



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

May 27, 2014

10 CFR 50.73

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

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

Subject: **Licensee Event Report 50-260/2014-001-00**

The enclosed Licensee Event Report provides details of the Electric Board Room Air Conditioning System inoperable for longer than allowed by the Technical Specifications. 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)(i)(B) and 10 CFR 50.73(a)(2)(v).

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,

K. J. Polson
Vice President

Enclosure: Licensee Event Report 50-260/2014-001-00 – Electric Board Room Air Conditioning System Inoperable for Longer than Allowed by the Technical Specifications

cc (w/ Enclosure):

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

IED2
NRR

ENCLOSURE

**Browns Ferry Nuclear Plant
Units 1 and 2**

Licensee Event Report 50-260/2014-001-00

**Electric Board Room Air Conditioning System Inoperable for Longer than Allowed
by the Technical Specifications**

See Enclosed

NRC FORM 366 <small>(01-2014)</small>		U.S. NUCLEAR REGULATORY COMMISSION			APPROVED BY OMB NO. 3150-0104		EXPIRES 01/31/2017												
LICENSEE EVENT REPORT (LER)										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 and Information Collections Branch (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.									
1. FACILITY NAME Browns Ferry Nuclear Plant (BFN), Unit 2					2. DOCKET NUMBER 05000260			3. PAGE 1 of 10											
4. TITLE: Electric Board Room Air Conditioning System Inoperable for Longer than Allowed by the Technical Specifications																			
5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED										
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO.	MONTH	DAY	YEAR	BFN, Unit 1		05000259								
03	27	2014	2014 - 001 - 00			05	27	2014	N/A		05000								
9. OPERATING MODE 1			11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)																
10. POWER LEVEL 100			<input type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2203(a)(3)(i)	<input type="checkbox"/> 50.73(a)(2)(i)(C)	<input type="checkbox"/> 50.73(a)(2)(vii)													
			<input type="checkbox"/> 20.2201(d)	<input type="checkbox"/> 20.2203(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)													
			<input type="checkbox"/> 20.2203(a)(1)	<input type="checkbox"/> 20.2203(a)(4)	<input type="checkbox"/> 50.73(a)(2)(ii)(B)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)													
			<input type="checkbox"/> 20.2203(a)(2)(i)	<input type="checkbox"/> 50.36(c)(1)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(ix)(A)													
			<input type="checkbox"/> 20.2203(a)(2)(ii)	<input type="checkbox"/> 50.36(c)(1)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(iv)(A)	<input type="checkbox"/> 50.73(a)(2)(x)													
			<input type="checkbox"/> 20.2203(a)(2)(iii)	<input type="checkbox"/> 50.36(c)(2)	<input checked="" type="checkbox"/> 50.73(a)(2)(v)(A)	<input type="checkbox"/> 73.71(a)(4)													
			<input type="checkbox"/> 20.2203(a)(2)(iv)	<input type="checkbox"/> 50.46(a)(3)(ii)	<input checked="" type="checkbox"/> 50.73(a)(2)(v)(B)	<input type="checkbox"/> 73.71(a)(5)													
<input type="checkbox"/> 20.2203(a)(2)(v)	<input type="checkbox"/> 50.73(a)(2)(i)(A)	<input checked="" type="checkbox"/> 50.73(a)(2)(v)(C)	<input type="checkbox"/> OTHER																
<input type="checkbox"/> 20.2203(a)(2)(vi)	<input checked="" type="checkbox"/> 50.73(a)(2)(i)(B)	<input checked="" type="checkbox"/> 50.73(a)(2)(v)(D)	Specify in Abstract below or in NRC Form 366A																
12. LICENSEE CONTACT FOR THIS LER																			
FACILITY NAME Eric Bates, Licensing Engineer							TELEPHONE NUMBER (Include Area Code) 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						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 March 27, 2014, it was determined that the Browns Ferry Nuclear Plant (BFN) Required Actions of Technical Requirements Manual 3.7.6, Electric Board Room Air Conditioning (AC) System, Condition B would allow both Electric Board Room (EBR) AC subsystems to be inoperable for up to 7 days before declaring the plant technical specifications (TS) supported equipment in the EBRs inoperable. On two separate occasions in the past three years BFN, Unit 2, EBR AC System and its TS supported systems, were inoperable longer than allowed by TS. In addition, BFN, Unit 1, was operated with this condition six times. This event is being reported in accordance with Title 10 of the Code of Federal Regulations (10 CFR) 50.73(a)(2)(i)(B) and 10 CFR 50.73(a)(2)(v).</p> <p>The root cause determined that the procedure for 10 CFR 50.59, Evaluations of Changes, Tests, and Experiments, does not contain adequate qualification requirements to ensure 10 CFR 50.59 reviews accurately identify TS impacts associated with support and supported equipment reflected in the TS "Operable - Operability" definition.</p> <p>The corrective action to prevent recurrence is to revise the procedure for 10 CFR 50.59, Evaluations of Changes, Tests, and Experiments, to include requirements for plant specific Final Safety Analysis Report and TS knowledge in the 10 CFR 50.59 qualification process.</p>																			

