



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**  
REGION II  
245 PEACHTREE CENTER AVENUE NE, SUITE 1200  
ATLANTA, GEORGIA 30303-1257

February 14, 2014

EA-14-005

Mr. J.W. Shea  
Vice President, Nuclear Licensing  
Tennessee Valley Authority  
1101 Market Street, LP 3D-C  
Chattanooga, TN 37402-2801

**SUBJECT: BROWNS FERRY NUCLEAR PLANT - NRC INTEGRATED INSPECTION  
REPORT 05000259/2013005, 05000260/2013005, AND 05000296/2013005,  
PRELIMINARY WHITE FINDING AND APPARENT VIOLATIONS**

Dear Mr. Shea:

On December 31, 2013, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Browns Ferry Nuclear Plant, Units 1, 2, and 3. On January 10 and 21, 2014, the NRC inspectors discussed the results of this inspection with Mr. S. Bono and other members of your staff. Inspectors documented the results of this inspection in the enclosed inspection report.

Based on the results of this inspection, the report discusses a finding that has preliminarily been determined to be a finding with low to moderate safety significance (White) that may require additional inspections, regulatory actions, and oversight. As described in Section 1R11.2 of the enclosed report, the licensee's failure to maintain plant emergency response staffing levels in accordance with NP-REP, Tennessee Valley Authority Nuclear Power Radiological Emergency Plan, was a performance deficiency. Specifically, the licensee's process for maintaining minimum emergency response shift staffing failed to adequately maintain staffing of the Shift Technical Advisor (STA) and Incident Commander (IC) to ensure initial accident response in all key functional areas. This finding did not present an immediate safety concern because the licensee added additional staff to ensure they met the staffing requirements. This finding was assessed based on the best available information, using the NRC's significance determination process (SDP). The basis for the NRC's preliminary significance determination is described in the enclosed report. The NRC will inform you in writing when the final significance has been determined.

In addition, please be advised that the number and characterization of apparent violations described in the enclosed inspection report may change as a result of further NRC review. You will be advised by separate correspondence of the results of our deliberations on this matter. Before the NRC makes a final decision on this matter, you may choose to (1) attend a regulatory conference, where you can present to the NRC your point of view on the facts and assumptions used to arrive at the finding and assess its significance, or (2) submit your position on the finding to the NRC in writing. If you request a regulatory conference, it should be held within 30 days of your receipt of this letter. We encourage you to submit supporting

documentation at least one week prior to the conference in an effort to make the conference more efficient and effective. If you choose to attend a regulatory conference, it will be open for public observation. The NRC will issue a public meeting notice and press release to announce the conference. If you decide to submit only a written response, it should be sent to the NRC within 30 days of your receipt of this letter. If you choose not to request a regulatory conference or to submit a written response, you will not be allowed to appeal the NRC's final significance determination.

The finding is also an apparent violation of NRC requirements and is being considered for escalated enforcement action in accordance with the Enforcement Policy, which appears on the NRC's Web site at <http://www.nrc.gov/about-nrc/regulatory/enforcement/enforce-pol.html>. We intend to complete and issue our final safety significance determination within 90 days from the date of this letter. The NRC's significance determination process is designed to encourage an open dialogue between your staff and the NRC; however, the dialogue should not affect the timeliness of our final determination.

The enclosed inspection report also discusses two apparent violations were identified and are being considered for escalated enforcement action in accordance with the NRC Enforcement Policy. The current Enforcement Policy is included on the NRC's Web site at <http://www.nrc.gov/about-nrc/regulatory/enforcement/enforce-pol.html>. As described in Section 1R11.2 of the enclosed report, two issues were identified that are being dispositioned using the traditional enforcement process. The first, an apparent violation of 10 CFR 50.9, Completeness and Accuracy of Information, was identified for the licensee's apparent failure to provide the NRC with complete and accurate information on two occasions when identifying the minimum required shift staffing to the NRC. The second, an apparent violation of 10 CFR 50.90, Amendment of License or Construction Permit at Request of Holder, was identified for the licensee apparently making a change to a license condition without submitting an amendment request. Both of these apparent violations were associated with the emergency response shift staffing requirements to achieve safe shutdown during an appendix R fire.

Before the NRC makes its enforcement decision, we are providing you an opportunity to: 1) respond to the apparent violations addressed in this inspection report within 30 days of the date of this letter; 2) request a Pre-decisional Enforcement Conference (PEC); or 3) request Alternative Dispute Resolution (ADR). If a PEC is held, it will be open for public observation and the NRC will issue a press release to announce the time and date of the conference. If you decide to participate in a PEC or pursue ADR, please contact Jonathan Bartley at 404-997-4607 within 10 days of the date of this letter. A PEC should be held within 30 days and an ADR session within 45 days of the date of this letter.

If you choose to provide a written response, it should be clearly marked as a "Response to Apparent Violations in NRC Inspection Report 05000259/2013005, 05000260/2013005, and 05000296/2013005; EA-14-005" and should include for each apparent violation: 1) the reason for the apparent violation or, if contested, the basis for disputing the apparent violation; 2) the corrective steps that have been taken and the results achieved; 3) the corrective steps that will be taken; and 4) the date when full compliance will be achieved. Your response may reference or include previously docketed correspondence, if the correspondence adequately addresses the required response. If an adequate response is not received within the time specified or an extension of time has not been granted by the NRC, the NRC will proceed with its enforcement decision or schedule a PEC.

If you choose to request a PEC, the conference will afford you the opportunity to provide your perspective on these matters and any other information that you believe the NRC should take into consideration before making an enforcement decision. The decision to hold a PEC does not mean that the NRC has determined that a violation has occurred or that enforcement action will be taken. This conference would be conducted to obtain information to assist the NRC in making an enforcement decision. The topics discussed during the conference may include information to determine whether a violation occurred, information to determine the significance of a violation, information related to the identification of a violation, and information related to any corrective actions taken or planned.

In lieu of a PEC, you may also request ADR with the NRC in an attempt to resolve this issue. ADR is a general term encompassing various techniques for resolving conflicts using a third party neutral. The technique that the NRC has decided to employ is mediation. Mediation is a voluntary, informal process in which a trained neutral (the "mediator") works with parties to help them reach resolution. If the parties agree to use ADR, they select a mutually agreeable neutral mediator who has no stake in the outcome and no power to make decisions. Mediation gives parties an opportunity to discuss issues, clear up misunderstandings, be creative, find areas of agreement, and reach a final resolution of the issues. Additional information concerning the NRC's program can be obtained at <http://www.nrc.gov/about-nrc/regulatory/enforcement/adr.html>. The Institute on Conflict Resolution (ICR) at Cornell University has agreed to facilitate the NRC's program as a neutral third party. Please contact ICR at 877-733-9415 within 10 days of the date of this letter if you are interested in pursuing resolution of these issues through ADR.

