

TENNESSEE VALLEY AUTHORITY

Browns Ferry Nuclear Plant
Post Office Box 2000
Decatur, Alabama 35609-2000
March 29, 1990

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

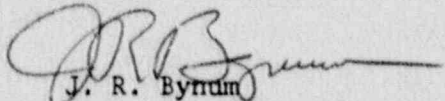
Dear Sir:

TVA - BROWNS FERRY NUCLEAR PLANT (BFN) UNIT 1 - DOCKET NO. 50-259 - FACILITY
OPERATING LICENSE DPK-33 - REPORTABLE OCCURRENCE REPORT BFRO-50-259/90004

The enclosed report provides details concerning the failure to comply with
technical specifications because of the loss of all three reactor building
hose stations. This report is submitted in accordance with
10 CFR 50.73(a)(2)(i).

Very truly yours,

TENNESSEE VALLEY AUTHORITY


J. R. Byrum
Vice President
Nuclear Power Production

Enclosure

cc (Enclosure):

Regional Administration
U.S. Nuclear Regulatory Commission
Office of Inspection and Enforcement
Region II
101 Marietta Street, Suite 2900
Atlanta, Georgia 30323

INPO Records Center
Suite 1500
1100 Circle 75 Parkway
Atlanta, Georgia 30339

NRC Resident Inspector, BFN

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LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Browns Ferry Unit 1 DOCKET NUMBER (2) PAGE (3)
050002 5 910F 0 5

TITLE (4)

FAILURE TO COMPLY WITH TECHNICAL SPECIFICATIONS DUE TO LOSS OF ALL THREE REACTOR BUILDING HOSE STATIONS

EVENT DAY (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	9	0	9	0	0	0	4	0	0	0	3	2	9	9	0	Browns Ferry Unit 3	05000296

OPERATING MODE (9)		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5: (Check one or more of the following)(11)																					
POWER LEVEL (10)	0	0	0	20.402(b)	20.405(a)(1)(i)	50.36(c)(1)	50.73(a)(2)(iv)	73.71(b)	20.405(a)(1)(ii)	50.36(c)(2)	50.73(a)(2)(v)	73.71(c)	20.405(a)(1)(iii)	X	50.73(a)(2)(i)	50.73(a)(2)(vii)(A)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)	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	TELEPHONE NUMBER
Steven W. Austin, Compliance Licensing Engineer	AREA CODE 205 729 - 2049

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 yes, complete EXPECTED SUBMISSION DATE)	X	NO	EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR

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

On March 1, 1990, units 1, 2, and 3 reactor building and turbine building high-pressure fire protection hose stations were removed from service without providing appropriate compensatory measures.

This event occurred as a result of isolations made in preparation for major maintenance activities on the unit 1 and 2 turbine building and reactor building fire protection. The cause of the event has been attributed to personnel error. The administrative requirements established did not meet the letter of technical specification. The onshift shift operations supervisor (SOS), shift technical advisor, and fire protection technician reviewed the administrative requirements and agreed that the compensatory measures established met the intent of the technical specifications.

The immediate corrective action was to make the necessary repairs to the unit 3 fire protection and establish compensatory measures that comply with technical specifications. Further corrective actions will involve reviewing the failure history and design of major boundary valves, counseling the personnel involved and review of the Final Event Report, and reviewing the tracking and reviewing of the control of removal of fire protection systems from service.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
Browns Ferry Unit 1	05100025990	0	04	0	2	0	5

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

DESCRIPTION OF EVENT

On March 1, 1990, it was discovered that the unit 1, 2, and 3 reactor building high-pressure fire protection hose stations were removed from service without providing appropriate compensatory measures.

On February 25, 1990, in preparation for a major maintenance outage on the unit 1 and 2 high-pressure fire protection (HPFP) system (EIS system code KP), plant personnel were attempting to isolate and drain down the unit 1 and 2 reactor building and turbine building HPFP. In order to isolate the portion of the system to be worked on, plant personnel closed the sectionalizing valve between the west fire protection loop and the main header supplying water to unit 1 and unit 2. Next they closed the sectionalizing valve between the north fire protection loop of the main header and the sectionalizing valve between unit 2 and unit 3 HPFP. This isolation removed from service the unit 1 and unit 2 high-pressure fixed spray and hose stations in the unit 1 and unit 2 turbine building and reactor building. Compensatory measures were then established in the unit 1 and unit 2 turbine building and reactor building.

On February 26, 1990, it was determined that the sectionalizing valve between the north fire protection loop of the main header and unit 1 turbine building was leaking through. Accordingly, the isolation boundary was extended in the direction of the west high-pressure fire protection loop. Closing this sectionalizing valve isolated the office building fire protection. This required extending the compensatory requirements to include the office building.

On February 27, 1990, it was again determined that one or more of the sectionalizing valves were leaking through. After investigating the problem, it was determined that the sectionalizing valve between the unit 2 and unit 3 HPFP was leaking through. Plant personnel closed three sectionalizing valves in an attempt to isolate the HPFP so maintenance could be performed. The first sectionalizing valve was between unit 2 and unit 3 HPFP; the next two isolated the unit 3 HPFP from the north loop of HPFP. The final valve alignment was to close two valves in the north loop of the fire protection. This also allowed personnel to make repairs to the sectionalizing valves throughout the units 1, 2, and 3 HPFP system. This valve alignment isolated unit 3 turbine building and reactor building fire hose stations, removing them from service.

On February 28, 1990, compensatory measures were established, hose station fire protection system was drained, and the required work was in progress.