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NARRATIVE

I. Plant Operating Conditions Before the Event

At the time of discovery, Browns Ferry Nuclear Plant (BFN), Unit 2, was in Mode 1 at approximately 100 percent power and BFN, Unit 1, was in Mode 1 at approximately 78 percent power.

II. Description of Events

A. Event:

On March 27, 2014, BFN determined, by performing a past operability evaluation, that the Required Actions of Technical Requirements Manual (TRM) 3.7.6, Electric Board Room Air Conditioning (AC) System, Condition B would allow both Electric Board Room (EBR) AC subsystems [ACU] to be inoperable for up to 7 days before declaring the Technical Specifications (TS) supported equipment in the EBRs inoperable. The 7 days is based on placement of a temporary method of cooling in service within 12 hours. The established temporary method of cooling has not been documented to comply with necessary design requirements such as use of safety-related components, reliable power supply, and seismic qualifications. This TRM 3.7.6 Condition B allowance is contrary to the TS definition of "Operable-Operability" with respect to support systems. Since the EBR AC System could not perform its necessary support function with both BFN, Unit 2, EBR AC 'A' and 'B' subsystems inoperable, the associated electrical power distribution subsystems were inoperable and resulted in a TS loss of safety function. As a result, BFN, Unit 2, should have entered TS 3.8.7, Distribution Systems - Operating, Condition I. Condition I of TS 3.8.7, requires with two or more electrical power distribution subsystems inoperable that result in a loss of function, immediate entry into Limiting Condition for Operation (LCO) 3.0.3 and a required shutdown.

It was determined, for the past three years, from the past operability evaluation that the EBR AC System and, as a result, its TS supported systems on BFN, Unit 2, were inoperable longer than allowed by TS from October 26, 2011, at approximately 2330 hours Central Daylight Time (CDT) to October 28, 2011, at approximately 1448 hours CDT and from February 2, 2013, at approximately 0740 hours Central Standard Time (CST) to February 3, 2013, at approximately 1600 hours CST.

Further review identified six occasions where the BFN, Unit 1, EBR AC System was inoperable for BFN, Unit 1. Refer to the Assessment of Safety Consequences Section.

B. Status of structures, components, or systems that were inoperable at the start of the event and that contributed to the event:

Voluntary removal of the EBR AC subsystems from service caused them to be inoperable and contributed to the failure to comply with TS requirements.

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C. Dates and Approximate Times of Occurrences:

May 23, 1989	Operating instruction 0-OI-31, Control Bay and Off-Gas Treatment Building Air Conditioning System, Revision 4 was issued with a section for implementation of temporary cooling and provide direction to not declare inoperability until the EBR reached 104°F. A 10 CFR 50.59 review was performed for this change to the operating instruction.
August 2000	TRM 3.7.6 was created. A 10 CFR 50.59 review was performed for the addition of new TRM 3.7.6.
January 27, 2014	Operations personnel stopped the voluntary entry into TRM 3.7.6 Condition B for preventive maintenance (PM) on EBR AC System. A past operability evaluation was requested.
March 27, 2014	Past operability evaluation determined that BFN, Unit 2, operated in a condition prohibited by TS.

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

There were no components that failed from this identified condition.

E. Other systems or secondary functions affected:

There were other systems affected in the EBR that are supported by the EBR AC System, i.e., 4kV Shutdown Boards [EB], 480V Reactor Motor Operated Valve Boards [ED], 250V Reactor Motor Operated Valve Boards, instrumentation and controls (I&C) Bus Transformers [XFMR], I&C Bus Voltage Regulators [RG].

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

The condition was discovered during the performance of a past operability evaluation.

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

There were no components that failed for this identified condition.

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H. Operator Actions:

There were no Operator actions for this identified condition.

I. Automatically and manually initiated safety system responses:

There were no safety system responses for this identified condition.

III. Cause of the Event

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

Direct Cause

The direct cause of this condition was determined to be inadequate design of the BFN, Units 1 and 2, EBR AC Systems. In order to perform maintenance on an EBR AC subsystem, both EBR AC subsystems are required to be removed from service, i.e., made inoperable. This results in a TS loss of safety function associated with the TS equipment supported by the electrical distribution system cooled by the safety-related EBR AC System.