Please contact Jonathan Bartley at (404) 997-4607, within 10 days from the issue date of this letter to notify the NRC of your intentions. If we have not heard from you within 10 days, we will continue with our significance determination and enforcement decision. Because the NRC has not made a final determination in this matter, no notice of violation is being issued for this inspection finding at this time. In addition, please be advised that the number and characterization of the apparent violations may change based on further NRC review.

NRC inspectors also documented two findings of very low safety significance (Green) in this report. Both of these findings involved violations of NRC requirements. Additionally, NRC inspectors documented a Severity Level IV violation with no associated finding. Further, inspectors documented a licensee-identified violation which was determined to be of very low safety significance in this report. The NRC is treating this violation as a non-cited Violation (NCV) consistent with Section 2.3.2.a of the Enforcement Policy.

If you contest the violation or significance of these NCVs, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001; with copies to the Regional Administrator, Region II; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC resident inspector at the Browns Ferry Nuclear Plant.

In addition, if you disagree with a cross-cutting aspect assignment in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the Regional Administrator, Region II, and the NRC resident inspector at the Browns Ferry Nuclear Plant.

As a result of the Safety Culture Common Language Initiative, the terminology and coding of cross-cutting aspects were revised beginning in calendar year (CY) 2014. New cross-cutting aspects identified in CY 2014 will be coded under the latest revision to IMC 0310. Cross-cutting aspects identified in the last six months of 2013 using the previous terminology will be converted to the latest revision in accordance with the cross-reference in IMC 0310. The revised cross-cutting aspects will be evaluated for cross-cutting themes and potential substantive cross-cutting issues in accordance with IMC 0305 starting with the CY 2014 mid-cycle assessment review.

In accordance with Title 10 of the *Code of Federal Regulations* 2.390, "Public Inspections, Exemptions, Requests for Withholding," of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any), will be available electronically for public inspection in the NRC's Public Document Room or from the Publicly Available Records (PARS) component of the NRC's Agencywide Documents Access and Management System (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room). To the extent possible, your response should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the Public without redaction.

Sincerely,

**/RA/**

Richard P. Croteau, Director  
Division of Reactor Projects

Docket Nos.: 50-259, 50-260, 50-296  
License Nos.: DPR-33, DPR-52, DPR-68

Enclosure: NRC Integrated Inspection Report 05000259/2013005,  
05000260/2013005 and 05000296/2013005

cc distribution via ListServ

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ADAMS:  Yes      ACCESSION NUMBER: ML14045A320       SUNSI REVIEW COMPLETE       FORM 665 ATTACHED

OFFICE	RII:DRP	RII:DRP	RII:DRP	RII:DRS	RII:DRP	RII:DRP	RII:DRS
SIGNATURE		/VIA By E-mail/	/VIA By E-mail/	/VIA By E-mail/	/VIA By E-mail/	/VIA By E-mail/	/VIA By E-mail/
NAME	DDumbacher	LPressley	TStephen	ASengupta	CKontz	MRiches	RBaldwin
DATE	2/11/2014	2/13/2014	2/12/2014	2/10/2014m	2/10/2014	2/11/2014	2/11/2014
E-MAIL COPY?	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO
OFFICE	RII:EICS	RII:DRP	RII:DRP	RII:DRP			
SIGNATURE	/RA/	/VIA By E-mail/	/RA/	/RA/			
NAME	CEvans	JBartley	WJones	RCroteau			
DATE	/2/14/2014	2/14/2014	2/14/2014	2/14/2014			
E-MAIL COPY?	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO

J. Shea

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Letter to Joseph W. Shea from Richard P. Croteau dated February 14, 2014.

SUBJECT: BROWNS FERRY NUCLEAR PLANT - NRC INTEGRATED INSPECTION  
REPORT 05000259/2013005, 05000260/2013005, AND 05000296/2013005,  
PRELIMINARY WHITE FINDING AND APPARENT VIOLATIONS

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**U.S. NUCLEAR REGULATORY COMMISSION**

**REGION II**

Docket Nos.: 50-259, 50-260, 50-296

License Nos.: DPR-33, DPR-52, DPR-68

Report Nos.: 05000259/2013005, 05000260/2013005, 05000296/2013005

Licensee: Tennessee Valley Authority (TVA)

Facility: Browns Ferry Nuclear Plant, Units 1, 2, and 3

Location: Corner of Shaw and Nuclear Plant Road  
Athens, AL 35611

Dates: October 1, 2013, through December 31, 2013

Inspectors: D. Dumbacher, Senior Resident Inspector  
L. Pressley, Resident Inspector  
T. Stephen, Resident Inspector  
A. Sengupta, Reactor Inspector  
C. Kontz, Senior Project Engineer  
M. Riches, Project Engineer  
R. Baldwin, Senior Operations Engineer

Approved by: Jonathan H. Bartley, Chief  
Reactor Projects Branch 6  
Division of Reactor Projects

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## SUMMARY

IR 05000259/2013005, 05000260/2013005, 05000296/2013005; 10/01/2013–12/31/2013; Browns Ferry Nuclear Plant, Units 1, 2 and 3; Adverse Weather Protection, Licensed Operator Requalification and Performance, Problem Identification and Resolution, and Follow Up of Events and Notices of Enforcement Discretion.

The report covered a three month period of inspection by the resident inspectors and four regional inspectors. The significance of most findings is identified by their color (Green, White, Yellow, and Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP); and, the cross-cutting aspects were determined using IMC 0310, "Components Within the Cross-Cutting Areas". Findings for which the SDP does not apply may be Green or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process" Revision 4, dated December 2006.

### NRC Identified and Self-Revealing Findings

#### Cornerstone: Initiating Events

- Green: The NRC identified a non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion V, Procedures, for the licensee's failure to implement 0-GOI-200-1, Freeze Protection Inspection. Specifically, the licensee failed to enter freeze protection discrepancies into the corrective action program as part of the Freeze Protection Discrepancy List per 0-GOI-200-1 for the residual heat removal service water (RHRSW) and emergency equipment cooling water (EECW) systems. As a corrective action, the licensee entered the required deficiencies onto the Freeze Protection Discrepancy List. The licensee has entered this issue into their corrective action program as problem evaluation reports 800190 and 821426.

The finding was more than minor because, if left uncorrected, the performance deficiency would have the potential to lead to a more significant safety concern, in that the intake room piping would continue to be exposed to freezing temperatures without adequate freeze protection which could affect RHRSW and EECW systems' ability to perform their safety functions. The inspectors performed a Phase 1 screening in accordance with IMC 0609, Significance Determination Process, Appendix A, Exhibit 1, Initiating Event screening question E, and determined the finding was of very low safety significance (Green) because it did not impact the frequency of an internal flooding event. The cause of this finding has a cross-cutting aspect in the Work Practices component of the Human Performance area, because the licensee failed to define and effectively communicate expectations regarding procedural compliance and that personnel follow procedures. [H.4(b)] (Section 1R01)

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### Cornerstone: Mitigating Systems

- Green: The NRC-identified a non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion III, Design Control, for the licensee's failure to establish measures to ensure the EDG floor drains maintained the capability of performing their intended function as described their design basis. The licensee's immediate corrective action was to clean all the drains in all the EDG rooms. The licensee has entered this issue into their corrective action program as problem evaluation report 765575.