On March 1, 1990, it was discovered that BFN was not in compliance with technical specifications relating to compensatory measures for unit 1, 2, and 3 high-pressure fire protection hose stations that had been removed from service for maintenance. Compensatory measures could not be established until maintenance work on the unit 3 fire protection was completed to a point that that portion of the system could be declared operable.

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Browns Ferry Unit 1	0500025990	0	0	4	0	0	3 OF 5

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

On March 5, 1990, maintenance work on unit 3 was completed to allow unit 3 fire protection to be declared operable, and on March 6, 1990 at 0015 hours and March 7, 1990 at 0030 hours, compensatory measures were established for units 2 and 1 respectively.

During the event, units 1, 2, and 3 were defueled. This action resulted in isolation of all three reactor buildings which is outside technical specifications. Failure to meet technical specifications is reportable under 10 CFR 50.73(a)(2)(i).

ANALYSIS OF EVENT

The high-pressure fire protection system supplies water for a fixed water spray, preaction sprinkler, fire hose stations, and hydrants throughout the plant and yard areas.

Several fire protection isolation valves failed to properly provide an isolation boundary. As a result of this, isolations necessary to perform the required maintenance activities on the system were extended to include the unit 3 reactor and turbine buildings, rendering all fixed spray and hose stations in the unit 1, 2, and 3 turbine building and reactor building inoperable. At no time during this event was plant safety in question. Adequate compensatory measures were established throughout the plant. The preaction system, the primary suppression coverage in the reactor building, was available at all times to cover any potential fire in the reactor building. Fire hose stations were also established on the units 1 and 3 reactor building utilizing the preaction system as a water supply. Browns Ferry's physical layout is such that this arrangement can adequately protect all three units in the reactor building.

The fire hydrants on the north and south loop of HPFP were operable. One plant fire pumper truck was positioned so water from the south side of the loop could be utilized to supply water to the reactor building through the equipment entrance. The other plant fire pumper truck was positioned at the unit 3 turbine building breezeway with a portable hydrant and three two-and one-half inch hoses spread out to cover the three turbine buildings. Additional fire watches were established as required.

These compensatory measures, although not meeting the letter of the technical specification, met the intent of the technical specification. That is, the HPFP was able to supply adequate water to hoses that were placed strategically throughout the affected areas, in order to extinguish any possible fire.

CAUSE OF EVENT

The root cause of this event was attributed to personnel error. Several fire protection system boundary valves failed to properly seat preventing adequate clearance isolation boundaries. As a result, the boundaries were extended to include unit 3 turbine and reactor building. Fire protection personnel utilized

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Browns Ferry Unit 1	0500025990	00	4	0	0	4	5

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

hoses attached to the unit 1 and unit 3 preaction system and fire water hydrants as compensatory measures. Technical specifications state, "The fire hose stations shall be operable whenever equipment in the areas protected by the fire hose stations is required to be operable." If one or more fire house stations are inoperable, the technical specifications require that gated wye(s) be provided "on the nearest operable hose stations(s)."

Prior to this event, at Browns Ferry, fire water hydrants and the preaction system were considered to be acceptable as "hose stations" for the purpose of satisfying technical specifications. Following this event, a more conservative interpretation of this technical specification has been implemented which does not allow for this configuration.

The onshift shift operations supervisor (SOS), the shift technical advisor, the fire protection engineer, and the fire protection technician reviewed the administrative requirements prior to the event and agreed that the compensatory measures established met the intent of the technical specification. Emphasis was placed on plant safety and the ability to detect and extinguish any possible fire.

CORRECTIVE ACTIONS

The immediate corrective action was to perform the required maintenance on the fire protection sectionalizing valves that would allow restoration of the unit 3 turbine building and reactor building fire protection. Completion of this work would allow adjustment of the compensatory measures. The required maintenance was expediently completed on the unit 3 fire protection and it was declared operable. Compensatory measures were then established to bring the plant back into compliance with technical specifications.

The plant manager discussed this event with the line supervision of the personnel involved in the event. The plant operations manager and operations superintendent met with the shift supervisors, assistant shift supervisors, and cognizant fire protection personnel to discuss with them the need for technical specification compliance.

A review of the failure history of the fire protection system major boundary valves will be performed to determine if preventive maintenance and design is adequate.

The personnel involved in the event will be counseled on meeting the letter of technical specifications rather than the intent. Furthermore, operations and fire protection personnel will be required to review the Final Event Report.

Perform a review of the method for tracking and reviewing the administrative control for the removal of fire protection system from service.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
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Browns Ferry Unit 1	0500025990	004	00	5 OF 5	

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

PREVIOUS SIMILAR EVENTS

Two similar events have occurred at BFN. Both events were a result of misinterpretation of technical specification requirements.

LER 259/88026 - Violation of Fire Protection Technical Specifications Due to Personnel Error. In this LER, several fire doors were blocked open without proper compensatory measures.

LER 259/89005 - Plant Technical Specification Surveillance Requirement Exceeded Due to a Misinterpretation by Supervision Responsible for Patrolling Fire Watches. In this LER, it was discovered that fire watch patrols had exceeded the hourly intervals set by technical specifications.

COMMITMENTS

A review of the failure history of the fire protection system major boundary valves will be performed to determine if preventative maintenance and design is adequate. This action will be completed by June 30, 1990.

The personnel involved in the event will be counseled on meeting the letter of technical specifications rather than the intent. Operations and fire protection personnel will be required to review the Final Event Report. These actions will be performed by April 30, 1990.

Perform a review of the method for tracking and reviewing the administrative control for the removal of fire protection systems from service. This will be completed by April 30, 1990.