UPDATE REPORT - PREVIOUS REPORT DATE 10-19-83 LICENSEE EVENT REPORT

CONTROL BLOCK: 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
MIIDCCCI 2006 14 2006 14 2006 14 20 10 1- 10 10 10 10 10 10 10 10 3 4 11 11 11 11 4 1 5
CON'T SOURCE L 6 0 15 10 10 1 01 311 15 7 11 0 10 16 18 13 3 0 16 12 1 118 14 19
EVENT DESCRIPTION AND PROBABLE CONSEQUENCES (10)
ON 10-06-83, PLANT PERSONNEL WERE NOTIFIED BY AEPSC THAT THE WRONG VALUES FOR THE ED(Z)
WERE USED FOR THE INCORE DETECTOR COMPUTER CODE DURING UNIT 1 CYCLE VII OPERATION. THI
COULD HAVE ALLOWED THE UNIT TO EXCEED ITS E LIMIT BETWEEN NORMAL SURVEILLANCE FLUX
$ \bigcirc \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ $
ACCUMULATION OF BURNUP PRIOR TO THE NEXT FLUX MAP. PUBLIC HEALTH AND SAFETY WERE NOT
AFFECTED. THIS IS THE FIRST OCCURRENCE. THIS REPORT IS BEING SUBMITTED PER
REQUIREMENTS OF TECHNICAL SPECIFICATION 6.9.1.12.f.
SYSTEM CODE SUBCODE SU
TAKEN ACTION ON PLANT METHOD TAKEN ACTION ON PLANT METHOD G 13 Z 19 Z 20 Z 21 O 10 10 10 Y 23 N 24 Z 25 Z 29 19 19 19
CAUSE DESCRIPTION AND CORRECTIVE ACTIONS (27) AEPSC PERSONNEL FAILED TO CHANGE THE INPUT DATA SET CARD NO. Z14E TO REFLECT THE
TECHNICAL SPECIFICATION CHANGES AS PER AMENDMENT NO. 61 THAT WAS ISSUED ON 9-15-82.
TO PREVENT RECURRENCE AEPSC HAS FEVISED THE APPLICABLE PROCEDURE TO REQUIRE
INDEPENDENT VERIFICATION OF ALL TECHNICAL SPECIFICATION CHANGES. (SEE ATTACHED
SUPPLEMENT)
FACILITY STATUS STATU
RELEASED OF RELEASE NA LIGATION OF RELEASE 36 NA NA LIGATION OF RELEASE 36 NA NA NA LIGATION OF RELEASE 36 NA NA NA NA NA NA NA N
PERSONNEL EXPOSURES NUMBER TYPE DESCRIPTION (39)
PERSOUNEL INJURIES 13
1 0 0 10 10 (40) NA
LOSS OF OR DAMAGE TO FACILITY (43) TYPE DESCRIPTION NO. 11 12 PDR ADOCK 05000315
TYPE DESCRIPTION (43) NA STADOCK OSOCOSIS PDR
PUBLICITY ISSUED DESCRIPTION (45) NA NAC USE ONLY NA I I I I I I I I I I I I I I I I I I I
NAME OF PREPARES J. L. RISCHLING 616-465-5901

. ATTACHMENT TO LER# 315-50/83-098

SUPPLEMENT TO CAUSE DESCRIPTION

In the process of preparing the input data for the "DETECTOR" computer code which is used for processing the flux maps, an error was discovered when a line-by-line comparison was made between Unit 1 Cycle 7 and Unit 1 Cycle 8 input data sets on card no. Z14E. The nature of the error is as follows:

According to the Unit 1 Technical Specifications Surveillance Requirements 4.2.2.2c, Amendment No. 61

(1)
$$F_Q^M(z) \leq \left[\frac{F_Q^L(z)}{P \times Ep(z)}\right] \frac{K(z)}{V(z)} \quad P > 0.5$$