The finding was more than minor because, if left uncorrected, the performance deficiency would have the potential to lead to a more significant safety concern, in that, the EDG room floor drains could become sufficiently clogged such that internal flooding would cause the affected EDG to be unable to perform its safety function. The inspectors performed a Phase 1 screening in accordance with IMC 0609, Significance Determination Process, Appendix A, Exhibit 1, Initiating Event screening question E, and determined the finding was of very low safety significance (Green) because it did not impact the frequency of an internal flooding event. This finding has a cross-cutting aspect in the area of Problem Identification and Resolution, Corrective Action Program Component, because TVA did not identify floor drain issues completely, accurately, and in a timely manner commensurate with their safety significance. [P.1 (a)] (Section 40A2.3)

### Cornerstone: Emergency Preparedness

- TBD: The NRC identified an apparent violation of 10 CFR 50.54(q), Emergency Plans, for the licensee's failure to maintain plant staffing levels in accordance with NP-REP, Tennessee Valley Authority Nuclear Power Radiological Emergency Plan. Specifically, the licensee's process for maintaining minimum emergency response shift staffing failed to adequately maintain staffing of the Shift Technical Advisor (STA) and Incident Commander to ensure initial accident response in all key functional areas. The licensee has entered this issue into their corrective action program as PERs 790092 and 801057.

The inspectors determined the performance deficiency was more than minor because it was associated with the ERO readiness attribute of the emergency preparedness cornerstone and adversely impacted the cornerstone objective of ensuring that the licensee is capable of implementing adequate measures to protect the health and safety of the public in the event of a radiological emergency. Specifically, the failure to maintain required emergency response staffing levels reduced the licensee's capabilities to respond to an emergency. The inspectors assessed the finding in accordance with Appendix B, Emergency Preparedness Significance Determination Process and determined that this finding represented a Loss of Planning Standard Function and has preliminarily been determined to be a finding of White significance. Because the significance of this finding is not yet finalized, it is being characterized as "To Be Determined (TBD)," pending a final significance determination. The cause of the finding was determined to be associated with the cross-cutting aspect of thorough evaluation of problems in the corrective action component of the problem identification and resolution area because the licensee failed to ensure that issues potentially affecting nuclear safety were thoroughly evaluated. [P.1(c)] (Section 1R11.2.b(1))

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## Other

- TBD: The NRC identified two examples of an Apparent Violation of 10 CFR 50.9, "Completeness and accuracy of information," for the licensee's apparent failure to provide complete and accurate information associated with emergency response on-shift staffing requirements. Specifically, on two occasions the licensee apparently provided inaccurate information to the NRC concerning onsite emergency response organization minimum staffing requirements. The licensee augmented on-shift staffing levels on October 30, 2013. These issues were entered into the Browns Ferry corrective action program as PERs 790109, 790092, and 801057.

These apparent violations had the potential to impede or impact the regulatory process, and therefore subject to traditional enforcement as described in the NRC Enforcement Policy, dated July 9, 2013. Because these apparent violations involved the traditional enforcement process with no underlying technical violation that would be considered more than minor in accordance with IMC 0612, a cross-cutting aspect was not assigned to this violation. (Section 1R11.2.b(2))

- TBD: The NRC identified an apparent violation (AV) of 10 CFR 50.90, Application for Amendment of License, Construction Permit, or Early Site Permit for the licensee's apparent failure to submit an application requesting an amendment to their operating license concerning on-shift staffing levels. The licensee augmented on-shift staffing levels on October 30, 2013. The issue was entered into the Browns Ferry corrective action program as PERs 790109 and 801057.

This apparent violation had the potential to impede or impact the regulatory process, and therefore was subject to traditional enforcement as described in the NRC Enforcement Policy, dated July 9, 2013. Because this apparent violation involved the traditional enforcement process with no underlying technical violation that would be considered more than minor in accordance with IMC 0612, a cross-cutting aspect was not assigned to this violation. (Section 1R11.2.b(3))

- Severity Level IV: The NRC identified a non-cited violation (NVC) of 10 CFR 50.73(a)(2)(i)(B) for the licensee's failure to submit a License Event Report (LER) for a condition prohibited by plant technical specifications within 60 days of the event. The licensee entered this issue into their corrective action program as Problem Event Report 796578. LER 50-259 2013-006-00 was submitted on December 4, 2013.

The failure to make reports to the NRC as required by 10 CFR 50.73(a)(2)(i)(B) impacted the regulatory process and was a violation of NRC requirements. The violation was processed using traditional enforcement and determined to be a Severity Level IV violation consistent with NRC's Enforcement Policy section 6.9.d.9, Inaccurate and Incomplete Information or Failure to Make a Required Report. Because this violation involved the traditional enforcement process with no underlying technical violation that would be considered more than minor in accordance with IMC 0612, a cross-cutting aspect was not assigned to this violation. (Section 4OA3.7)

Licensee Identified Violations

- A violation of very low safety significance affecting the Barrier Integrity cornerstone that was identified by the licensee has been reviewed by the NRC. Corrective actions taken or planned by the licensee have been entered into the licensee's corrective action program. This violation and corrective action tracking number are listed in Section 4OA7 of this report.

## REPORT DETAILS

### Summary of Plant Status

Unit 1 operated at 100 percent of rated thermal power (RTP) except for one planned downpower on December 14, 2013, for an oil addition to the 1B recirculation pump. Power remained at 100 percent RTP for the remainder of the quarter.

Unit 2 operated at 100 percent RTP except for three planned downpowers, November 16, 2013, for troubleshooting on the 2B3 feedwater heater, November 21, 2013, for repairs to the 2B3 feedwater heater, and December 6, 2013, for repairs to the 2A3 and 2C3 feedwater heaters. On October 12, 2013, an unplanned power reduction to 78 percent RTP occurred as a result of a recirculation pump runback caused by the failure of the main steam line and reactor feedwater flow indicators. Power remained at 100 percent RTP for the remainder of the quarter.

Unit 3 operated at 100 percent RTP except for a planned downpower on October 4, 2013, for repairs to the 3C3 feedwater heater and to replace a power supply on the 3B reactor feed pump governor control circuit. Power remained at 100 percent RTP for the remainder of the quarter.

