



Tennessee Valley Authority, Post Office Box 2000, Decatur, Alabama 35602

MAY 05 1991

U.S. Nuclear Regulatory Commission  
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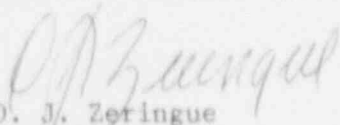
Dear Sir:

TVA - BROWNS FERRY NUCLEAR PLANT (BFN) UNIT 2 - DOCKET NO. 50-260 -  
FACILITY OPERATING LICENSE DPR-52 - REPORTABLE OCCURRENCE REPORT  
BFRO-50-260/91007

The enclosed report provides details concerning an Engineered Safety  
Feature actuation resulting from leaky packing on check valve pressure  
differential transmitters on the Main Steam System. This report is  
submitted in accordance with 10 CFR 50.73(a)(2)(iv).

Very truly yours,

TENNESSEE VALLEY AUTHORITY

  
O. J. Zeringue  
Vice President  
Browns Ferry Operations

Enclosure

cc: see page 2

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U.S. Nuclear Regulatory Commission

MAY 05 1991

cc (Enclosure):

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## LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Browns Ferry Unit 2										DOCKET NUMBER (2)   PAGE (3) 015101012   6   10   11   010   4											
TITLE (4) ESF Actuation Resulting from Leaking Packing on Check Valve Differential Pressure Transmitters on the Main Steam System																					
EVENT DAY (5)					LER NUMBER (6)					REPORT DATE (7)					OTHER FACILITIES INVOLVED (8)						
MONTH   DAY   YEAR   YEAR					SEQUENTIAL   REVISION   NUMBER   NUMBER					MONTH   DAY   YEAR					FACILITY NAMES   DOCKET NUMBER(5)						
0   4   0   9   9   1   9   1					0   0   7   0   0   0   5   0   5   9   1					01510101   1   1											
OPERATING MODE (9)		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5: (Check one or more of the following)(11)																			
N		20.402(b)					20.405(c)					x 50.73(a)(2)(iv)					73.71(b)				
POWER		20.405(a)(1)(i)					50.36(c)(1)					50.73(a)(2)(v)					73.71(c)				
LEVEL		20.405(a)(1)(ii)					50.36(c)(2)					50.73(a)(2)(vii)					OTHER (Specify in				
(10) 0   0   0   0		20.405(a)(1)(iii)					50.73(a)(2)(i)					50.73(a)(2)(viii)(A)					Abstract below and in				
		20.405(a)(1)(iv)					50.73(a)(2)(ii)					50.73(a)(2)(viii)(B)					Text, NRC Form 366A)				
		20.405(a)(1)(v)					50.73(a)(2)(iii)					50.73(a)(2)(x)									
LICENSEE CONTACT FOR THIS LER (12)																					
NAME										TELEPHONE NUMBER											
James E. Wallace, Compliance Licensing Engineer										AREA CODE   2   0   5   7   2   9   -   2   8   7   4											
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)																					
CAUSE   SYSTEM   COMPONENT   MANUFACTURER					REPORTABLE					CAUSE   SYSTEM   COMPONENT   MANUFACTURER					REPORTABLE						
TO NPRDS										TO NPRDS											
SUPPLEMENTAL REPORT EXPECTED (14)										EXPECTED   MONTH   DAY   YEAR											
SUBMISSION										DATE (15)											
YES (If yes, complete EXPECTED SUBMISSION DATE)   X   NO																					

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

On April 9, 1991, at 0156 hours Central time, an unplanned Engineered Safety Feature (ESF) actuation occurred when the Group 1 primary containment isolation (PCIS) initiated. The Group 1 PCIS occurred during the performance of a Surveillance Instruction (SI) when Instrument Mechanics (IMs) placed Channels A and B in an isolated mode and a leak from 2-PDT-1-25B valve caused the depressurization of the low side of the Channel B transmitter. This event is being reported in accordance with 10 CFR 50.73(a)(2)(iv) as an event that resulted in an automatic initiation of an ESF.

The cause of this event was that one process instrument had entrapped air in the low-side sensing line, and one process instrument had a water leak from the packing in the low-side manifold valve.

The unit operator contacted the IMs, and work on SI was stopped. The IMs returned the affected instruments to service. Subsequent corrective actions were: IMs vented trapped air and backfilled line for the first process instrument and tightened packing nuts on the other process instrument. In addition, SIs that test excess flow check valves were revised to require constant communications with control room Unit Operator and to install jumpers to bypass the initiation of Group 1 PCIS logic on main steam line high flow.

## LICENSEE EVENT REPORT (LER)

## TEXT CONTINUATION

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)		
		YEAR	NUMBER	REVISION			
Browns Ferry Unit 2	0500026091	00	07	00	02	OF	04

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

DESCRIPTION OF EVENT

On April 9, 1991, at 0156 hours Central time, an unplanned Engineered Safety Feature (ESF) actuation occurred when the Group 1 Primary Containment Isolation System (PCIS) initiated. The plant responded as designed. In a Group 1 PCIS, the inboard main steam isolation valves (MSIVs) [SB], outboard MSIVs [SB], main steam line (MSL) drain [SB], and reactor water sample valves [CE] closed. The Group 1 PCIS occurred during the performance of Surveillance Instruction (SI) 2-SI-4.7.D.1.d-2, "Instrument Line Flow Check Valve Operability Test," when Instrument Mechanics (IMs) took a Channel B process instrument out of service while Channel A was still in an isolation mode.

