NRC FORM 366 (7-77)

U. S. NUCLEAR REGULATORY COMMISSION

LICENSEE EVENT REPORT

CONTROL BLOCK: (1) (PLEASE PRINT OR TYPE ALL REQUIRED INFORMATION)

0 1 | F L T P S 3 (2) | 0 0 - 0 0 0 0 0 - 0 0 (3) | 4 1 1 1 1 (4) | (5)
LICENSEE CODE | LICENSE NUMBER | LICENSE TYPE | CAT

CON'T 0 1 | REPORT SOURCE X (6) | 0 5 0 0 0 2 5 0 (7) | 1 1 0 9 7 9 (8) | 1 1 2 3 7 9 (9)
DOCKET NUMBER | EVENT DATE | REPORT DATE

EVENT DESCRIPTION AND PROBABLE CONSEQUENCES (10)

0 2 FPL was notified by the NSSS vendor that a non-conservative feature could
0 3 exist in the 10 CFR 50.46 Appendix K LOCA analysis with respect to the
0 4 portion of the calculation related to fuel rod burst. Revised analyses
0 5 indicate an earlier clad burst time and a resulting change in the calcu-
0 6 lated PCT for the LOCA transient. Based on the reanalysis, F_q was
0 7 reduced from a value of 1.90 to 1.89.
0 8

0 9 SYSTEM CODE Z Z (11) | CAUSE CODE X (12) | CAUSE SUBCODE Z (13) | COMPONENT CODE Z Z Z Z Z Z (14) | COMP. SUBCODE Z (15) | VALVE SUBCODE Z (16)

(17) LER/RO REPORT NUMBER | EVENT YEAR 7 9 | — | SEQUENTIAL REPORT NO. 0 3 5 | / | OCCURRENCE CODE 0 1 | REPORT TYPE T | — | REVISION NO. 0

ACTION TAKEN X (18) | FUTURE ACTION X (19) | EFFECT ON PLANT Z (20) | SHUTDOWN METHOD Z (21) | HOURS (22) 0 0 0 0 | ATTACHMENT SUBMITTED Y (23) | NPRD-4 FORM SUB. N (24) | PRIME COMP. SUPPLIER Z (25) | COMPONENT MANUFACTURER Z 9 9 9 (26)

CAUSE DESCRIPTION AND CORRECTIVE ACTIONS (27)

1 0 Augmented surveillance was applied for both units based on the reduced
1 1 F_q limit. Operation in accordance with Technical Specification require-
1 2 ments was confirmed for both units.
1 3
1 4

1 5 FACILITY STATUS E (28) | % POWER 1 0 0 (29) | OTHER STATUS (30) NA | METHOD OF DISCOVERY D (31) | DISCOVERY DESCRIPTION (32) NSSS Vendor Notification

1 6 ACTIVITY RELEASED Z (33) | CONTENT OF RELEASE Z (34) | AMOUNT OF ACTIVITY (35) NA | LOCATION OF RELEASE (36) NA

1 7 PERSONNEL EXPOSURES NUMBER 0 0 0 (37) | TYPE Z (38) | DESCRIPTION (39) NA

1 8 PERSONNEL INJURIES NUMBER 0 0 0 (40) | DESCRIPTION (41) NA

1 9 LOSS OF OR DAMAGE TO FACILITY (43) TYPE Z (42) | DESCRIPTION NA

2 0 PUBLICITY ISSUED N (44) | DESCRIPTION (45) NA | NRC USE ONLY

NAME OF PREPARER M. A. Schoppman PHONE: (305) 552-3802

7912130 641

Additional Cause Description and Corrective Actions:

The Nuclear Regulatory Commission staff met November 1, 1979, with representatives of reactor vendors and nuclear fuel suppliers. The purpose of the meeting was to discuss the staff's ongoing evaluation of the results of tests on electrically-heated fuel assemblies conducted at the Oak Ridge (Tennessee) National Laboratory. NRC indicated that emergency core cooling system analytical codes currently used to evaluate the effects of postulated loss-of-coolant accidents (LOCA) might not be in compliance with NRC regulations. The portion of the codes in question deal with the effects of fuel clad swelling and rupture and blockage of cooling water.

Subsequent to the meeting, Westinghouse performed a detailed evaluation of the most recent analyses for operating plants and on November 2, 1979, Westinghouse confirmed, in writing, that the impact of the information presented by the NRC has negligible impact on the LOCA analysis results of the plants licensed with the Westinghouse LOCA/ECCS evaluation model. The NRC staff has concurred with this conclusion.

However, as a result of that detailed evaluation, Westinghouse recognized that a non-conservative feature could exist in the Appendix K LOCA analysis with respect to the portion of the calculation related to fuel rod burst. The potential non-conservative feature of the Westinghouse large break ECCS evaluation model is as follows: The model uses a curve which represents fuel clad burst conditions for clad heatup rates of 25°F/second and greater. The evaluation discussed revealed that heatup rates could be less than 25°F/second. During the LOCA transient, the fuel clad burst curve establishes the time of clad burst and (since the clad temperature and the pressure differential across the clad are changing throughout the LOCA transient) the post-burst conditions of the clad. The fuel clad burst curve is dependent on the clad heatup rate prior to burst and a reduction in heatup rate causes earlier clad burst. A shift in clad burst time can affect the peak clad temperature (PCT) calculated for the LOCA transient.

Therefore, the clad heatup rate prior to burst was determined from the most recent LOCA analyses for those plants licensed with the Westinghouse LOCA/ECCS evaluation model. Plants having heatup rates less than 25°F/second were reanalyzed to ascertain the effect on peak clad temperature. Two plants (Turkey Point Units 3 and 4) were found to require a reduction of 0.01 in F_q to maintain a Peak Clad Temperature (PCT) of 2200°F.