Here:

$$(2) \ \ \text{Ep(Z)} = \begin{bmatrix} 1.0 & 0 \le E_{\ell} \le 17.62 \ \text{GWD/MTU} \\ 1.0 + [.0040 \times F_{Q}^{M}(Z)] & 17.62 \ \text{GWD/MTU} \le E_{\ell} \le 34.5 \ \text{GWD/MTU} \\ 1.0 + [.0093 \times F_{Q}^{M}(Z)] & 34.5 \ \text{GWD/MTU} \le E_{\ell} \le 42.2 \ \text{GWD/MTU} \end{bmatrix}$$

The card Z14E should have the numbers:

which specify the multipliers of $F_Q^M(Z)$ in equation (2). Instead of these numbers, the Z14E card for Unit 1 Cycle 7 contained the numbers:

The parameters represented Unit 1 Cycle 6 Technical Specifications. They should have been changed as per Amendment No. 61 issued on September 15, 1982. It should be noted that the Startup of Unit 1 Cycle 7 was also on September 15, 1982.

Impact of the Error on Unit 1 Cycle 7 Flux Maps

The right side of equation (1) which represents the Technical Specification limit may be rewritten in the form:

(3) TL =
$$\frac{a}{Ep(Z)}$$

Where:

(4)
$$a = \frac{F_Q^L(z)}{P} \frac{K(z)}{V(z)}$$

Assuming for conservatism that the lowest margin in respect to the Technical Specification limit was in the most burned fuel assembly, we can define the ratio of the limit with the wrong data to the limit with the correct data as

(5)
$$R = \frac{a}{1.0 + .0085 \times F_{Q}^{M}(Z)} \times \frac{1.0 + 0.0093 F_{Q}^{M}(Z)}{a}$$
$$= \frac{1.0 + .0093 F_{Q}^{M}(Z)}{1.0 + .0085 F_{Q}^{M}(Z)}$$

Assuming $F_Q^M(Z) = 2.04$, which is the maximum possible number, we get:

$$R = 1.0016$$

The most limiting flux map with respect to $F_Q^M(Z)$ in the Cycle 7 (Option 6) was map #12 at 336 MWD/MTU. For this map Technical Specification limit was 1.7966 and the measured number was 1.7132. It shows that we had a margin of

$$\frac{1.7966 - 1.7132}{1.7132} = .0487 = 4.878$$

The assembly with this margin was located in location 4-K and was a fresh fuel assembly. But even if it were a burned assembly and we should divide the number 1.7966 by R, we would get 4.70%.

It is evident, therefore, that no Technical Specification violations occurred because of this error. Two (2) flux maps were rerun with the correct Z14E cards. No changes were indicated when comparing the results of these runs to the results of the old runs. The maps which were rerun were the most limiting map #12 and the EOC 7 map.

Conclusion

No Technical Specification violations could have occurred because of the error in the "Detector" code data set for Unit 1 Cycle 7.

Preventative Actions

AEPSC has revised the Nuclear Materials and Fuel Managment Section Procedure No. 6 to explicitly require independent verification of all Technical Specification changes. This procedure previously required explicit checking only when changes were caused by Theoretical Factors and Burnup. In addition, AEPSC will provide the plant with the documentation package which contains the Calculation Cover Sheet and an explanation of the changes.

This revision is being submitted to change the cause code to personnel error and update the preventive action statement for the corrective measures completed.



DONALD C. COOK NUCLEAR PLANT P.O. Box 458, Bridgman, Michigan 49106 (616) 465-5901

June 21, 1984

Mr. J.G. Keppler, Regional Administrator United States Nuclear Regulatory Commission Region III 799 Roosevelt Road Glen Ellyn, IL 60137

Operating License DPR-58 Docket No. 50-315

Dear Mr. Keppler:

Pursuant to the requirements of the Appendix A Technical Specifications, the following report/s are submitted:

RO 83-098/01X-1.

Sincerely,

W.G. Smith, Jr. Plant Manager

/bab

Attachment

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