

July 23, 2007

10 CFR 50.73

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Mail Stop OWFN: P1-35
Washington, D. C. 20555-0001

Dear Sir:

**TENNESSEE VALLEY AUTHORITY - BROWNS FERRY NUCLEAR PLANT
(BFN) - UNIT 1 - DOCKET 50-259 - FACILITY OPERATING LICENSE
DPR - 33- LICENSEE EVENT REPORT (LER) 50-259/2007-002-00**

The enclosed report provides details concerning a manual reactor scram on Unit 1 due to an Electro-Hydraulic Control (EHC) leak that could not be isolated. At the time of the event, the Unit 1 reactor was in the startup mode and not tied to the grid. All plant safety systems operated as designed in response to this event.

In accordance with 10 CFR 50.73(a)(2)(iv)(A), TVA is reporting this event as an unplanned manual actuation of the reactor protection system. There are no commitments in this letter.

Sincerely,

R. G. Jones for:

Brian O'Grady
cc: See page 2

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Enclosure

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NRC FORM 366 (6-2004)			U.S. NUCLEAR REGULATORY COMMISSION			APPROVED BY OMB NO. 3150-0104			EXPIRES 06/30/2007			
<h2 style="margin: 0;">LICENSEE EVENT REPORT (LER)</h2> <p style="margin: 10px 0;">(See reverse for required number of digits/characters for each block)</p>									Estimated burden per response to comply with this mandatory collection request: 50 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records and FOIA/Privacy Service Branch (T-5 F52), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.			
1. FACILITY NAME Browns Ferry Nuclear Plant Unit 1						2. DOCKET NUMBER 05000259			3. PAGE 1 OF 5			
4. TITLE Manual scram due to an unisolable EHC leak												
5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED			
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO.	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER		
05	24	2007	2007-002-00			07	23	2007	none	N/A		
9. OPERATING MODE 2			11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)									
10. POWER LEVEL 001			20.2201(b)			20.2203(a)(3)(i)			50.73(a)(2)(i)(C)		50.73(a)(2)(vii)	
			20.2201(d)			20.2203(a)(3)(ii)			50.73(a)(2)(ii)(A)		50.73(a)(2)(viii)(A)	
			20.2203(a)(1)			20.2203(a)(4)			50.73(a)(2)(ii)(B)		50.73(a)(2)(viii)(B)	
			20.2203(a)(2)(i)			50.36(c)(1)(i)(A)			50.73(a)(2)(iii)		50.73(a)(2)(ix)(A)	
			20.2203(a)(2)(ii)			50.36(c)(1)(ii)(A)			<input checked="" type="checkbox"/> X	50.73(a)(2)(iv)(A)		50.73(a)(2)(x)
			20.2203(a)(2)(iii)			50.36(c)(2)			50.73(a)(2)(v)(A)		73.71(a)(4)	
			20.2203(a)(2)(iv)			50.46(a)(3)(ii)			50.73(a)(2)(v)(B)		73.71(a)(5)	
			20.2203(a)(2)(v)			50.73(a)(2)(i)(A)			50.73(a)(2)(v)(C)		OTHER	
20.2203(a)(2)(vi)			50.73(a)(2)(i)(B)			50.73(a)(2)(v)(D)		specify in Abstract below or in NRC Form 366A				
12. LICENSEE CONTACT FOR THIS LER												
NAME James E. Wallace, Site Licensing Engineer						TELEPHONE NUMBER (Include Area Code) 256-729-7874						
13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT												
CAUSE	SYSTEM	COMPONENT	MANU- FACTURER	REPORTABLE TO EPIX		CAUSE	SYSTEM	COMPONENT	MANU- FACTURER	REPORTABLE TO EPIX		
14. SUPPLEMENTAL REPORT EXPECTED						15. EXPECTED SUBMISSION DATE			MONTH	DAY	YEAR	
<input type="checkbox"/> YES (if yes, complete 15. EXPECTED SUBMISSION DATE)						<input checked="" type="checkbox"/> NO			N/A	N/A	N/A	
ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)												
<p>On May 24, 2007, at 0211 CDT, Unit 1 operators initiated a manual scram due to an Electro-Hydraulic Control (EHC) [TG] leak that could not be isolated. The reactor was in the startup mode and the generator was not tied to the grid.</p> <p>The cause of the leak was failure of a stainless steel tubing connection when the fitting was inadvertently overtightened. This overtightened condition resulted in loosening the nut and unflaring the tubing allowing system pressure to push the tubing out of the connection. A contributing factor was the fact that the tubing was not in correct alignment with the fitting.</p> <p>The damaged tubing was removed and the connection repaired. TVA is reporting this event in accordance with 10 CFR 50.73 (a)(2)(iv). This scram event is reportable within 4 hours under 10CFR50.72(b)(2)(iv)(B), "any event or condition that results in a valid actuation of the Reactor Protection System," and within 8 hours under 10CFR50.72(b)(3)(iv)(A), "Any event that results in an actuation of the specified systems." This event also required a 60-day written report in accordance with 10 CFR 50.73(a)(2)(iv)(A).</p>												