Root Cause

The root cause of this condition was determined to be procedure NPG-SPP-09.4, 10 CFR 50.59 Evaluations of Changes, Tests, and Experiments, does not contain adequate qualification requirements to ensure 10 CFR 50.59 reviews accurately identify TS impacts associated with support and supported equipment reflected in the TS "Operable - Operability" definition.

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

The 10 CFR 50.59 reviewers do not have the requisite knowledge of the BFN Final Safety Analysis Report (FSAR) and TS to adequately perform a 10 CFR 50.59 review.

IV. Analysis of the Event

The Tennessee Valley Authority (TVA) is submitting this report in accordance with Title 10 of the Code of Federal Regulations (10 CFR) 50.73(a)(2)(i)(B), any operation or condition which was prohibited by the plant's TS, and 10 CFR 50.73(a)(2)(v), any event or condition that could have prevented the fulfillment of the safety function of structures or systems that are needed to: (A) shutdown the reactor and maintain it in a safe shutdown condition; (B) remove residual heat; (C) control the release of radioactive material; or (D) mitigate the consequences of an accident.

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It was determined that the use of temporary cooling which was not safety-related began long before the TRM was issued. The following discussion explains the progression that led to the incorporation of the use of temporary cooling into the TRM.

During the preparations for recovery of BFN, Unit 2, from the BFN, Units 1, 2, and 3, shutdown in 1985, the need to incorporate Environmental Qualification (EQ) requirements into the restart efforts was recognized. On May 15, 1987, an Engineering Change Notice (ECN) was issued to provide a permanent fix to address redundancy, load shed, and electrical separation issues previously discovered on the EBR AC Systems.

When the ECN was implemented prior to BFN, Unit 2, restart in 1991, it was not recognized that there were no provisions for performing maintenance activities on one subsystem of cooling without affecting the other subsystem.

On May 23, 1989, operating instruction 0-OI-31, Revision 4, was issued to provide guidance to declare EBR ventilation inoperable if room ambient temperature exceeds 104°F. Operating instruction 0-OI-31, Revision 4, was issued with a section for implementation of temporary cooling and direction to declare inoperability of the components in the EBR when the room reached 104°F. At the time the revision was issued, this appeared to be appropriate because all BFN Units were in an extended shutdown. At the time of the revision, it was not recognized that for BFN, Unit 2, restart that the TS definition of "Operable-Operability" would need to be applied.

The definition of "Operable-Operability" states:

A system, subsystem, division, component, or device shall be Operable or have Operability when it is capable of performing its specified safety function(s) and when all necessary attendant instrumentation, controls, normal or emergency electrical power, cooling and seal water, lubrication, and other auxiliary equipment that are required for the system, subsystem, division, component, or device to perform its specified safety function(s) are also capable of performing their related support function(s).

It was incorrectly believed that maintaining the room below 104°F would satisfy Operability requirements and non-qualified temporary cooling would satisfy that requirement.

The issue with operating instruction 0-OI-31, Revision 4, was that qualified temporary cooling was needed to support the safety-related components located in the EBR with the normal safety-related EBR AC Systems out of service to meet the same safety-related qualification requirements. Use of the non-qualified temporary cooling equipment did not satisfy the TS definition of "Operable-Operability" with respect to support systems. The error was carried forward into the latest revision of operating

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instruction 0-OI-31. Additionally, it was determined operating instruction 0-OI-31 is in error because inoperability is declared only when the room temperature reaches 104°F. With both BFN, Units 1 and 2, shutdown, this position would be appropriate. However, with either unit in operation, the safety-related EBR AC System is required to be Operable to maintain the Operability of safety-related components in the EBR in the event of a design basis accident with a loss of offsite power. Therefore, the Operability of the components in the EBR, when either unit is in operation, is based on EBR AC System Operability and maintaining temperature less than or equal to 104°F.

All revisions of operating instruction 0-OI-31 were reviewed from Revision 4 to current which affected the temporary configuration. During the reviews, it was identified that the 10 CFR 50.59 screenings for each of the revisions was marked "NO" in relation to impact to TS. The 10 CFR 50.59 process should have been a barrier to prevent the inoperability of TS components from going un-recognized. It was identified that the qualified 10 CFR 50.59 screeners also did not recognize or challenge the use of the non-qualified temporary cooling to support safety-related TS component Operability. The requirements for 10 CFR 50.59 qualification were reviewed and it was identified that the process relies on experience gained through years of progression through an individual's career and does not include specific requirements for a plant specific knowledge of BFN TS and FSAR.

