

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) <b>Browns Ferry - Unit 3</b>	DOCKET NUMBER (2) <b>0 5 0 0 0 2 1 9 1 6</b>	PAGE (3) <b>1 OF 0 1 2</b>
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TITLE (4)  
**Jet Pump Instrument Nozzle Cracking**

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 5	1 7	8 4	8 4	0 0 6	0 4	1 1	1 6	8 4			0 5 0 0 0																												
<table border="1" style="width:100%"> <tr> <td>OPERATING MODE (9) <b>N</b></td> <td>20.402(b)</td> <td>20.405(c)</td> <td>50.73(a)(2)(iv)</td> <td>73.71(b)</td> </tr> <tr> <td>POWER LEVEL (10) <b>0 10 10</b></td> <td>20.405(a)(1)(i)</td> <td>50.38(c)(1)</td> <td>50.73(a)(2)(v)</td> <td>73.71(c)</td> </tr> <tr> <td></td> <td>20.405(a)(1)(ii)</td> <td>50.38(c)(2)</td> <td>50.73(a)(2)(vii)</td> <td><input checked="" type="checkbox"/> OTHER (Specify in Abstract below and in Text, NRC Form 366A)</td> </tr> <tr> <td></td> <td>20.405(a)(1)(iii)</td> <td>50.73(a)(2)(ii)</td> <td>50.73(a)(2)(viii)(A)</td> <td rowspan="3"><b>Part 21</b></td> </tr> <tr> <td></td> <td>20.405(a)(1)(iv)</td> <td><input checked="" type="checkbox"/> 50.73(a)(2)(iii)</td> <td>50.73(a)(2)(viii)(B)</td> </tr> <tr> <td></td> <td>20.405(a)(1)(v)</td> <td>50.73(a)(2)(iii)</td> <td>50.73(a)(2)(ix)</td> </tr> </table>												OPERATING MODE (9) <b>N</b>	20.402(b)	20.405(c)	50.73(a)(2)(iv)	73.71(b)	POWER LEVEL (10) <b>0 10 10</b>	20.405(a)(1)(i)	50.38(c)(1)	50.73(a)(2)(v)	73.71(c)		20.405(a)(1)(ii)	50.38(c)(2)	50.73(a)(2)(vii)	<input checked="" type="checkbox"/> OTHER (Specify in Abstract below and in Text, NRC Form 366A)		20.405(a)(1)(iii)	50.73(a)(2)(ii)	50.73(a)(2)(viii)(A)	<b>Part 21</b>		20.405(a)(1)(iv)	<input checked="" type="checkbox"/> 50.73(a)(2)(iii)	50.73(a)(2)(viii)(B)		20.405(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(ix)
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LICENSEE CONTACT FOR THIS LER (12)

NAME <b>David L. Smith</b>	TELEPHONE NUMBER <b>2 1 0 5 7 1 2 1 9 1 - 3 1 8 1 6 1 5</b>
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COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPDOS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPDOS

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)

Based on information received from the publication Inside NRC, the Tennessee Valley Authority (TVA) inspected 10 welds on the jet pump instrument nozzles. Of these, two welds were determined to need repair. These welds will be repaired by the weld overlay procedure to be completed prior to unit startup. TVA has an inspection plan which is carried out during refueling outages for identifying defective welds.

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1)  Browns Ferry - Unit 3	DOCKET NUMBER (2)  0 5 0 0 0 2 9 6 8 4 - 0 0 6 - 0 4 0 2 OF 0 2	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		

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

During normal operation unit 1 was operating at 95 percent, unit 2 at 59 percent, and unit 3 was in a refueling outage. Only unit 3 was affected by this event.

Additional welds were inspected on the jet pump instrument nozzles (NZL) based on information received from the publication 'Inside NRC.' Ten welds were examined and two were determined to need weld repair. Weld overlay repairs on both nozzles will be complete prior to returning the unit to operating status. These two 4-inch reducer safe-end welds had axial indications up to 82 percent through wall in the base metal. One of the safe ends has two indications visible from the outside. These two welds are suspected to be a product of intergranular stress corrosion cracking due to the safe ends being moderately sensitized.

TVA is presently in an inspection program to ultrasonically test all twelve recirculation reactor vessel (RPV) penetrations (PEN) for indications of intergranular stress corrosion cracking. Metallography (acid etching) will be done on two out of the ten recirculation discharge reactor vessel penetrations and on both of the inlet penetrations. The jet pump instrument nozzle welds will be inspected during the upcoming units 1 and 2 refueling outages (unit 2 refueling outage - September 1984), and depending on the results of the unit 3 ultrasonic test inspection program, a decision will be made on the extent of units 1 and 2 ultrasonic test inspections that will be needed. If an opportunity of a short outage presents itself prior to the next refueling outage, unit 1 will be checked out at that time.

A contributing factor in this issue may be that units 2 and 3 were procured from Ishikawajima-Harima Heavy Industry Company, Ltd., a Japanese vendor, while unit 1 was bought from Coulter Steel and Forging Co. The certified material test reports from the units 2 and 3 vessel penetrations show a higher carbon content than those of unit 1; thus also pointing to more susceptibility for sensitization areas.

The above mentioned inspections were performed on units 1 and 3 and no new indications were found. Unit 2 will be examined to the same extent as units 1 and 3.

The unit 2 inspection of the jet pump instrument nozzles revealed two areas of intergranular stress corrosion cracking. First area, weld JP-2-1A, had 2 pinhole indications that were 100% through wall. The other area, weld JP-2-1B, had six axial intermittent indications that were not through wall. These areas will be repaired and reinspected prior to unit restart.

If the cracked welds had failed during normal operation, a minimum of reactor coolant would be lost because these welds were on a 4-inch reducer to the jet pump instrument nozzle safe-end and the penetration has twelve 1-inch instrument lines inside it. These instrument lines have .004 tolerance between themselves and the 4-inch penetration. Therefore, a minimum flow would have been released with the drywell sump pumps unidentified leakage alerting the licensed unit operator to the line break. Since the unit is analyzed for a loss of coolant accident for a 24-inch line, these two jet pump instrument nozzle breaks would be negligible.

This event is deemed Part 21 reportable. The jet pump instrument nozzles were furnished by Ishikawajima-Harima Heavy Industry Company, Ltd.

Previous similar events - BFRO-50-259/83-23; -260/82-40; -296/79-19  
Responsible Plant Section - N/A

TENNESSEE VALLEY AUTHORITY

Browns Ferry Nuclear Plant

P. O. Box 2000

Decatur, Alabama 35602

November 16, 1984

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

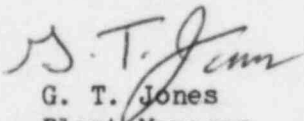
Dear Sir:

TENNESSEE VALLEY AUTHORITY - BROWNS FERRY NUCLEAR PLANT (BFN) UNIT 3 -  
DOCKET NO. 50-296 - FACILITY OPERATING LICENSE DPR-09 - REPORTABLE  
OCCURRENCE REPORT BFRO-50-296/83006 R4

The enclosed report provides additional details concerning the jet pump  
instrument nozzle cracking. This report is submitted in accordance with  
10 CFR 50.73 (a)(2)(ii) and is determined to be 10 CFR 21 reportable.

Very truly yours,

TENNESSEE VALLEY AUTHORITY



G. T. Jones  
Plant Manager  
Browns Ferry Nuclear Plant

BCM:DLS:BDL

Enclosure

cc (Enclosure):

Regional Administrator  
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, BFN