

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1): Browns Ferry Unit 1
DOCKET NUMBER (2): 0 5 0 0 0 2 | 5 | 9 1 OF 0 4
PAGE (3):

TITLE (4): Surveillance Testing Of Liquid Radioactive Waste Discharge Isolation Valves Incomplete Due To Inadequate Procedures

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 (5)
03	29	88	88	014	000	04	26	88	Browns Ferry Unit 2		0 5 0 0 0 2 6 0
									Browns Ferry Unit 3		0 5 0 0 0 2 9 6

OPERATING MODE (9): N

POWER LEVEL (10): 0 0 0

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (Check one or more of the following) (11):

20.402(b)	20.406(c)	50.73(a)(2)(iv)	73.71(b)
20.406(a)(1)(i)	50.36(c)(1)	50.73(a)(2)(v)	73.71(c)
20.406(a)(1)(ii)	50.36(c)(2)	50.73(a)(2)(vi)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)
20.406(a)(1)(iii)	X 50.73(a)(2)(i)	50.73(a)(2)(viii)(A)	
20.406(a)(1)(iv)	50.73(a)(2)(ii)	50.73(a)(2)(viii)(B)	
20.406(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(ix)	

LICENSEE CONTACT FOR THIS LER (12):

NAME: Stephen C. Willard, Engineer, Plant Operations Review Staff
TELEPHONE NUMBER: 2 0 5 7 2 9 - 2 5 3 6
AREA CODE: 2 0 5 7 2 9

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13):

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS

SUPPLEMENTAL REPORT EXPECTED (14):

YES (if per complete EXPECTED SUBMISSION DATE): NO:

EXPECTED SUBMISSION DATE (15): MONTH DAY YEAR

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

As a result of the programmatic upgrade of the Browns Ferry surveillance instructions (SI) it was reported on March 29, 1988, that the SI which tests the automatic isolation logic of the liquid radioactive waste discharge isolation valves did not fully test all operational configurations and that the flow switch on the cooling tower blowdown line was not identified as a technical specification (TS) required instrument and had not been calibrated on a regular schedule. TS 4.8.A.3 requires annual testing of the automatic isolation valves. Failure to test the logic and calibrate the flow switch was a violation of the TS surveillance requirement. No instances of inadvertent discharge due to logic failure have been identified. All three units were defueled at the time of discovery.

Administrative controls were established to ensure improper releases were not permitted until such time as the automatic isolation logic could be tested for each unit respectively. SIs have been prepared which fully test the pump interlock logic. A calibration procedure will be prepared for the flow switch. The discovery of this deficiency is considered a good indication of the quality and capability of the upgraded program, therefore additional recurrence control actions are not considered necessary.

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

DESCRIPTION OF EVENT

Browns Ferry Nuclear Plant (BFN) units 1, 2, and 3 were defueled at the time of discovery. The liquid radioactive waste system (EIIS code WD) is common to all three units.

As a result of the programmatic upgrade of the BFN surveillance instructions (SIs) it was reported, on March 29, 1988, that the SI which tests the automatic isolation logic of the liquid radioactive waste discharge isolation valves did not fully test all operational configurations. For each unit, the isolation valves on the lines connected directly to the condenser circulating water (CCW) (EIIS Code KE) discharge conduits are interlocked to close if fewer than two of the three CCW pumps are running. Isolation logic response to the different pump combinations was not tested. Additionally it was determined that the flow switch on the cooling tower blowdown line was not identified as a technical specification (TS) required instrument and had not been calibrated on a regular schedule. The isolation valve on the line leading to the cooling tower blowdown is interlocked to close if flow through that line drops below 50,000 gpm. TS 4.8.A.3 requires annual testing of the automatic isolation valves. Failure to properly test the logic and calibrate the flow switch at the required frequency was a violation of the TS surveillance requirement.

CAUSE OF EVENT

The earliest documented copies of this SI date back to 1973. The flow switch was initially put in service in 1977. A definitive root cause for the inadequacy of the original procedures or the omission of the flow switch from the listing of TS instruments cannot be determined. Subsequent reviews failed to recognize these deficiencies.

Two factors which influenced the condition are:

- ° TS surveillance requirement 4.8.A.3 addresses only valve operability, testing the logic is inferred as part of valve operability.
- ° Testing the pump interlocks is cumbersome because the logic comes directly from breaker positions and requires placing the unit in an abnormal configuration (two of the three CCW pumps stopped).

