

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Oconee Nuclear Station, Unit 1										DOCKET NUMBER (2) 0 5 0 0 0 2 6 9					PAGE (3) 1 OF 0 3							
TITLE (4) "1A" Core Flood Tank Boron Concentration out of Specification																						
EVENT DATE (5)			LER NUMBER (6)				REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)												
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAMES				DOCKET NUMBER(S)									
0	3	0	1	8	4	8	4	0	0	1	0	0	4	0	2	8	4	0	5	0	0	0
OPERATING MODE (9) N		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)																				
POWER LEVEL (10) 1 0 0		20.402(b)				20.405(c)				50.73(a)(2)(iv)				73.71(b)								
		20.405(a)(1)(i)				50.38(c)(1)				50.73(a)(2)(v)				73.71(c)								
		20.405(a)(1)(ii)				50.38(c)(2)				50.73(a)(2)(vii)				OTHER (Specify in Abstract below and in Text, NRC Form 366A)								
		20.405(a)(1)(iii)				50.73(a)(2)(i)				50.73(a)(2)(viii)(A)												
		20.405(a)(1)(iv)				50.73(a)(2)(ii)				50.73(a)(2)(viii)(B)												
		20.405(a)(1)(v)				50.73(a)(2)(iii)				50.73(a)(2)(x)												
LICENSEE CONTACT FOR THIS LER (12)																						
NAME Jocelyn C. Petty										TELEPHONE NUMBER AREA CODE 7 0 4 3 7 3 - 8 2 7 0												
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)																						
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPDs		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPDs												
SUPPLEMENTAL REPORT EXPECTED (14)											EXPECTED SUBMISSION DATE (15)		MONTH	DAY	YEAR							
<input type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE)											<input checked="" type="checkbox"/> NO											

ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)

On March 1, 1984, with Unit 1 operating at 100% full power, it was noted that the boron concentrations of two independent "1A" Core Flood Tank (CFT) samples were less than the Technical Specification 3.3.3 required minimum concentration in each CFT of 1835 ppm boron when the Reactor Coolant System (RCS) is above 800 psig. The "1A" CFT was declared inoperable, and an Unusual Event was declared.

Reactor power was reduced and the unit was placed in Hot Shutdown within 12 hours. The cause of this incident was administrative deficiency demonstrated by the lack of adequate management control over a known problem. It was determined in August 1983 that the "1A" CFT had an inleakage of water caused by leaking valves, and sufficient compensatory actions had not been taken.

During the time of the lowest measured boron concentration (1304 ppm), the CFT content would still have performed its intended function and provided the required 1% shutdown margin if needed. The health and safety of the public were not affected.

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104

EXPIRES: 8/31/85

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (5)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
Oconee Nuclear Station, Unit 1	0506026984	—	001	—	00	02	OF 03

TEXT (If more space is required, use additional NRC Form 366A's) (17)

Description of Occurrence:

On March 1, 1984 Chemistry personnel added boric acid and demineralized water to the "1A" Core Flood Tank (CFT). A sample was taken to satisfy the monthly and sampling-after-addition requirements. This first sample indicated a boron concentration of 1601 ppm. A resample confirmed the validity of the first sample when the results indicated a boron concentration of 1571 ppm. Technical Specification 3.3.3 requires a minimum boron concentration in each CFT to be 1835 ppm when the Reactor Coolant System (RCS) is in a condition with a pressure above 800 psig. The low boron concentration made the "1A" CFT inoperable, and thus placed Unit 1 operating in a condition that did not meet the limiting conditions of operation (LCO). An Unusual Event was initiated because of the loss of the "1A" CFT which is a portion of the Engineering Safeguards (ES) System.

Cause of Occurrence:

At the end of the last outage (August 1983), it was determined that a CFT fill valve was leaking past the seat allowing inleakage of the Reactor Coolant (RC) to the "1A" CFT. Repair attempts were made but could not be completed due to the discovery of the leaking of an associated isolation valve. Repair efforts were to have continued during the next sufficient outage. The decision to operate with the inleakage of water to the "1A" CFT did not consider the dilution of boron, the need to periodically add boron, and the need to increase the sampling frequency of the "1A" CFT due to this inleakage. Sufficient compensatory action was not taken. This lack of adequate management control over a known problem, an administrative deficiency, is the cause of this occurrence.

Analysis of Occurrence:

In order to preclude the possibility of an unsafe situation, the unit was shut down until the required Technical Specification boron concentration could be established in "1A" CFT. According to the Oconee FSAR 6.3.2.2.3, the Core Flood System provides core protection for intermediate large RCS pipe failures. It automatically floods the core when the RCS pressure drops below 600 psig. The basis of Technical Specification 3.3 describes the need of both CFTs to protect the core and in the event of a main coolant loop severance will help limit the peak clad temperature to less than 2200°F and the metal-water reaction to that representing less than 1% of the clad.

At 68°F with a core burnout of 190 Effective Full Power Days (EFPD) and all rods out, the critical boron concentration would be 1290 ppm. In this incident the lowest boron concentration that occurred was 1304 ppm in "1A" CFT and 2104 ppm in "1B" CFT for an average boron concentration of 1704 ppm. Flooding the core with both CFTs at this ppm concentration would provide a 5.0% $\Delta K/K$ shutdown margin which is well above the required 1%. In order to have a 1% shutdown margin with 1 stuck rod out and all other rods in, would require a critical boron concentration of 1110 ppm. With all rods in the critical boron concentration would be 798 ppm. The 1704 ppm average boron concentration would give a 10.8% shutdown margin. Therefore, the health and safety of the public were not affected.

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Corrective Action:

The "1A" CFT was resampled to verify the initial sample results. Borated water was added to the tank from the Unit 1 & 2 Boric Acid Mixing Tank. Power was reduced at the rate of 10% per hour to place Unit 1 in Hot Shutdown within 12 hours. The leaking CFT fill valve was repaired. The unit reached 100% full power 53 hours after initiating the power reduction.

Procedures will be evaluated and revised as necessary to ensure that the proper guidelines are included when core flood tanks have an inleakage problem. The past history of CFT problems are being evaluated. Possible revisions to the Technical Specifications are being considered to allow operation in a degraded mode based on the CFT boron concentration.

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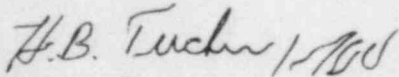
April 2, 1984

Document Control Desk
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Subject: Oconee Nuclear Station, Unit 1
Docket No. 50-269
LER 269/84-01

Pursuant to 10 CFR 50.73 Sections (a)(1) and (d), attached is Licensee Event Report 269/84-01 concerning low boron concentration in a Unit 1 core flood tank which is submitted in accordance with §50.73(a)(2)(i)(a) and (b). Initial notification of this event was made (pursuant to §50.72 Section (b)(1)(i)(a)) with the NRC Operations Center via the ENS on March 1, 1984. This event was considered to be of no significance with respect to the health and safety of the public.

Very truly yours,



Hal B. Tucker

JCP/php

Attachment

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