LICENSEE EVENT REPORT (LER)

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Browns Ferry Nuclear Plant Unit 1	05000259	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	2 OF 5
		2007	-- 002	-- 00	

NARRATIVE (If more space is required, use additional copies of NRC Form 366A) (17)

I. PLANT CONDITION(S)

At the time of the reactor scram event, Unit 1 was in Mode 2 (startup) at approximately 958 psig and 35 megawatts thermal. Unit 2 was in Mode 1 at 100 percent reactor power (approximately 3456 megawatts thermal). Unit 3 was in Mode 1 at 100 percent reactor power (approximately 3456 megawatts thermal). Units 2 and 3 were unaffected by the event.

II. DESCRIPTION OF EVENT**A. Event:**

On May 24, 2007, at 0208 hours, Central Daylight Time (CDT), the Unit 1 Control Room received a low Electro-Hydraulic Control (EHC) [TG] Pressure and indication that the standby EHC pump had started. At approximately 0209 hours CDT, the main turbine was manually tripped. At approximately 0211 hours CDT, Browns Ferry Unit 1 initiated a Manual reactor scram due to an EHC System pressure lowering and reservoir level lowering due to an EHC system leak.

The scram was uncomplicated. All control rods fully inserted. All systems responded as required to the manual scram signal. No Emergency Core Cooling System (ECCS) initiations occurred as a result of the scram. Reactor water level was maintained in the normal band during the event. There were no Primary Containment Isolation signals received during the scram.

There were no indications of main steam relief valves (MSRVs) opening. Reactor pressure was controlled using Main Steam Line Drains. Reactor Level was maintained in band using Control Rod Drive pumps [AA].

When the leak was initially discovered, it was about 60 drops per minute. When repairs were attempted, the tubing separated, resulting in the loss of EHC pressure and the need for the scram. Approximately 600 gallons of EHC fluid was discharged out of the break onto the turbine building floor. Repair of the EHC leak was performed. Cleanup of the EHC fluid was completed and environmental monitoring assured no offsite release of the spill.

As such this LER is being issued in accordance with 10 CFR 50.73(a)(2)(iv)(A), TVA reported this event within 4 hours under 10CFR50.72(b)(2)(iv)(B), "any event or condition that results in a valid actuation of the Reactor Protection System"; and within 8 hours under 10CFR50.72(b)(3)(iv)(A), "Any event that results in an actuation of the specified systems."

B. Inoperable Structures, Components, or Systems that Contributed to the Event:

None

C. Dates and Approximate Times of Major Occurrences:

May 24, 2007 at 0208 hours CDT	Control Room received a low EHC Pressure alarm and a standby EHC pump started
May 24, 2007 at 0209 hours CDT	The main turbine was manually tripped
May 24, 2007 at 0211 hours CDT	The reactor was manually scrammed.