On May 24, 1991, BFN, Unit 2, was returned to operation following an extended shutdown. This is the point at which the errors in operating instruction 0-OI-31 become significant.

From January 7, 1994, to February 3, 2013, an EQ PM was performed on the BFN, Unit 2, EBR AC 'A' and 'B' subsystems using electrical preventive instruction (EPI)-2-031-CHR001, Inspection and Maintenance of the Electric Board Room 2A/2B Air Handling Units, multiple times. This required Operations personnel to remove both EBR AC 'A' and 'B' subsystems from service and result in the implementation of the non-qualified temporary cooling using operating instruction 0-OI-31. During each of these evolutions, it was not recognized that the TS supported equipment, i.e., electrical power distribution subsystems, were inoperable.

In August 2000, a calculation was issued to support the use of temporary duct fans [FAN] if room ambient conditions exceed 94°F. The calculation supported a TRM change that added a new TRM section for each BFN Unit to enhance the controls and emphasis placed on Operability of the EBR AC System. The new sections provided guidance on installation of fans and ductwork. However, it was not recognized that, with the EBR AC System inoperable while using non-qualified temporary cooling equipment, that the supported TS components, i.e., electric distribution systems, were also inoperable. The TRM change package indicated that the TS were not impacted. It was identified that the 10 CFR 50.59 reviews for the TRM revision was marked "NO" in

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relation to impact to TS. It was determined that the qualified 10 CFR 50.59 screeners also did not recognize or challenge the use of the non-qualified temporary cooling to support the Operability of TS safety-related components.

On May 22, 2007, BFN, Unit 1, returned to operation following an extended shutdown. Since BFN, Unit 1, restarted, the EQ PM was performed on the BFN, Unit 1, EBR AC 'A' and 'B' subsystems using EPI-1-031-CHR001, Inspection and Maintenance of the Electric Board Room 1A/1B Air Handling Units, multiple times. With the return to operation of BFN, Unit 1, performance of the EQ PM on BFN, Units 1 or 2, should have required both units to be shutdown for performance of the PM due to impact of EBR AC System inoperability and TS supported systems Operability. However, the associated TS supported systems were not declared inoperable.

On January 27, 2014, the EQ PM was scheduled to be performed on the BFN, Unit 2, EBR using EPI-2-031-CHR001. The Senior Reactor Operator that was contacted did not allow voluntary entry into TRM 3.7.6 Condition B and stopped the planned maintenance activity. Voluntary entry into TRM 3.7.6, Condition B would allow two EBR AC subsystems to be made inoperable. This would have been contrary to TRM 3.7.6, Required Action B.1 which states: Initiate action to restore one EBR AC subsystem to Operable status Immediately. It was identified that the EQ PM had been performed previously using voluntary entry into TRM 3.7.6 Condition B and reliance on TRM 3.7.6 Required Actions B.2 and B.3 to allow maintenance to be performed without declaring the associated TS supported systems inoperable. Upon review of the TRM requirements, a past operability evaluation was requested to assess any previous voluntary entries into TRM 3.7.6 Condition B.

On March 27, 2014, the past operability evaluation was approved by Operations personnel. The past operability evaluation concluded that the BFN, Unit 2, EBR AC System was inoperable on two occasions within the past three years when both subsystems were removed from service for greater than 15 hours. It was also determined, for the past three years, from the past operability evaluation that the EBR AC System and, as a result, its supported systems on BFN, Unit 2, were inoperable longer than allowed by TS. Further review also identified six occasions within the past three years that the BFN, Unit 1, EBR AC System was inoperable when both subsystems were removed from service for greater than 15 hours. The 15 hour time period is based on analysis that demonstrated the temperature in the EBRs remained below the operability limit of 104°F for at least 15 hours with EBR doors opened and no cooling credited during design basis accident conditions.

The review determined that for the cases with two EBR AC subsystems inoperable, the inoperabilities were a result of voluntarily removing the two EBR AC subsystems from service to perform PM. In these cases, the TRM actions/procedural requirements to establish an alternate method of cooling, by opening doors, using portable fans, and

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installing temporary ductwork, were performed prior to removing the EBR AC subsystems from service.

Based on the results of the root cause analysis, it was determined that the 10 CFR 50.59 screeners and reviewers did not recognize the procedures being changed had potential TS impacts. Also, the 10 CFR 50.59 screeners and reviewers did not have a proper understanding of the relationship of TS and non-TS support systems to TS supported systems required to meet the Operability requirements of the BFN TS. Proper understanding of what is required to satisfy the TS definition of "Operable-Operability" would have prevented the 10 CFR 50.59 qualified individuals from marking the screening form with a "NO" response in the TS related boxes.