#### 1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

#### 1R01 Adverse Weather Protection

##### .1 Readiness for Seasonal Extreme Weather Conditions

###### a. Inspection Scope

Prior to and during the onset of cold weather conditions, the inspectors reviewed the licensee's implementation of 0-GOI-200-1, Freeze Protection Inspection, including applicable checklists: Attachment 1, Freeze Protection Annual Checklist; Attachment 2, Freeze Protection Operational Checklist; and as applicable, Attachments 3 through 12, Freeze Protection Daily Log Sheets for individual watch stations. The inspectors also reviewed the list of open FZ-coded Work Orders and Problem Evaluation Reports (PERs) to verify that the licensee was identifying and correcting potential problems relating to cold weather operations. In addition, the inspectors reviewed procedure requirements and walked down selected areas of the plant, which included the main control rooms, residual heat removal service water (RHRSW) and emergency equipment cooling water (EECW) pump rooms, and all units emergency diesel generator (EDG) buildings, to verify that affected systems and components were properly configured and protected as specified by the procedure. The inspectors discussed cold weather conditions with Operations personnel to assess plant equipment conditions and personnel sensitivity to upcoming cold weather conditions. This constituted one Readiness for Seasonal Extreme Weather sample. Documents reviewed are listed in the Attachment.

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b. Findings

Introduction: The NRC identified a Green non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion V, Procedures, for the licensee's failure to implement 0-GOI-200-1, Freeze Protection Inspection. Specifically, the licensee failed to enter freeze protection discrepancies into the corrective action program (CAP) as part of the Freeze Protection Discrepancy List per 0-GOI-200-1 for the RHRSW and EECW systems.

Description: On October 24, 2013, NRC inspectors identified piping insulation removed and heat trace wires disconnected on multiple RHRSW and EECW pipes at the Browns Ferry plant intake rooms. These rooms have no roof and are exposed to outside conditions. Licensee procedure 0-GOI-200-1, Freeze Protection Inspection, required completion of Attachment 1, Freeze Protection Annual Checklist, by October 1, 2013. This checklist requires the performance of general area inspections of the RHRSW Pump Rooms, per Appendix A, section 4.0, General Area Checks Guideline, which included verification that heat trace circuits were functioning and insulation was installed on all piping and instrument lines. 0-GOI-200-1, Annual Check List had not been completed as of October 24, 2013.

Subsequently, on December 13, 2013, NRC inspectors observed that heat trace circuits in the RHRSW rooms did not have insulation covering the heat trace tape and no compensatory measures were in place to prevent pipe freezing. Temperatures earlier that week had routinely decreased below 25 degrees Fahrenheit (F) each night. Area temperatures had started dropping below 25 degrees F on November 13, 2013.

Section 5.0, Step 3.1 of 0-GOI-200-1, required outstanding discrepancies following completion of Attachment 1 to be evaluated and verification that a Service Request (SR)/Work Order (WO) with the term "FZ" in the narrative details section for the Focus Area have been initiated. Step 3.2 required that if compensatory measures were required that they be added to the Operator Work Around list.

Attachments 3 and 4, of 0-GOI-200-1, Freeze Protection Daily Log Sheets, were required to be performed when outside ambient temperature dropped below 25 degrees F or stayed below 32 degrees F for an 8-hour period. Both attachments required area inspections of the RHRSW Pump Rooms, per Appendix A, section 4.0, General Area Checks Guideline. Discrepancies identified during area inspection were required to be recorded on Appendix B, Freeze Protection Remarks Log, and a SR/WO be initiated with the term "FZ" in the narrative details section or verified already in Freeze Protection Discrepancy List (MAXIMO Focus Area "FZ").

The inspectors noted that the missing insulation was not documented in the Annual Checklist or the Daily Log Sheets, nor was it included in the Official Freeze Protection Discrepancy List.

The inspectors noted that the operators performing Freeze Protection Daily Logs were not being provided or using Appendix A & B during the performance of the procedure. On November 27, 2013, the licensee entered the insulation and non-working heat trace deficiencies in the Official Freeze Protection Discrepancy List. In response to NRC

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questioning, the licensee performed a prompt operability review. This review documented that, on all four trains, over 80 feet of piping was missing insulation. The operability review stated that a break in piping due to freezing could overwhelm the RHRSW compartment sump pumps resulting in the failure of all three RHRSW pumps in that particular room. Additionally the review noted that the heat trace design calculation, MDQ0023880058, assumed that insulation is always installed and is required for heat trace functionality. The licensee's operability review concluded that past operability was maintained and on December 18, 2013, the licensee installed compensatory measures including heaters and tarpaulin.

Analysis: The inspectors determined that the failure to enter freeze protection discrepancies into the CAP as part of the Freeze Protection Discrepancy List per 0-GOI-200-1, Freeze Protection Inspection, was a performance deficiency. Specifically, the licensee failed to document missing insulation on the RHRSW and EECW systems in accordance with Appendix B and Section 5.0 of 0-GOI-200-1. The finding is associated with the Initiating Events cornerstone. The finding was more than minor because, if left uncorrected, the performance deficiency would have the potential to lead to a more significant safety concern, in that the intake room piping would continue to be exposed to freezing temperatures without adequate freeze protection which could affect RHRSW and EECW systems' ability to perform their safety functions. The inspectors performed a Phase 1 screening in accordance with IMC 0609, Significance Determination Process, Appendix A, Exhibit 1, Initiating Event screening question E, and determined the finding was of very low safety significance (Green) because it did not impact the frequency of an internal flooding event. The cause of this finding has a cross-cutting aspect in the Work Practices component of the Human Performance area, because the licensee failed to define and effectively communicate expectations regarding procedural compliance and that personnel follow procedures. [H.4(b)].

Enforcement: Title 10 CFR 50, Appendix B, Criterion V, Procedures, requires, in part, that activities affecting quality shall be prescribed by documented instructions, procedures, or drawings and shall be accomplished in accordance with these instructions, procedures and drawings. Browns Ferry procedure 0-GOI-200-1, Freeze Protection Inspection, is a quality related procedure which verified freeze protection on RHRSW and EECW pumps and associated components to ensure that they will operate at below freezing temperatures. Appendix B and Section 5.0 required documentation of freeze protection discrepancies in the CAP as part of the Freeze Protection Discrepancy List. Contrary to the above, between November 13, 2013, and November 27, 2013, the licensee failed to accomplish activities affecting quality in accordance with procedures. Specifically, the licensee failed to document missing insulation on the RHRSW and EECW systems in the CAP as part of the Freeze Protection Discrepancy List as required by procedure 0-GOI-200-1. As a result, the required heaters and tarpaulin were not installed until December 18, 2013. On November 27, 2013, the licensee entered the insulation and non-working heat trace deficiencies in the Official Freeze Protection Discrepancy List. This violation is being treated as a non-cited violation (NCV), consistent with Section 2.3.2 of the NRC Enforcement Policy. The violation was entered into the licensee's corrective action program as PERs 800190 and 821426. (NCV 05000259/2013005-01, Failure to Document Service Water Freeze Protection Deficiencies)

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## 1R04 Equipment Alignment

### .1 Partial Walkdown

#### a. Inspection Scope

The inspectors conducted partial equipment alignment walkdowns to evaluate the operability of selected redundant trains or backup systems, listed below, while the other train or subsystem was inoperable or out of service. The inspectors reviewed the functional systems descriptions, Updated Final Safety Analysis Report (UFSAR), system operating procedures, and Technical Specifications (TS) to determine correct system lineups for the current plant conditions. The inspectors performed walkdowns of the systems to verify that critical components were properly aligned and to identify any discrepancies which could affect operability of the redundant train or backup system. This activity constituted four Equipment Alignment Partial Walkdown inspection samples. Documents reviewed are listed in the Attachment.

