Tennessee Valley Authority, Post Office Box 2000, Decatur, Alabama 35609-2000

December 2, 2013

10 CFR 50.73

ATTN: Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

Browns Ferry Nuclear Plant, Units 1, 2, and 3
Renewed Facility Operating License Nos. DPR-33, DPR-52, and DPR-68
NRC Docket Nos. 50-259, 50-260, and 50-296

Subject: **Licensee Event Report 50-259/2013-005-00**

The enclosed Licensee Event Report (LER) provides details of a condition which resulted in shift staffing that was inadequate to meet regulatory requirements associated with implementation of fire safe shutdown instructions. The Tennessee Valley Authority is submitting this report in accordance with Title 10 of the Code of Federal Regulations (10 CFR) 50.73(a)(2)(ii)(B).

Further analysis of this condition is ongoing. Upon completion of the analysis, a supplement to this LER will be submitted with the results of the additional analysis of the safety consequences.

There are no new regulatory commitments contained in this letter. Should you have any questions concerning this submittal, please contact J. L. Paul, Nuclear Site Licensing Manager, at (256) 729-2636.

Respectfully,

S. BONO FOR

K. J. Polson
Vice President

Enclosure: Licensee Event Report 50-259/2013-005-00 – Inadequate Shift Staffing to Support Implementation of the Safe Shutdown Instructions

cc (w/ Enclosure):

NRC Regional Administrator - Region II
NRC Senior Resident Inspector - Browns Ferry Nuclear Plant

IE22
NRR

ENCLOSURE

Browns Ferry Nuclear Plant
Units 1, 2, and 3

Licensee Event Report 50-259/2013-005-00

Inadequate Shift Staffing to Support Implementation of the Safe Shutdown Instructions

---

See Enclosed

NRC FORM 366 (10-2010) U.S. NUCLEAR REGULATORY COMMISSIC

APPROVED BY OMB NO. 3150-0104 EXPIRES 10/31/2013

Estimated burden per response to comply with this mandatory collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to FOIA/Privacy Section (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects.resource@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.

LICENSEE EVENT REPORT (LER)

1. FACILITY NAME	2. DOCKET NUMBER	3. PAGE
Browns Ferry Nuclear Plant (BFN), Unit 1	05000259	1 of 6

4. TITLE: Inadequate Shift Staffing to Support Implementation of the Safe Shutdown Instructions

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
10	03	2013	2013	- 005 -	00	12	02	2013	BFN, Unit 2	05000260
									FACILITY NAME	DOCKET NUMBER
									BFN, Unit 3	05000296

9. OPERATING MODE

1

10. POWER LEVEL

100

11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: *(Check all that apply)*

- ☐ 20.2201(b)
- ☐ 20.2201(d)
- ☐ 20.2203(a)(1)
- ☐ 20.2203(a)(2)(i)
- ☐ 20.2203(a)(2)(ii)
- ☐ 20.2203(a)(2)(iii)
- ☐ 20.2203(a)(2)(iv)
- ☐ 20.2203(a)(2)(v)
- ☐ 20.2203(a)(2)(vi)
- ☐ 20.2203(a)(3)(i)
- ☐ 20.2203(a)(3)(ii)
- ☐ 20.2203(a)(4)
- ☐ 50.36(c)(1)(i)(A)
- ☐ 50.36(c)(1)(ii)(A)
- ☐ 50.36(c)(2)
- ☐ 50.46(a)(3)(ii)
- ☐ 50.73(a)(2)(i)(A)
- ☐ 50.73(a)(2)(i)(B)
- ☐ 50.73(a)(2)(i)(C)
- ☐ 50.73(a)(2)(ii)(A)
- ☒ 50.73(a)(2)(ii)(B)
- ☐ 50.73(a)(2)(iii)
- ☐ 50.73(a)(2)(iv)(A)
- ☐ 50.73(a)(2)(v)(A)
- ☐ 50.73(a)(2)(v)(B)
- ☐ 50.73(a)(2)(v)(C)
- ☐ 50.73(a)(2)(v)(D)
- ☐ 50.73(a)(2)(vii)
- ☐ 50.73(a)(2)(viii)(A)
- ☐ 50.73(a)(2)(viii)(B)
- ☐ 50.73(a)(2)(ix)(A)
- ☐ 50.73(a)(2)(x)
- ☐ 73.71(a)(4)
- ☐ 73.71(a)(5)
- ☐ OTHER

Specify in Abstract below or in NRC Form 366A

12. LICENSEE CONTACT FOR THIS LER

FACILITY NAME	TELEPHONE NUMBER *(Include Area Code)*
Eric Bates, Licensing Engineer	256-614-7180

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

☒ YES *(If yes, complete 15. EXPECTED SUBMISSION DATE)* ☐ NO

15. EXPECTED SUBMISSION DATE

MONTH	DAY	YEAR
02	27	2014

ABSTRACT *(Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)*

On September 6, 2013, the Tennessee Valley Authority completed an evaluation of Browns Ferry Nuclear Plant (BFN) Operations minimum shift staffing for response to a fire in the Control Bay that ultimately leads to entry into Appendix R Safe Shutdown Instructions (SSIs). The result of this evaluation revealed that the Operations minimum shift staffing does not provide sufficient staffing to meet current licensing basis requirements. On October 3, 2013, this condition was determined to be reportable.

