NRC Form 366
(9-83)

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/88

LICENSEE EVENT REPORT (LER)

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

TITLE (4)

Failure to Properly Torque Enclosing Tube Assembly Nut

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)
											Browns Ferry Unit 2	0 5 0 0 0 2 6 0
0 2	2 8	8 6	8 6	–	0 1 7	–	0 0	0 5	2 3	8 6	Browns Ferry Unit 3	0 5 0 0 0 2 9 6

OPERATING MODE (9)		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)			
	N	20.402(b)	20.405(c)	50.73(a)(2)(iv)	73.71(b)
POWER LEVEL (10)	0 0	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)	X OTHER (Specify in Abstract below and in Text, NRC Form 366A)
		20.405(a)(1)(iii)	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)(x)	

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
	AREA CODE
Bertram C. Morris, Compliance Supervisor	2 0 5 7 2 9 - 3 7 8 6

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)		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)

During a supplier QA audit of Magnetrol International, Incorporated, TVA auditors discovered that Magnetrol failed to identify torquing requirements on manufacturing drawings and routing sheets for the enclosing tube assembly (E-tube) nut on model 402 float level switches. These switches are for use on the scram discharge instrument volume level monitoring system. TVA checked the torque on both spare and installed switches and found all to be less than the required torque range of 200 to 225 ft-lbs.

The acceptable torque range was derived from qualification tests on the instrument and is specified to prevent potential loosening of the assembly during seismic events. Significant loosening of the nut would allow leakage of water from the scram discharge volume at the level switch assembly location. Actual switch operability is not affected by this condition.

Corrective action will consist of tightening the nuts on all installed and spare switches and updating maintenance procedures to ensure the torque limits are maintained.

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

Units 1 and 3 were in extended maintenance outages and unit 2 was in a refueling outage at the time this condition was discovered.

During a scheduled vendor audit of Magnetrol on January 7-9, 1986, the TVA audit team discovered that torquing requirements for the enclosing tube assembly had not been implemented for 10 spare level switches (LS) procured by contract 85PK6-343692 and received at Browns Ferry Nuclear Plant on May 16, 1985. These level switches are used on the scram discharge instrument volume (SDIV) level monitoring system (AA). Torque checks on the twelve (four per unit) installed instruments and replacement inventory found all were torqued to values less than the required range of 200 to 225 ft-lbs.

Prior to the full seismic qualification testing of the Magnetrol model 402 level switches, a specific torque value was not required for the enclosing tube assembly (E-tube) nut. However, during seismic qualification tests, one test specimen lost pressure due to loosening of the E-tube nut. The nut was then torqued to 200 to 225 ft-lbs and retested; the leak did not recur. At the time, TVA considered this to be an insignificant event in that the anomaly was attributed to the malfunction of the test table and that additional tests were performed without a loss of pressure. The disposition of the test deficiency was to add a torquing value requirement for the E-tube nut since no similar problems were experienced during subsequent seismic tests. This was agreed to by Magnetrol and TVA in May 1983, but was not translated into the vendor's process sheets.

The scram discharge volume (SDV) receives the water displaced by the control rod drive pistons during a scram. To ensure an adequate free volume is available in the SDV, level switches on the SDIV scram the reactor on high level. Each unit has two SDIVs which utilize two Magnetrol float switches in each. The safety concern associated with the potential for loosening the nuts is that during a scram, the volume becomes pressurized with reactor water via the rod drive system. Presuming a severe seismic event with a scram, potential for leakage from the volume would exist if the E-nut loosened considerably. This leak would be between a one-inch male and female threaded connection of the enclosing tube assembly with the float chamber. Any resultant leakage would be minimal and would not constitute a substantial safety or radiological problem. Actual switch operation is not affected by this condition. Provided in NRC generic letter 86-01 is an extensive discussion of the subject of leakage from the SDV which concludes with the fact that a safety problem is not likely to occur for small leakage paths.

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

Corrective action consists of tightening all the assemblies to within the specified torque values. The vendor will also include the torque value in the assembly drawings. Maintenance instructions are also being revised to ensure that the assemblies be retightened following maintenance activities.

This report is provided for your information. Magnetrol has informed TVA that they have independently reported this item to NRC under Part 21 provisions.

Responsible Plant Section - NE

Previous Similar Events - None

TENNESSEE VALLEY AUTHORITY

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

May 23, 1986

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-50-259/86017

The enclosed report provides details concerning the failure to properly torque enclosing tube assembly nut. This report is submitted for informational purposes only.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

Robert L. Lewis

Robert L. Lewis
Plant Manager
Browns Ferry Nuclear Plant

Enclosures
cc (Enclosures):
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U.S. Nuclear Regulatory Commission
Office of Inspection and Enforcement
Region II
101 Marietta Street, Suite 2900
Atlanta, Georgia 30303

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

NRC Resident Inspector, Browns Ferry Nuclear Plant

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