CORRECTIVE ACTION

Administrative controls were established to ensure improper releases were not permitted until such time as the automatic isolation logic could be tested for each unit respectively. The SIs have been prepared which fully test the

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TEXT (If more space is required, use additional NRC Form 386A's) (17)

pump interlock logic. The logic was successfully tested for the unit 1 discharge valve for the present plant configuration. The unit 2 and unit 3 discharge valves have been tagged closed until their logic can be tested. A procedure will be written to calibrate the flow switch on the cooling tower blowdown line. A manual isolation valve on the line leading to the cooling tower blowdown line has been tagged closed and will remain tagged until the flow switch is calibrated. These SIs and the calibration procedure will be added to the schedule for periodic implementation as required.

The surveillance program has recently been upgraded. The discovery of this deficiency is considered a good indication of the quality and capability of the new program. Because this discovery was the result of a programmatic upgrade of the surveillance program, additional recurrence control actions are not considered necessary.

ANALYSIS OF EVENT

The liquid radioactive waste system is designed to collect, treat, and dispose of the radioactive liquid wastes generated in the plant. The automatic isolation valves installed on the liquid radioactive waste discharge lines, along with the sampling, calculations, and valve lineups required prior to release, ensure adequate dilution and proper routing of liquid radioactive waste discharged from the plant. Because the automatic isolation logic response to the different CCW pump combinations was not tested and because the flow switch was not calibrated, the possibility existed that discharges could have been allowed without sufficient dilution. This condition would not have increased the amount of activity released. The condition involving the pump interlock logic existed for 15 years. The condition involving the flow switch existed for 11 years.

Although performance of the isolation logic was not properly proven, the procedures governing liquid radioactive waste releases require review of pump status or blowdown flow and use the corresponding flow as an input into the release rate calculations. A review of the maintenance history on the isolation valves indicates no problem with inadvertent opening of the valves. The testing of the unit 1 logic demonstrated the logic to be operating properly. No instances of inadvertent discharge due to logic failure have been identified.

In the interval between discovery and testing of the unit 1 logic, discharges were continued using the unit 1 CCW discharge conduit under interim administrative controls which ensured compliance with the limiting conditions for operation.

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PREVIOUS SIMILAR EVENTS - BFRO-50-259/77012
 BFRO-50-259/82078
 BFRO-50-259/88008
 BFRO-50-260/80014
 BFRO-50-296/82003

The events listed in this section were cases in which inadequate procedures caused incomplete or inadequate testing of equipment or functions required by TSS. None involved liquid radioactive wastes.

COMMITMENTS - Administrative controls were established to ensure improper releases were not permitted until such time as the automatic isolation logic could be tested for each unit respectively. The unit 2 and unit 3 discharge valves have been tagged closed until their logic can be tested. A manual isolation valve on the line leading to the cooling tower blowdown line has been tagged closed and will remain tagged until the flow switch is calibrated.

The SIs have been prepared which fully test the pump interlock logic. A procedure will be written to calibrate the flow switch on the cooling tower blowdown line.

TENNESSEE VALLEY AUTHORITY

Browns Ferry Nuclear Plant
Post Office Box 2000
Decatur, Alabama 35602

APR 28 1988

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

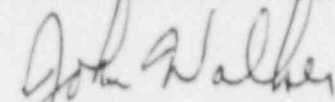
Dear Sir:

TENNESSEE VALLEY AUTHORITY - BROWNS FERRY NUCLEAR PLANT UNIT 1 - DOCKET
NO. 50-259 - FACILITY OPERATING LICENSE DPR-33 - REPORTABLE OCCURRENCE REPORT
BFRO-50-259/88014

The enclosed report provides details concerning the incomplete surveillance
testing of liquid radioactive waste discharge isolation valves due to inadequate
procedures. This report is submitted in accordance with 10 CFR 50.73 (a)(2)(i).

Very truly yours,

TENNESSEE VALLEY AUTHORITY



J. G. Walker
Plant Manager
Browns Ferry Nuclear Plant

Enclosures

cc (Enclosures):

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NRC Resident Inspector, Browns Ferry Nuclear Plant

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