V. Assessment of Safety Consequences

Two redundant subsystems of the EBR AC System are required to be Operable to ensure that at least one is available, assuming a single failure under design basis accident conditions (i.e., loss of coolant accident with a loss of off-site power) disables the other subsystem. Total system failure could result in the equipment operating temperature exceeding the 104°F Operability limit.

Voluntary entry into TRM 3.7.6, Condition B allowed the EBR AC System to be made inoperable. This is a contradiction to TRM 3.7.6, Required Action B.1 which states: Initiate action to restore one Electric Board Room AC subsystem to Operable status Immediately. Operations personnel were relying on TRM 3.7.6 Required Actions B.2 which states, "Place an alternate method of cooling in operation in 12 hours," and B.3 which states, "Restore one electric board room AC subsystem to Operable status in 7 days," to allow maintenance to be performed without declaring the associated TS supported systems inoperable.

The past operability evaluation determined that while Operability was not maintained under these conditions, functionality was maintained through the use of non-qualified temporary cooling to ensure temperature in the EBR would not exceed the 104°F Operability limit of the associated safety-related components.

Therefore, this condition had no significant effect on the health and safety of the public.

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 did not result in any components and/or systems that failed.

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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 and Information Collections Branch (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.

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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 reactor was not in shutdown at the time the condition was identified.

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

It was determined, for the past three years, from the past operability evaluation that the EBR AC System and, as a result, its supported systems on BFN, Unit 2, were inoperable longer than allowed by TS at the following times.

- October 26, 2011, at 2330 hours CDT to October 28, 2011, at 1448 hours CDT
- February 2, 2013, at 0740 hours CST to February 3, 2013, at 1600 hours CST

Further review identified that the EBR AC System and, as a result, its supported systems on BFN, Unit 1, were inoperable longer than allowed by TS at the following times.

- September 27, 2011, at 0230 hours CDT to October 4, 2011, at 1408 hours CDT
- November 16, 2011, at 1018 hours CST to November 18, 2011, at 0845 hours CST
- June 27, 2012, at 0410 hours CDT to June 30, 2012, at 0500 hours CDT
- February 11, 2013, at 1010 hours CST to February 14, 2013, at 1105 hours CST
- July 2, 2013, at 1245 hours CDT to July 4, 2014, at 0735 hours CDT
- February 11, 2014, at 0145 hours CST to February 12, 2014, at 2255 hours CST

The review also identified that during the above six time periods for BFN, Unit 1, a TS loss of safety function existed due to four Residual Heat Removal Service Water pumps [P] (i.e., supported equipment) being inoperable concurrently. The review also identified that during the time period from February 12, 2013, at 0848 hours CST to February 14, 2013, at 1105 hours CST that for BFN, Unit 1, a TS loss of safety function existed due to two Residual Heat Removal [BO] (RHR) pumps (i.e., supported equipment) being inoperable and a concurrent inoperability in a separate BFN, Unit 1, RHR pump, for a total of three inoperable RHR pumps.

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VI. Corrective Actions

Corrective Actions are being managed by TVA's corrective action program under Problem Evaluation Report (PER) 846040.

A. Immediate Corrective Actions:

An Operations standing order was issued on the TRM deficiency and will remain in place until the TRM is corrected. The Standing Order requires that in the event of two EBR AC subsystems becoming inoperable to immediately declare the supported systems inoperable.

B. Corrective Actions to Prevent Recurrence or to reduce probability of similar events occurring in the future.

Revise procedure NPG-SPP-09.4, 10 CFR 50.59 Evaluations of Changes, Tests, and Experiments, to include requirements for plant specific FSAR and TS knowledge in the 10 CFR 50.59 qualification process.

VII. ADDITIONAL INFORMATION

A. Previous Similar Events:

A search of BFN LERs for Units 1, 2, and 3 for approximately the past five years did not identify any previous similar conditions in LERs.

A search was performed on the BFN corrective action program. The search identified PERs 59167, 211522, and 841629 as being similar to the condition identified in this LER. These PERs would not have prevented this condition.

B. Additional Information:

The corrective action document for this report is PER 846040.

C. Safety System Functional Failure Consideration:

In accordance with NUREG-1022, this condition is considered a safety system functional failure for BFN, Unit 1, for the seven instances identified above because multiple TS supported components were inoperable as a result of the EBR AC subsystems inoperabilities.

D. Scram With Complications Consideration:

This condition did not include a reactor scram.

VIII. Commitments

There are no commitments.