

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Browns Ferry - Unit 2										DOCKET NUMBER (2) 0 5 0 0 0 2 6 0				PAGE (3) 1 OF 0 2		
TITLE (4) Reactor Water Chemistry - Low pH																
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 6	1 1	8 5	8 5	0 0 4	0 0 0	0 7	0 3	8 5					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) 0 10 10		20.402(b)				20.405(c)				50.73(a)(2)(iv)				73.71(b)		
		20.405(a)(1)(i)				50.36(c)(1)				50.73(a)(2)(v)				73.71(c)		
		20.405(a)(1)(ii)				50.36(c)(2)				50.73(a)(2)(vii)				OTHER (Specify in Abstract below and in Text, NRC Form 366A)		
		20.405(a)(1)(iii)				X 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)(ix)						
LICENSEE CONTACT FOR THIS LER (12)																
NAME Patrick N. Ebersole										TELEPHONE NUMBER AREA CODE 2 0 1 5 7 2 1 9 - 1 3 7 8 1 8						
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)																
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPDOS		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPDOS						
SUPPLEMENTAL REPORT EXPECTED (14)												EXPECTED SUBMISSION DATE (15)		MONTH	DAY	YEAR
YES (If yes, complete EXPECTED SUBMISSION DATE)												X NO				

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

Routine sampling of reactor water chemistry taken from unit 2 on June 10, 1985, revealed a pH value of 5.12. Technical specifications require the pH be above 5.3 when the vessel is not pressurized. All fuel was removed from the vessel at the time of this occurrence.

Prior to the pH deviation the vessel level had been lowered for several weeks to accommodate weld repairs to the jet pump instrument nozzle safe end. Following reflood, vessel water quality was lower than normal but within limits. After returning the reactor water cleanup system (RWCU) to service, the deviation was measured. Apparently, some inleakage into the RWCU had taken place and resulted in the chemistry problem. Further operation of the RWCU returned the water chemistry to within limits within 12 hours.

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

APPROVED OMB NO. 3150-0104

EXPIRES 8/31/85

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
Browns Ferry - Unit 2	0 5 0 0 0 2 6 0	8 5	- 0 0 4	- 0 0	0 2	OF	0 2

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

Results of a reactor water chemistry sample taken from unit 2 at 2240 on June 10, 1985, revealed a pH value of 5.12. The lower limit allowed by technical specifications is 5.3 when the reactor vessel is not pressurized. At the time of this occurrence, units 1 and 2 were in refueling outages (all fuel was removed from the unit 2 vessel), and unit 3 was in an extended maintenance outage.

The unit 2 reactor vessel was drained on April 24, 1985, for replacement of the jet pump instrument nozzle safe end. The vessel remained in this low level condition through May and was reflooded on June 8, 1985. During the drain down condition, the reactor water cleanup system was out of service so no method was available for maintenance of water quality. By the time reflooding of the vessel was performed the water quality had declined somewhat but was still well within the technical specification requirements. After refilling on June 8, the quality did not change appreciably and remained around a pH of 5.45 and a conductivity of 2.4 umho/cm.

A cleanup demineralizer was placed in service at 2059 on June 10. The routine laboratory sample taken at 2240 on June 10 showed a pH of 5.12 with a conductivity value of 5.1 umho/cm. Analytical results of these samples showed some elevation in chlorides but the major impurities were nitrites and nitrates.

The impurity was removed quickly by operation of the reactor water cleanup system (CE), and the water quality was within technical specification limits in approximately 12 hours.

Although the exact cause of the excursion is not known, we believe that reactor building closed cooling water system (CC) leaked across the tubes of the nonregenerative heat exchanger and backed up in the cleanup system piping during the lengthy out-of-service period. Sodium nitrite is added to the RBCCW as a corrosion inhibitor.

A metallurgical evaluation revealed that the excursion would have very little or no effect on the reactor since nitrogen oxides which were the primary impurities found in the reactor water sample do not aggressively attack stainless steel.

The conditions under which this excursion occurred were highly unusual. The vessel had been drained down for an extended period resulting in already poor water quality. The water quality, however, was still within technical specification limits. The additional problem of the presence of the impurity only contributed an incremental decline in pH of 0.35 pH units to the decline already experienced due to the cleanup outage. In addition, only one of the demineralizer vessels was available for clean up which limited the ability to react to the presence of an impurity. Because of the unique set of conditions that were combined to cause this condition, recurrence is unlikely. Therefore, no corrective action is planned.

Responsible Plant Section - None

Previous Events - None

TENNESSEE VALLEY AUTHORITY
Browns Ferry Nuclear Plant
P. O. Box 2000
Decatur, Alabama 35602

July 3, 1985

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

Dear Sir:

TENNESSEE VALLEY AUTHORITY - BROWNS FERRY NUCLEAR PLANT (BFN) UNIT 2 -
DOCKET NO. 50-260 - FACILITY OPERATING LICENSE DPR-52 - REPORTABLE
OCCURRENCE REPORT BFRO-50-260/85004

The enclosed report provides details concerning reactor water chemistry -
low pH. This report is submitted in accordance with 10 CFR 50.73(a)(2)(i).

Very truly yours,

TENNESSEE VALLEY AUTHORITY

J. R. Pittman

G. T. Jones
Plant Manager
Browns Ferry Nuclear Plant

Enclosures

cc (Enclosures):

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NRC Resident Inspector, BFN

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