On April 9, 1991, at 0045 hours, IMs (utility, non-licensed) were given permission by the Shift Operations Supervisor (utility, licensed) to perform the SI. At 0156 hours the IMs began to take the process instruments on MSL B out of service by manipulating the low side, high side, and equalizer manifold valves on process instrument 2-PDT-1-25A. At that time, the Unit 2 control room received an initiation on PCIS Group 1 logic Channel A1, resulting from a MSL high flow trip signal. This initiation remains tripped until manually reset. The Unit Operator (utility, licensed) acknowledged and sealed in the alarm. The Unit Operator was in the process of resetting the 1/4 isolation when the IMs manipulated the low-side manifold valve for process instrument 2-PDT-1-25B. This caused an initiation on an PCIS Group 1 logic Channel B1 resulting from a MSL high flow trip signal. These two alarm conditions caused the Group 1 PCIS.

Following the Group 1 PCIS, a Unit Operator contacted the IMs to stop the SI. The Unit Operator recorded the actuated alarms and reset the PCIS. The MSIVs reopened. After the IMs returned MSL B process instrument 2-PDT-1-25B to service and called the Unit Operator to verify the isolation had cleared, IMs stopped the performance of the SI.

At the time of this event Unit 2 was in cold shutdown with all control rods inserted and the vessel and associated piping at approximately 1,000 psig for ASME Section XI Hydrostatic Pressure Testing (HYDRO) of reactor vessel and MSL piping. Units 1 and 3 were defueled and no fuel handling or operations over the spent fuel were performed. The automatic initiation of an ESF is reportable in accordance with 10 CFR 50.73(a)(2)(iv).

ANALYSIS OF EVENT

In accordance with Technical Specification 4.7.D.1.d, the Reactor Coolant System instrument line flow check valves shall be verified operable at least once per operating cycle.

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		SEQUENTIAL		REVISION					
		YEAR	NUMBER	NUMBER	NUMBER				
Browns Ferry Unit 2	050002 6091	--	007	--	000	3	OF	0	4

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

MSL high flow is sensed by differential pressure transmitters connected to a sense line upstream and downstream of the steam line flow restrictors. A high differential pressure (i.e. greater than 100 psid) at these transmitters would be indicative of a high flow and signals the need for closure of the MSIVs.

Since the HYDRO was in process, the differential pressure transmitters had a static pressure of greater than 500 psi applied to them. When the low side manifold valve of transmitter 2-PDT-1-25A was closed, entrapped air in the sense line between the low-side manifold valve and the transmitter caused the depressurization of the low pressure side of this transmitter. Since high pressure (greater than 500 psi) was still applied to the high pressure side of 2-PDT-1-25A, a high differential pressure was sensed. This caused the tripping of Group 1 PCIS Channel A1.

When the low-side manifold valve of 2-PDT-1-25B was closed, a leak in this valve caused the depressurization of the low pressure side of this transmitter. Since high pressure (greater than 500 psi) was still applied to the high pressure side of 2-PDT-1-25B, a high differential pressure was sensed. This caused the tripping of Group 1 PCIS Channel B1. Tripping of both PCIS Channel A1 and PCIS Channel B1 caused initiation of a Group 1 PCIS. This Group 1 PCIS did not cause an overpressurization of the reactor vessel.

The plant responded to the MSL high flow signals as designed (i.e., MSIVs closed). This SI is only performed when the unit is in an outage and when the reactor vessel and main steam line piping are at a pressure greater than 500 pounds.

CAUSE OF EVENT

The cause of this event was that one process instrument 2-PDT-1-25A had entrapped air between the low-side manifold valve and the transmitter and the other process instrument 2-PDT-1-25B had a water leak from the packing in the low-side manifold valve.

CORRECTIVE ACTIONS

Corrective actions were performed by operations personnel and IMs. The Unit Operator contacted IMs to stop SI and reset PCIS condition. IMs returned process instrument to service, stopped SI, and contacted Unit Operator to verify the isolation was cleared. Subsequent corrective actions were: IMs vented trapped air and backfilled line for process instrument 2-PDT-1-25A, and tightened the packing nuts on manifold valves on process instrument 2-PDT-1-25B. In addition, SIs that test excess flow check valves (2-SI-4.7.D.1.d-1 through 2-SI-4.7.D.1.d-3) were revised to require constant communications with control room Unit Operator and to install jumpers bypassing the initiation of Group 1 PCIS logic on MSL high flow.

LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATION

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)						PAGE (3)			
		SEQUENTIAL			REVISION						
		YEAR	NUMBER		NUMBER		NUMBER				
Browns Ferry Unit 2	050002 6091	--	0	0	7	--	0	0	0	4	OF 04

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

PREVIOUS SIMILAR EVENTS

LER 259/84008 - In 1984, process instrument 1-PDT-1-25C failed on five different occasions while the plant was at normal operations with power levels ranging from 44 to 88 percent. These 1984 incidents were caused by failure of a snubber in the transmitter. However, the event in LER 260/91007 did not involve an instrument line snubber; therefore, the cause of LER 259/84008 did not contribute to the April 1991 event.

COMMITMENTS

None

Energy Industry Identification System (EIIS) codes are identified in the text as [XX].