NRC FORM 366 U. S. NUCLEAR REGULATORY COMMISSION (7.77) LICENSEE EVENT REPORT CONTROL BLOCK: (PLEASE PRINT OR TYPE ALL REQUIRED INFORMATION) O H D B S 1 2 Ø Ø - Ø Ø N P F - Ø 3 3 4 1 1 1 1 0 57 CAT 58 5 0 1 CON'T REPORT L 6 0 5 0 - 0 3 4 6 7 1 2 3 1 7 9 8 0 1 1 1 1 8 0 9 SOURCE 60 61 DOCKET NUMBER 68 69 EVENT DATE 74 75 REPORT DATE 80 0 1 EVENT DESCRIPTION AND PROBABLE CONSEQUENCES (10 During a review of the offects of a changing Reactor Coolant System (RCS) cold leg 0 2 temperature on the accuracy of the power range nuclear instrumentation (NI), the pro- | 0 3 cedures governing NI calibration were found to be inconsistent with the assumptions of p 0 4 the accident analysis. This could result, during a cooldown transient, in a high flux 0 5 reactor trip at 114% actual power instead of the 112% power as assumed in the accidenty 0 6 analysis. Preliminary evaluation of a cooldown transient with the additional 2% error 0 7 shows no significant change in the event. (NP-32-79-15) 0 8 8 80 SYSTEM VALVE COMP CODE COMPONENT CODE SUBCODE 0 9 Z (12) NSTRU 14 IA D (12) I I (15 Z (16) OCCURRENCE SEQUENTIAL REVISION REPORTNO CODE LER/RO TYPE NO REPORT 1 3 2 01 Ø T NUMBER ACTION ATTACHMENT SHUTDOWN COMPONENT MANUFACTURER Ø Ø Ø Ø NPRD-4 FORM SUB Z (21) N 24 N 25 CAUSE DESCRIPTION AND CORRECTIVE ACTIONS (27) The cause of this occurrence was a procedure error. The RCS daily heat balance check | 110 allowed a normal difference between NI indicated power and the heat balance power of 111 up to 2% in the non-conservative direction. The procedure has been modified to assure 1 2 that the NI power is maintained equal to or greater than the heat balance power. 1 3 1 4 9 80 FACILITY METHOD OF OTHER STATUS (30) S POWER DISCOVERY DESCHIPTION (32) 1 5 Ø C (31) procedure 80 ACTIVITY CONTENT AMOUNT OF ACTIVITY (35) LOCATION OF RELEASE (36) 1 6 Z (33) (34) NA 80 PERSONNEL DESCRIPTION (39) 10 0 (31) Z (38) NA 1 7 PERSONNEL INJURIES 80 DESCRIPTION (41) 1762 240 NA 1 8 LOSS OF OR DAMAGE TO FACILITY (43 80 DESCRIPTION 300112039 Z (42) NA 1 9 10 PUBLICITY DESCRIPTION (45) NRC USE ONLY | N (44) NA 2 0 419-259-5000, Ext. 291 DVR 79-206 Jacque Lingenfelter NAME OF PREPARER -PHONE:

TOLEDO EDISON COMPANY DAVIS-BESSE NUCLEAR POWER STATION UNIT ONE SUPPLEMENTAL INFORMATION FOR LER NP-32-79-15

DATE OF EVENT: December 31, 1979

FACILITY: Davis-Besse Unit 1

IDENTIFICATION OF OCCURRENCE: Power range nuclear instruments calibration deficiency

Conditions Prior to Occurrence: The unit was in Mode 5, with Power (MWT) = 0, and Load (Gross MWE) = 0.

Description of Occurrence: During a review of the effects of a changing Reactor Coolant System (RCS) cold leg temperature on the accuracy of the power range nuclear instrumentation (NI), the procedures governing NI calibration were found to be inconsistent with the assumptions of the Final Safety Analysis Report (FSAR).

The specific effect under investigation was the decrease in NI indicated power below actual reactor power with a decrease in RCS cold leg temperature. The decrease in NI indicated power is caused by a reduction in neutron leakage from the reactor vessel as cold leg temperature falls and the density of water in the vessel downcomer increases (along with the concentration of boron atoms per unit volume).

A review of the safety analysis for those accidents involving an overcooling transient with a reactor trip on high flux revealed that for the feedwater temperature reduction from 100% full power, the error induced in NI power was approximately 4% between NI power and heat balance power. This analysis also assumes that indicated NI power is equal to (or greater than) the heat balance power. However, the station procedures allow the heat balance power to be 2% greater than the indicated power. In the event of an excessive heat removal transient from 100% full power, this additional 2% error could cause the reactor to trip at 114% power instead of the 112%

Designation of Apparent Cause of Occurrence: The procedures covering the calibration requirments were in error. These procedures were written in accordance with instructions provided by Babcock and Wilcox.

Analysis of Occurrence: There was no danger to the health and safety of the public or to station personnel. Preliminary evaluation of a feedwater temperature reduction transier: with a 2% error between NI power and heat balance power shows that there are no significant changes in the outcome of the event. No such feedwater temperature reduction transients have occurred. 1762 241

Corrective Action: The RCS Daily Heat Balance Check, ST 5030.01, has been modified with concurrence from Babcock and Wilcox to assure that the NI power is maintained equal to or greater than the heat balance power. This will assure that in the event

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of an excessive heat removal transient, that the reactor will be tripped at 112% power or less.

Failure Data: There have been no previous similar reportable occurrences.

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