

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 3

PAGE (3)

TITLE (4)
Inoperable Pressure Switches

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	1	2	8	4	8	4	0	0	5	0	5	0	0	0
0	1	2	8	4	8	4	0	0	5	0	5	0	0	0

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 50. (Check one or more of the following) (11)

OPERATING MODE (9)	20.402(b)	20.406(e)	50.73(a)(2)(iv)	73.71(b)
N	20.406(a)(1)(i)	50.36(c)(1)	50.73(a)(2)(v)	73.71(c)
POWER LEVEL (10)	20.406(a)(1)(ii)	50.36(c)(2)	50.73(a)(2)(vi)	OTHER (Specify in Abstract below and in Text, NRC Form 365A)
0 1 9 5	20.406(a)(1)(iii)	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
Kieron M. Morkin

TELEPHONE NUMBER

AREA CODE

2 0 5 7 2 9 - 0 7 1 8 8

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC
X	J E P S		S 3 8 2	N					

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, 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)

During normal operation, routine surveillance testing showed that the setpoints for pressure switches PS-64-56B and C were not within the limits of Technical Specification 3.2.A (≤ 2.50 psi). The as-found values were 2.54 psi for PS-64-56B and 2.52 for PS-64-56C. Pressures above the trip setting initiate the RPS (high drywell pressure half scram), reactor building and primary containment isolation, and the standby gas treatment system.

The setpoints for the Static-O-Ring Model 12N-AA4 pressure switches had drifted. These switches are apparently vulnerable to setpoint drift due to a setpoint repeatability problem that occurs under certain conditions following extended unit outages. As recurrence control, procedures will be revised to have these switches cycled through their normal operating range prior to setpoint adjustment.

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104

EXPIRES 8/31/85

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

Unit 1 was at 95 percent power, unit 2 was in cold shutdown following a unit scram, and unit 3 was in a refueling outage. Only unit 1 was affected by this event.

On January 22, 1984 at 0805, while performing routine surveillance testing, the setpoint values for pressure switches (PS) PS-64-56B and C were found to be above the limits of Technical Specification 3.2.A (≤ 2.5 psi). The as-found values were 2.54 psi for PS-64-56B, and 2.52 for PS-64-56C. These switches are part of the reactor protection system (JE) activation logic and the primary containment and reactor building isolation (JM) control logic. As such, they are part of an engineered safety feature. Pressures above the trip setting initiate a drywell high pressure scram, reactor building isolation, primary containment isolation, and stand-by gas treatment (BH) system. Redundant switches PS-64-56A (redundant to PS-64-56C) and PS-64-56D (redundant to PS-64-56B) were available and operable.

The event required no operator corrective action. A 4-hour limiting condition for operation was entered. The switches were calibrated by Instrument Maintenance personnel and returned to service by 0930.

Investigation showed that the setpoints for the Static-O-Ring Model 12N-AA4 pressure switches had drifted. Available calibration data for these switches have previously been reviewed and the problem discussed with the manufacturer. (LER 259/84002) These switches are vulnerable to setpoint drift whenever they are overpressurized after being in a depressurized condition for an extended period (such as during refueling). The overpressurization (which occurs during special leak rate testing during the refueling outage) apparently adversely affects setpoint repeatability which can result in setpoint drift. Cycling the pressure switch through its normal operating range several times helps ensure that the setpoint will return to its original position and reduces the potential for drift.

Currently, the as-found readings for these switches are taken after the switch/system has been depressurized for several months and before setpoint adjustment. The setpoint adjustment, however, is performed prior to cycling the switch through its operating range. Thus, when the switch is overpressurized during the special testing following refueling, the setpoint is subject to drift out of the Technical Specification limits. Procedures will be revised to require that prior to startup following a refueling or any other extended outage where these switches have been overpressurized, the switches are cycled through their normal operating range several times before final adjustment of the setpoint. This will ensure maximum repeatability and reduce the potential for drift.

High drywell pressure is sensed by two pressure switches in each of two trip systems. Each trip channel is shared by the RPS and the primary containment and reactor building isolation control systems. A failure of one channel may be considered to be a failure in each system. The as-found setpoints were above Technical Specification limits by a maximum of only 1.6 percent and presented no hazard to plant operations or safety system functions. The setpoints were above limits by such a small amount that, had there been a design basis accident, the RPS and containment isolation systems would have activated in time to fully meet their design safety functions.

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TEXT (If more space is required, use additional NRC Form 368A's) (17)

The RPS provides timely protection against the onset and consequences of conditions that threaten the integrity of the nuclear system process barrier. Accordingly, the detection of high drywell pressure could indicate that a breach of the nuclear system process barrier has indeed occurred inside the drywell. The automatic closure of various group A and B isolation valves (ISV) prevents the release of significant amounts of radioactive material from the primary containment. Control room design provides the operator with the capability to take action independent of the automatic protective and isolation systems. Thus, even if all four of the PS-64-56 switches (A through D) had failed completely and a loss-of-coolant accident occurred, the reactor protective and containment isolation functions could still have safely been accomplished.

Previous Similar Events

BFRO-50-259/84002

BFRO-50-260/83016

Responsible Plant Section

N/A

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401
Browns Ferry Nuclear Plant
P. O. Box 2000
Decatur, Alabama 35602

February 13, 1984

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 BFR0-50-259/84005

The enclosed report provides details concerning inoperable pressure
switches. This report is submitted in accordance with 10 CFR 50.73
(a)(2)(vii).

Very truly yours,

TENNESSEE VALLEY AUTHORITY

G. T. Jones

G. T. Jones
Power Plant Superintendent
Browns Ferry Nuclear Plant

Enclosure

cc (Enclosure):

Regional Administrator
U. S. Nuclear Regulatory Commission
Office of Inspection and Enforcement
Region II
101 Marietta Street, Suite 2900
Atlanta, GA 30303

NRC Inspector, Browns Ferry Nuclear Plant

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