- October 15, 2013, Unit 2 core spray (CS) system - Division I
- October 21, 2013, Unit 1 standby liquid control system
- October 23, 2013, Common switchyard with Bus 2 out of service
- December 12, 2013, Unit 3 reactor core isolation cooling (RCIC)

#### b. Findings

No findings were identified.

## 1R05 Fire Protection

### .1 Fire Protection Tours

#### a. Inspection Scope

The inspectors reviewed licensee procedures for transient combustibles and fire protection impairments, and conducted a walkdown of the fire areas (FAs) and fire zones (FZs) listed below. Selected FAs/FZs were examined in order to verify licensee control of transient combustibles and ignition sources; the material condition of fire protection equipment and fire barriers; and operational lineup and operational condition of fire protection features or measures. The inspectors verified that selected fire protection impairments were identified and controlled in accordance with procedures. Furthermore, the inspectors reviewed applicable portions of the Fire Protection Report, Volumes 1 and 2, including the applicable Fire Hazards Analysis, and Pre-Fire Plan drawings, to verify that the necessary firefighting equipment, such as fire extinguishers, hose stations, ladders, and communications equipment, was in place. This activity constituted six Fire Protection Walkdown inspection samples. Documents reviewed are listed in the Attachment.

- October 1, 2013, Unit 1 Reactor Building, EL 639 feet (Fire Zone 1-6)
- October 1, 2013, Unit 2 Reactor Building South East Quad EL 519 feet and 541 feet (Fire Zone 2-2)
- October 2, 2013, Unit 2 Reactor Building, EL 621 feet 2A Electrical Board Room (Fire Area 9)
- October 2, 2013, Unit 2 Reactor Building, EL 621 feet 480V Shutdown board Room 2A (Fire Area 10)
- October 2, 2013, Unit 2 Reactor Building, EL 621 feet 480V Shutdown board Room 2B (Fire Area 11)
- November 5, 2013, Intake Pumping Station Cable Tunnel (Fire Zone 25-3)

b. Findings

No findings were identified.

1R11 Licensed Operator Regualification and Performance

.1 Licensed Operator Regualification

a. Inspection Scope

On October 15, 2013, the inspectors observed an as-found licensed operator regualification for an operating crew according to Unit 2 Simulator Exercise Guide (SEG) OPL173.R227, Anticipated Transient without Scram (ATWS), and Various Technical Specification entries.

The inspectors specifically evaluated the following attributes related to the operating crew's performance:

- Clarity and formality of communication
- Ability to take timely action to safely control the unit
- Prioritization, interpretation, and verification of alarms
- Correct use and implementation of procedures including Abnormal Operating Instructions (AOIs), Emergency Operating Instructions (EOIs) and Safe Shutdown Instructions (SSI)
- Timely control board operation and manipulation, including high-risk operator actions
- Timely oversight and direction provided by the shift supervisor, including ability to identify and implement appropriate TS actions such as reporting and emergency plan actions and notifications
- Group dynamics involved in crew performance

The inspectors assessed the licensee's ability to administer testing and assess the performance of their licensed operators. The inspectors attended the post-examination critique performed by the licensee evaluators, and verified that licensee-identified issues were comparable to issues identified by the inspector. The inspectors also reviewed simulator physical fidelity (i.e., the degree of similarity between the simulator and the



reference plant control room, such as physical location of panels, equipment, instruments, controls, labels, and related form and function). This activity constituted one Observation of Requalification Activity inspection sample. Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

.2 Control Room Observations

a. Inspection Scope

Inspectors observed and assessed licensed operator performance in the plant and main control room, particularly during periods of heightened activity or risk and where the activities could affect plant safety. Inspectors reviewed various licensee policies and procedures covering Conduct of Operations, Plant Operations, and Power Maneuvering. The inspectors utilized activities such as post maintenance testing, surveillance testing and other activities to focus on the following conduct of operations as appropriate;

- Operator compliance and use of procedures.
- Control board manipulations.
- Communication between crew members.
- Use and interpretation of plant instruments, indications, and alarms.
- Use of human error prevention techniques.
- Documentation of activities, including initials and sign-offs in procedures.
- Supervision of activities, including risk and reactivity management.
- Pre-job briefs.

This activity constituted one Control Room Observation inspection sample.

b. Findings and Violations

(1) Failure To Maintain Emergency Response Staffing Levels

Introduction: The NRC identified an apparent violation of 10 CFR 50.54(q), Emergency Plans, for the licensee's failure to maintain plant staffing levels in accordance with NP-REP, Tennessee Valley Authority Nuclear Power Radiological Emergency Plan. Specifically, the process for maintaining emergency staffing requirements included implementation of the requirements of OPDP-1, Conduct of Operations, which identified the required on-shift staffing levels. However, this procedure was found to be inadequate to maintain shift staffing in compliance with the NP-REP for both the Shift Technical Advisor (STA) and Incident Commander positions.

Description: On November 15, 2006, the licensee submitted license amendment requests (LARs) 271, 300, and 259 for Browns Ferry Nuclear (BFN) units 1, 2 and 3, respectively. The LARs were submitted as part of the restart effort associated with Unit 1. In part, the LARs identified the minimum staffing levels necessary to ensure safe shutdown can be achieved on the three operating units during an Appendix R fire, which were one Shift Manager (SM), four Unit Supervisors (US), six Reactor Operators (ROs), eight Assistant Unit Operators (AUOs), and one Shift Technical Advisor. The LARs indicated that the stated staffing levels were required once Unit 1 achieved Mode 2 of reactor operations, which occurred on May 21, 2007.

These staffing levels met the minimum on-shift facility staffing requirements defined in Figure A-1, Site Emergency Organization, of Appendix A, Browns Ferry Nuclear Plant, contained in revision 84 (dated February 17, 2007) of NP-REP, which required one SM, one US for each unit, two ROs for each unit, two AUOs for each unit, and one STA. The on-shift levels delineated in Figure A-1 have remained unchanged for the STA since revision 84 of NP-REP. NP-REP Revision 100, dated December 21, 2012, added the Incident Commander to the Figure A-1 as a required on-shift position.

In July 2013, inspectors questioned the licensee on how the safe shutdown actions for an Appendix R fire could be implemented with a US that was also performing the emergency response actions assigned to the STA function during a fire event. Initially, the licensee stated that one of the other US would implement the safe shutdown actions on both his assigned unit and the unit with the US that was fulfilling the STA function. The inspectors questioned how one US could implement the safe shutdown actions on two units simultaneously. The licensee stated that they could provide a staffing study that supported the current staffing levels.