The root causes for this condition were determined to be the following: (1) the rigor involved with the Operations minimum shift staffing evaluation was inadequate in that all appropriate source documents were not considered for the Operations minimum shift staffing evaluation, and (2) ineffective implementation of the corrective action program.

The corrective action to prevent recurrence is to develop and implement a formal process for performing an Operations minimum shift staffing evaluation. The process should include a task analysis for three unit operations which considers all required licensing basis functions.

FACILITY NAME (1)	DOCKET (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Browns Ferry Nuclear Plant, Unit 1	05000259	2013	-- 005	-- 00	2 of 6

NARRATIVE

I. Plant Operating Conditions Before the Event

At the time of discovery, Browns Ferry Nuclear Plant (BFN) Units 1, 2, and 3 were operating in Mode 1 at 100 percent power.

II. Description of Events

A. Event:

On September 6, 2013, the Tennessee Valley Authority (TVA) completed an evaluation of BFN minimum Operations shift staffing for response to a fire in the Control Bay that ultimately leads to entry into Appendix R Safe Shutdown Instructions (SSIs). This evaluation was performed in response to a Nuclear Regulatory Commission (NRC) question. The result of this evaluation revealed that the minimum Operations shift staffing does not provide sufficient staffing to support both SSI required staffing levels and Emergency Response Organization staffing levels. On October 3, 2013, this condition was determined to be reportable.

B. Status of Structures, Components, or Systems that were inoperable at the start of the event and contributed to the event:

There were no inoperable structures, components, or systems that were inoperable at the start of the event and contributed to this condition.

C. Dates and approximate times of occurrences:

September 6, 2013	An assessment of Operations shift staffing was completed. The assessment concluded for a SSI event Operations minimum shift staffing as prescribed in procedure OPDP-1, Conduct of Operations, is not capable of providing required staffing levels.
October 3, 2013, at 2010 hours Central Daylight Time	BFN reported condition to the NRC.

D. Manufacture and model number (or other identification) of each component that failed during the event:

There were no component failures related to this condition.

E Other systems or secondary functions affected:

There were no systems or secondary functions affected by this condition.

F. Method of discovery of each component or system failure or procedural error:

The condition was discovered during an evaluation of the Operations shift staffing for response to a fire in the Control Bay that ultimately leads to entry into the Appendix R SSIs.

NARRATIVE

G. The failure mode, mechanism, and effect of each component, if known:

There were no component failures related to this condition.

H. Operator actions:

There were no operator actions related to this condition.

I. Automatically and manually initiated safety system responses:

There were no automatically or manually initiated safety system responses for this condition.

III. Cause of the event

A. The cause of each component or system failure or personnel error, if known:

There were no causes related to a component/system failure or personnel error.

B. The cause(s) and circumstances for each human performance related root cause:

Direct Cause

On June 25, 2010, an Operations shift staffing evaluation was conducted to support maintaining the Operations staffing levels in procedure OPDP-1. The results of this evaluation were inconsistent with those described in NRC Safety Evaluation (SE) dated April 25, 2007. The Operations shift staffing evaluation incorrectly concluded that a staffing level of three Unit Supervisors (USs), with one of these SROs holding a dual Shift Technical Assistant (STA) role, was adequate.

Root Causes

1. The rigor involved with the Operations minimum shift staffing evaluation was inadequate in that all appropriate source documents were not considered for the Operations minimum shift staffing evaluation.
2. Ineffective implementation of the corrective action program.

IV. Analysis of the event:

The TVA is submitting this report in accordance with 10 CFR 50.73(a)(2)(ii)(B), as any event or condition that resulted in the nuclear power plant being in an unanalyzed condition that significantly degraded plant safety.

BFN submitted a License Amendment Request (LAR) to the NRC to allow three unit operations on November 15, 2006. This LAR changed the minimum staffing to have an additional US for a total of four USs and a STA position. Procedure OPDP-1 was changed to meet this requirement on October 4, 2006, but still allowed one of the four USs to hold a dual STA role. However, US requirements in OPDP-1 were inappropriately changed back to three USs on January 10, 2007.