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May 24, 2007 at 0348 hours CDT

A four-hour non-emergency report was made to the NRC pursuant to 10 CFR 50.72(b)(2)(ii) and an 8-hour report in accordance with 10CFR50.72(b)(3)(iv)(A)

D. Other Systems or Secondary Functions Affected

None.

E. Method of Discovery

Operators received alarms indicating an EHC leak had occurred.

F. Operator Actions

Operations personnel responded to the event in accordance with applicable plant procedures.

G. Safety System Responses

All required safety systems operated as designed.

III. CAUSE OF THE EVENT

A. Immediate Cause

The immediate cause of the event was a failure of a stainless steel tubing connection

B. Root Cause

The root cause was the result of over tightening of a compression fitting nut on the flared connection which caused the flared end of the tubing to become "unflared," allowing system pressure to push the tubing out of the connection.

C. Contributing Factors

The tubing was not in correct alignment to the fitting which allowed the flare to be extruded as the nut was tightened.

IV. ANALYSIS OF THE EVENT

Some potential detrimental conditions were noted. First, if the assembly complied with the manufacture's recommendations during installation, the following observations may explain the initial leak: (1) the tube flare was not even (non-uniform) and/or (2) the sealing surface of the fitting body nose was scarred. The subject tubing failure was evaluated in order to determine the failure mechanism and root cause for the failure. The leak occurred at a compression fitting in the EHC system hydraulic supply line to a Unit 1 flow control valve (1-FCV-047-0156C), low pressure turbine intercept stop valve hydraulic shutoff valve. When maintenance personnel located the leak, they attempted to remedy the situation by tightening the fitting. This caused the flare-tube to be released from the fitting, and the subsequent loss of EHC fluid and pressure.

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Secondly, the compression fitting nut was identified with inclusions which would likely render the nut more prone to thread damage and damage to the sleeve sealing surface. This damage likely occurred when the fitting was tightened.

V. ASSESSMENT OF SAFETY CONSEQUENCES

The evaluation of plant system and component responses to the event concluded that responses were as designed and within the time-frames expected. The normal heat removal path was not lost during this event and no main steam relief valves opened. No ECCS initiated during this event as a result of the reactor low power level condition. Personnel performance in response to the tube failure was also evaluated and found to be timely, appropriate, and met expectations for performance during an event of this type. There were no equipment failures during or following the scram that complicated recovery. In addition, there was no radioactive material released and no actual or potential safety consequences as a result of this event.

Therefore, this event did not adversely affect the safety of plant personnel or the public.

VI. CORRECTIVE ACTIONS**A. Immediate Corrective Actions**

Monitored and controlled Unit 1 plant parameters. Operations personnel placed the reactor in a stable condition in accordance with plant procedures.

B. Corrective Actions to Prevent Recurrence⁽¹⁾

The failed compression fitting was replaced with a new fitting. Post modification testing performed satisfactorily with no leaks. Also, additional inspections were performed on the EHC lines that connect to the other control intercept valves, bypass valves, stop valves and control valves, as well as connections on the EHC skid, to look for signs of distressed fittings or misaligned tubing that might be susceptible to failure. None were identified that required rework. This inspection did not identify any poor flares, damaged fittings, scarred/galled surfaces or brittle/damaged tubing.

VII. ADDITIONAL INFORMATION**A. Failed or Degraded Components**

None.

B. Previous LERs on Similar Events

None.

(1) TVA does not consider these corrective actions regulatory commitments. The completion of these actions will be tracked in TVA's Corrective Action Program.

C. Additional Information

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Browns Ferry corrective action document PER 125288

D. Safety System Functional Failure Consideration:

This event is not considered a safety system functional failure in accordance with NEI 99-02. The manual scram initiated in response to a malfunction of non-safety related equipment. All safety-related equipment performed in accordance with plant design in response to the event.

E. Loss of Normal Heat Removal Consideration:

This event is not considered a scram with loss of normal heat removal. The normal heat removal path was not lost during this event since the condenser was used for decay heat removal and no main steam relief valves opened.

VIII. COMMITMENTS

None.