On October 3, 2013, the licensee notified the NRC via Event Notification (EN) 49406 that the site was in an unanalyzed condition. In the event of an Appendix R fire in the Control Bay, the current level of operations shift staffing would not be adequate to perform all the actions in the SSIs to ensure safe shutdown of the units; specifically one of the units would be without a US to direct the actions of the SSI. The licensee entered the issue into corrective action program (CAP) via Problem Evaluation Report (PER) 790092. The licensee took actions to place a dedicated Incident Commander on shift for each of the shifts that was either a licensed SRO, certified SRO or licensed RO that had successfully completed BFN Incident Commander Training. Following further investigation, the licensee determined that shift staffing on all three units was still not in compliance with the license conditions for fire protection as contained in LARs 271, 300 and 259. On October 30, 2013, the licensee entered this issue into the CAP via PER 801057 and took the immediate corrective action to ensure five licensed SROs were verified on shift and initiated actions to revise the Standing Order on minimum SSI staffing to require five licensed SROs on each shift. The licensee's root cause analysis determined that between February 11, 2008, and July 8, 2012, twenty-six PERs relating to operations staffing were written. All of the PERs resulted in a determination that staffing levels were adequate.

The inspectors reviewed NP-REP, Tennessee Valley Authority Nuclear Power Radiological Emergency Plan, revision 100. Figure A-1, Site Emergency Organization, in Appendix A of NP-REP required that both an STA and a US are part of the required manning during an emergency on an affected unit. For the unaffected units, a US is required on each of the unaffected units with an exception for units sharing a common control area. In the case of an Appendix R fire, all three units are affected which would require three US and an STA be staffed. The inspectors determined that since May 21, 2007, when Unit 1 entered Mode 2, to the present, the licensee could not meet the staffing requirements of NP-REP during any Appendix R fire on any of the three units. The inspectors also identified that beginning with NP-REP Revision 100, dated December 21, 2012, an Incident Commander position was added to the Figure A-1 as a required on-shift position, but no process was implemented to ensure it was continually staffed.

The process for maintaining emergency staffing requirements includes implementation of the requirements of OPDP-1, Conduct of Operations, which identified the required on-shift staffing levels. This procedure was found to be inadequate to maintain shift staffing in compliance with the NP-REP for both the STA and Incident Commander positions.

Analysis: The licensee's failure to maintain plant staffing levels in accordance with NP-REP, Tennessee Valley Authority Nuclear Power Radiological Emergency Plan was a performance deficiency. Specifically, the licensee's process for maintaining minimum emergency response shift staffing failed to adequately maintain staffing of the STA and Incident Commander to ensure initial accident response in all key functional areas. The inspectors determined the performance deficiency was more than minor because it was associated with the ERO readiness attribute of the emergency preparedness cornerstone and adversely impacted the cornerstone objective of ensuring that the licensee is capable of implementing adequate measures to protect the health and safety of the public in the event of a radiological emergency. Specifically, the failure to maintain required emergency response staffing levels reduced the licensee's capabilities to respond to an emergency. The inspectors assessed the finding in accordance with Appendix B, Emergency Preparedness Significance Determination Process, (February 24, 2012) of IMC 0609, Significance Determination Process, and using Table 5.2-1 – Significance Examples §50.47(b)(2), determined that this finding represented a process for on-shift staffing that would allow 2 or more shifts to go below E-plan minimum staffing requirements. Specifically, the inspectors determined that the licensee's process failed to ensure shift staffing met E-plan minimum staffing requirements for a period of over 6 years. This corresponded to a Loss of Planning Standard Function and has preliminarily been determined to be a finding of White significance.

Because the licensee has taken immediate corrective actions to increase staffing levels consistent with the emergency plan, this issue does not represent an immediate safety concern. Because the significance of this finding is not yet finalized, it is being characterized as "To Be Determined (TBD)," pending a final significance determination.

The cause of the finding was determined to be associated with the cross-cutting aspect of thorough evaluation of problems in the corrective action component of the problem identification and resolution area because the licensee failed to ensure that issues potentially affecting nuclear safety were thoroughly evaluated. [P.1(c)]

Enforcement: 10 CFR 50.54(q) requires, in part, that a holder of a license under Part 50 shall follow and maintain the effectiveness of the emergency plan that meets the planning standards of 10 CFR 50.47. 10 CFR 50.47(b)(2) states, in part, that adequate staffing to provide initial facility accident response in key functional areas is maintained at all times. NP-REP, Tennessee Valley Authority Nuclear Power Radiological Emergency Plan, of Appendix A, Figure A-1, Site Emergency Organization, Browns Ferry Nuclear Plant, defined the emergency plan staffing requirements for key functional areas including the staffing of a Shift Technical Advisor and Incident Commander.

From May 21, 2007, through October 30, 2013, the licensee failed to follow and maintain the effectiveness of an emergency plan that met the planning standards of 10 CFR 50.47 when the licensee did not ensure adequate staffing to provide initial facility accident response in key functional areas was maintained at all times. Specifically, the licensee's process for maintaining minimum emergency response shift staffing failed to ensure continuous staffing of emergency response roles as defined in NP-REP, Tennessee Valley Authority Nuclear Power Radiological Emergency Plan as evidenced by the following examples:

- Failure to continuously staff the STA position beginning May 21, 2007
- Failure to continuously staff the Incident Commander position beginning December 21, 2012

The licensee augmented on-shift staffing levels on October 30, 2013, and entered this issue into the corrective action program (CAP) as PERs 790092 and 801057. Pending determination of the finding's final safety significance, this finding is identified as AV 05000259, 260, 296/2013005-02, Failure to Maintain Emergency Response Staffing Levels.

(2) Inaccurate Information Provided Concerning Onsite Emergency Response Organization Staffing Requirements

Introduction: Two examples of an NRC-identified apparent violation of 10 CFR 50.9, "Completeness and accuracy of information," were identified for the licensee's apparent failure to provide complete and accurate information associated with emergency response on-shift staffing requirements. Specifically, on two occasions the licensee apparently provided inaccurate information to the NRC concerning onsite emergency response organization minimum staffing requirements.

Description: On November 15, 2006, TVA submitted license amendment requests (LARs) 271, 300, and 259 for Browns Ferry Nuclear (BFN) Units 1, 2 and 3, respectively. The LARs were submitted as part of the restart effort associated with Unit 1. In part, the LARs identified the minimum staffing levels necessary to ensure that safe shutdown can be achieved on the three operating units during an Appendix R fire. The LARs stated

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that the minimum staffing levels were one Shift Manager (SM), four Unit Supervisors (US), six Reactor Operators (ROs), eight Assistant Unit Operators (AUOs), and one Shift Technical Advisor. The LARs indicated that the stated staffing levels were required once Unit 1 achieved Mode 2 of reactor operations, which occurred on May 21, 2007.

On January 10, 2007, the licensee issued revision 7 of OPDP-1, Conduct of Operations, which identified the required on-shift staffing levels to be one SM, three US, six ROs, eight AUOs and one STA with the STA function allowed to be filled by one of the on-shift US. This change decreased the required staffing levels for on-shift Unit Supervisors from 4 to 3, and allowed the STA position to be filled by one of the on-shift US. This was not sufficient to meet the required staffing levels submitted in the LARs required prior to reaching Mode 2 on Unit 1.

