff with a comprehensive understanding of the asymmetric LOCA load phenomenon. Concurrently, we believe that the Staff should evaluate the mechanistic pipe break study since this effort is fundamental to an understanding of the behavior of flaws in pipes. We believe that sufficient data exists to support our contention that the instantaneous guillotine break of an RCS pipe is an excessively conservative assumption.

Very truly yours,



Robert E. Uhrig
Vice President
Advanced Systems & Technology

REU/MAS/FGF/PKG/cph

cc: Mr. J. P. O'Reilly, Region II
Harold Reis, Esquire