On February 17, 2010, it was identified that BFN did not meet the requirement for four USs and a STA position as described in the NRC's SE dated April 25, 2007. As a result,

NARRATIVE

BFN sent a letter to the NRC on June 29, 2010, regarding the 10 CFR 50.9 complete and accurate reporting of information issue. This letter stated that the originally submitted staffing requirement was not needed, based on an Operations minimum staffing evaluation, and that three USs would be able to implement safe shutdown during an Appendix R fire. Additionally, it was concluded that one of the USs could hold the dual role of a STA. A Commitment Evaluation was completed on August 26, 2010, to change the staffing requirement. The Commitment Evaluation relied on the staffing evaluation as a basis for the change. This change should have had a Fire Protection License Condition Impact Evaluation.

The Operations shift staffing evaluation, dated June 25, 2010, relied on inaccurate assumptions. The evaluation did not address all staffing requirements such as the Fire Protection Report, the licensing requirements to the NRC for the STA, or the Radiological Emergency Plan.

The root cause analysis for this condition concluded that there was no procedure for the performance of the Operations minimum staffing evaluation. Additionally, it concluded that there was a knowledge gap regarding the determination of impacted licensing basis documents.

BFN determined this condition was also reportable in accordance with 10 CFR 50.9(b). TVA had incorrectly informed the NRC that the Operations minimum shift staffing required was three USs, when in fact, four USs are required as originally submitted in the SE prior to BFN, Unit 1, restart. The NRC was notified verbally of the 10 CFR 50.9(b) violation on November 6, 2013.

V. Assessment of safety consequences:

The causes of this event resulted in a condition were the Operations minimum shift staffing could have been insufficient to support SSI implementation. An assessment revealed that during an Appendix R SSI response minimal shift staffing was inadequate to meet regulatory requirements associated with implementation of fire safe shutdown instructions. Analysis of the event is ongoing, including tabletop walkthroughs of the SSIs and performance of SSI simulator scenarios. This analysis will determine the safety consequences of the inadequate minimum shift staffing. Upon completion of the analysis, TVA will submit a supplement to this LER with the results of the safety consequences analysis.

A. Availability of systems or components that could have performed the same function as the components and systems that failed during the event:

This condition is related to Operations minimum shift staffing; therefore, this condition is not related to a system or component failure.

B. For events that occurred when the reactor was shut down, availability of systems or components needed to shutdown the reactor and maintain safe shutdown conditions, remove residual heat, control the release of radioactive material, or mitigate the consequences of an accident:

The BFN, Units 1, 2, and 3, were not shut down when this condition was reported to the NRC.

C. For failure that rendered a train of a safety system inoperable, an estimate of the elapsed time from discovery of the failure until the train was returned to service:

This condition is related to Operations minimum shift staffing; therefore, this condition is not related to a system or component failure.

VI. Corrective Actions

Corrective Actions are being managed by TVA's corrective action program under Problem Evaluation Report (PER) 790109.

Interim Corrective Actions

Operations personnel issued a Standing Order to include the following actions:

1. Verify that shift staffing includes four USs and an additional person as a STA. Since all STAs are licensed, this will effectively require five SROs, one of whom is STA qualified.
2. The additional SRO will serve as the Incident Commander (IC).
3. In the case of an unexpected vacancy of the fifth SRO, the requirements of procedure OPDP-1, Attachment 1, Notification of Absences, will be followed to fill the position, and an IC qualified RO will be designated as the IC.

Corrective Actions

Revise procedure OPDP-1 to ensure the appropriate Operations minimum shift staffing levels are consistent with the licensing basis and NRC SE dated April 25, 2007.

Corrective Actions to Prevent Recurrence or to Reduce Probability of Similar Events Occurring in the Future

Develop and implement a formal process for performing an Operations minimum shift staffing evaluation. The process should include a task analysis for three unit operations which considers all required licensing basis functions.

VII. Additional Information:

A. Previous Similar Events at the same plant:

A search of BFN Licensee Event Reports (LERs) for Units 1, 2, and 3 for the last five years did not identify any previous similar conditions in LERs.

FACILITY NAME (1)	DOCKET (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Browns Ferry Nuclear Plant, Unit 1	05000259	2013	-- 005	-- 00	6 of 6

NARRATIVE

A search was performed on the BFN corrective action program. There were multiple PERs identified for this condition. The most applicable PER was PER 217578. The corrective action to correct inadequate staffing for this PER was to make the Operations minimum shift staffing at BFN match the SE requirements. BFN failed to modify the Operations minimum shift staffing to match the SE.

B. Additional Information:

There is no additional information.

C. Safety System Functional Failure Consideration:

In accordance with Nuclear Energy Institute 99-02, this condition is not considered a safety system functional failure.

D. Scram with Complications Consideration:

This condition did not result in an unplanned scram with complications.

VIII. Commitments

There are no commitments.