In the safety evaluation dated April 25, 2007 (ADAMS Accession Number ML 071160431), the NRC documented that the licensee conveyed to NRC staff that the appropriate procedures had been revised to reflect the increase in staffing levels contained in the LARs. On April 25, 2007, the NRC approved the LARs for all three units.

On February 17, 2010, the licensee determined that the guidance provided in OPDP-1 for minimum on-shift staffing did not meet the staffing levels submitted in LARs 271, 300, and 259. On May 13, 2010, the licensee notified the Region II Regional Administrator (RA), via a conference call, of the issue and in a follow-up letter dated June 29, 2010, the licensee informed the RA that they did not meet the requirements of their licensing basis. However, the licensee also stated that they had completed a staffing assessment and determined that the current minimum staffing levels contained in OPDP-1 (i.e., three US with one US filling the STA function) were adequate for successful implementation of all safe shutdown actions for the bounding Appendix R fire scenario. On November 30, 2011, the licensee submitted in "Summary Report for 10 CFR 50.59 Evaluations, Fire Protection Report Technical Specification Bases Changes, Technical Requirements Manual Changes, and NRC Commitment Revision" to change to the staffing level requirements in which they again provided information of their assessment and change to their required staffing levels.

On September 06, 2013, the licensee initiated a self-assessment entitled "Operations Department Staffing Levels." The assessment evaluated three different scenarios: 1) Loss of Coolant Accident (LOCA) with a simultaneous Loss of Offsite Power (LOOP); 2) Fire in the Control Bay (Fire Area 16) that requires entry into the Safe Shutdown Instructions (SSIs), specifically 0-SSI-16; and 3) a Beyond Design Basis External Event postulated in response to the Fukushima Daiichi accident. The assessment assumed that shift staffing levels were at the minimum required by OPDP-1, revision 7. The self-assessment concluded that the current minimum staffing levels would not be sufficient to perform all the required actions in the event of a fire in the Control Bay (Event 2). The assessment contained a simplified time motion study that indicated the STA function could not be staffed during this event.

On November 6, 2013, and in follow-up letter dated December 6, 2013, the licensee informed the Region II RA in accordance with 10 CFR 50.9(b), that TVA had inaccurately reported information regarding the required shift staffing for three-unit operation as originally submitted in LARs 271, 300, and 259. The inspectors determined that on multiple occasions the information provided to the NRC detailing required staffing levels was not complete and accurate in all material respects.

Analysis: The inspectors determined that the licensee's apparent failure to provide complete and accurate information to the NRC were apparent violations of the requirements of 10 CFR 50.9, Completeness and Accuracy of Information. These apparent violations had the potential to impede or impact the regulatory process, and therefore are subject to traditional enforcement as described in the NRC Enforcement Policy, dated July 9, 2013. A cross-cutting aspect was not assigned because these violations were dispositioned using traditional enforcement.

Enforcement: 10 CFR 50.9(a) requires, in part, that information provided to the Commission by a licensee or information required by the statute or by the Commission's regulations, orders or license conditions to be maintained by the licensee shall be complete and accurate in all material respects.

TVA apparently provided information to the Commission that was not complete and accurate in all material respects as evidenced by the following examples:

- In a letter dated June 29, 2010, TVA apparently provided inaccurate information to the NRC indicating that the minimum staffing levels stated in their licensing basis were not required to achieve safe shutdown on the three-unit site during an Appendix R fire event.

"TVA has assessed the number of operators required to carry out the SSIs. The most demanding staffing is required by 0-SSI-16, "Control Building Fire EL 593 Through EL 617." The evaluation concludes that the minimum staffing of three USs, six ROs, and eight AUOs is adequate for successful implementation of this SSI."

- In a letter dated November 30, 2011, TVA apparently provided inaccurate information to the NRC indicating that the minimum staffing levels stated in their licensing basis were not required to achieve safe shutdown on the three-unit site during an Appendix R fire event.

"...Total staffing level is one Shift Manager (SM), three Unit Supervisors (US), Six ROs, and eight AUOs. One of the US may be the STA..."

The licensee augmented on-shift staffing levels on October 30, 2013, and entered these issues into the corrective action program as PERs 790109, 790092, and 801057. These issues were preliminarily determined to be an apparent violation of 10 CFR 50.9 and pending final determination, this issue is identified as AV 05000259, 260, 296/2013005-03; Inaccurate Information Provided Concerning Onsite Emergency Response Organization Staffing Requirements.

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### (3) Inappropriate Amendment of License Conditions

Introduction: The NRC identified an apparent violation (AV) of 10 CFR 50.90, Application for Amendment of License, Construction Permit, or Early Site Permit for the licensee apparent failure to submit an application requesting an amendment to their operating license concerning on-shift staffing levels.

Description: On November 15, 2006, the licensee submitted license amendment requests (LARs) 271, 300, and 259 for Browns Ferry Nuclear (BFN) units 1, 2 and 3, respectively. The LARs were submitted as part of the restart effort associated with Unit 1. The LARs identified that the minimum staffing levels necessary to ensure safe shutdown could be achieved on the three operating units during an Appendix R fire, were 1 Shift Manager (SM), 4 Unit Supervisors (US), 6 Reactor Operators (ROs), 8 Assistant Unit Operators (AUOs), and 1 Shift Technical Advisor. The LARs indicated that the stated staffing levels were required once Unit 1 achieved Mode 2 of reactor operations, which occurred on May 21, 2007. On January 10, 2007, the licensee issued revision 7 of OPDP-1, Conduct of Operations, which decreased the required staffing levels for on-shift Unit Supervisors to 3, and allowed the STA position to be filled by one of the on-shift US. In the safety evaluation dated April 25, 2007 (ADAMS Accession No. ML 071160431), the NRC documented that the licensee conveyed to the NRC staff that the appropriate procedures had been revised to reflect the increase in staffing levels contained in the LARs. In addition, the staff's safety evaluation dated April 25, 2007 was referenced in the BFN Units 1, 2, and 3 licenses regarding the approved Fire Protection Program.

On May 13, 2010, the licensee notified the Region II Regional Administrator (RA) via a conference call, that the staffing levels provided in OPDP-1 for minimum on-shift staffing did not meet the staffing levels submitted in LARs 271, 300, and 259. In a follow-up 10 CFR 50.9 letter dated June 29, 2010, the licensee informed the RA that they did not meet the requirements of their licensing basis. The licensee also stated that they had completed a staffing assessment and determined that the current minimum staffing levels contained in OPDP-1 (i.e., three US with one US filling the STA function) were adequate for successful implementation of all safe shutdown actions for the bounding Appendix R fire scenario. However, rather than apply for a license amendment, the licensee initiated a change to the staffing level requirements using NPG-SPP-03.3, NRC Commitment Management. TVA evaluated the staffing change as a regulatory commitment change and determined that NRC approval was not needed and this change should be reported to the NRC in a biennial report for the commitment changes TVA reported the required staffing change to the NRC in "Summary Report for 10 CFR 50.59 Evaluations, Fire Protection Report Technical Specification Bases Changes, Technical Requirements Manual Changes, and NRC Commitment Revision," (ADAMS Accession No. ML 11343A051) dated November 30, 2011. This decision by the licensee prevented the NRC from reviewing this change to the operating license prior to the licensee implementing the change.

Analysis: The inspectors determined that the licensee's apparent failure to apply for a license amendment from the NRC was an apparent violation of 10 CFR 50.90. Had NRC reviewers been provided the correct information it would have impacted the

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regulatory decision making process. In addition, the NRC staff's reiteration of the staffing requirements from the November 15, 2006, LARs indicated the staff's reliance on this specific information in making their technical judgment. This apparent violation of 10 CFR 50.90 had the potential to impede or impact the regulatory process, and therefore was subject to traditional enforcement as described in the NRC Enforcement Policy, dated July 9, 2013. A cross-cutting aspect was not assigned since the violation was dispositioned using traditional enforcement.

Enforcement: Title 10 CFR 50.90 requires, in part, that whenever a holder of an operating license under this part, desires to amend the license or permit, application for an amendment must be filed with the Commission, as specified in section 50.4 of this chapter, as applicable, fully describing the changes desired, and following as far as applicable, the form prescribed for original applications.

From June 29, 2010, through October 30, 2013, the licensee in effect, apparently amended their operating license without filing an application for an amendment as specified in 10 CFR 50.90. Specifically, the licensee inappropriately amended the requirements for site staffing incorporated as part of license amendments 271, 300, and 259, without submission of a license amendment request. The licensee's decision to amend the staffing levels via a commitment change resulted in bypassing the review and approval that would occur as part of the licensing amendment process.

The licensee augmented on-shift staffing levels on October 30, 2013, and entered this issue into the corrective action program as PERs 790109 and 801057. The failure to apply for a license amendment was preliminarily determined to be an apparent violation of 10 CFR 50.90 and, pending final determination, this issue is identified as AV 05000259, 260, 296/2013005-04; Inappropriate Amendment of License Conditions.

### .3 Annual Licensed Operator Requalification Review

#### a. Inspection Scope

Annual Review of Licensee Requalification Examination Results: On December 31, 2013, the licensee completed the annual requalification operating examinations required to be administered to all licensed operators in accordance with Title 10 of the Code of Federal Regulations 55.59(a)(2), "Requalification requirements," of the NRC's "Operators' Licenses." The inspector performed an in-office review of the overall pass/fail results of the individual operating examinations and the crew simulator operating examinations in accordance with Inspection Procedure (IP) 71111.11, "Licensed Operator Requalification Program and Licensed Operator Performance." The results were compared to the thresholds established in Section 3.02, "Requalification Examination Results," of IP 71111.11.

#### b. Findings

No findings were identified.



1R12 Maintenance Effectiveness.1 Routinea. Inspection Scope

The inspectors reviewed the specific structures, systems and components (SSCs) within the scope of the Maintenance Rule (MR) (10 CFR 50.65) with regard to some or all of the following attributes, as applicable: 1) Appropriate work practices; 2) Identifying and addressing common cause failures; 3) Scoping in accordance with 10 CFR 50.65(b) of the MR; 4) Characterizing reliability issues for performance monitoring; 5) Tracking unavailability for performance monitoring; 6) Balancing reliability and unavailability; 7) Trending key parameters for condition monitoring; 8) System classification and reclassification in accordance with 10 CFR 50.65(a)(1) or (a)(2); 9) Appropriateness of performance criteria in accordance with 10 CFR 50.65(a)(2); and 10) Appropriateness and adequacy of 10 CFR 50.65(a)(1) goals, monitoring and corrective actions (i.e., Ten Point Plan). The inspectors also compared the licensee's performance against site procedures. The inspectors also reviewed, as applicable, WOs, SRs, PERs, system health reports, engineering evaluations, and MR expert panel minutes; and attended MR expert panel meetings to verify that regulatory and procedural requirements were met. This activity constituted three Maintenance Effectiveness inspection samples. Documents reviewed are listed in the Attachment.

- Unit 1, 2, and 3 control air system shift to (a)(1) status
- Unit 1, 2, and 3 residual heat removal (RHR) and RHRSW Systems evaluation of Heat Exchanger Asiatic Clam fouling
- Unit 1, 2, and 3 Control Bay Chillers and associated (a)(1) plan effectiveness

b. Findings

No findings were identified.

1R13 Maintenance Risk Assessments and Emergent Work Controla. Inspection Scope

For planned online work and/or emergent work that affected the combinations of risk significant systems listed below, the inspectors examined four on-line maintenance risk assessments, and actions taken to plan and/or control work activities to effectively manage and minimize risk. The inspectors verified that risk assessments and applicable risk management actions (RMAs) were conducted as required by 10 CFR 50.65(a)(4) applicable plant procedures. Furthermore, as applicable, the inspectors verified the actual in-plant configurations to ensure accuracy of the licensee's risk assessments and adequacy of RMA implementations. This activity constituted four Maintenance Risk Assessment inspection samples. Documents reviewed are listed in the Attachment.

- October 2, 2013, Units 1/2 'D' EDG, Unit 2 RCIC, Unit Common 'C' Emergency Equipment Cooling Water Strainer, and 161kV Trinity Line Out of Service
- October 23, 2013, Unit 3 Yellow Risk Status, 500kV Switchyard Maintenance (with loss of offsite power multiplier input), Unit 2 Main Bank Battery (respective Unit 3 RMOV boards control power to alternate), B1 RHRSW Pump, and G Control Air Compressor Out of Service
- October 30, 2013, Unit 3, '3A' EDG, '3A' RHR pump and heat exchanger, RCIC, common system 'A' RHRSW header, 'A1' and 'A2' RHRSW pumps, and G Control Air Compressor Out of Service
- November 13, 2013, Unit 1, 1A Control Rod Drive pump replacement required a lift over the Loop II CS subsystem. The Loop II CS was placed out of service as a preventative measure for the lift. D1 and D2 RHRSW pumps, G Control Air Compressor, 1A Component Cooling Water pump, and the C3 Emergency Equipment Cooling Water pump strainer Out of Service; (This also constitutes a Smart Sample per OpESS 2007-03 for the Control of Heavy Loads)

b. Findings

No findings were identified.

1R15 Operability Determinations and Functionality Assessments

a. Inspection Scope

The inspectors reviewed the operability/functional evaluations listed below to verify technical adequacy and ensure that the licensee had adequately assessed TS operability. The inspectors also reviewed applicable sections of the UFSAR to verify that the system or component remained available to perform its intended function. In addition, where appropriate, the inspectors reviewed licensee procedures to ensure that the licensee's evaluation met procedure requirements. Where applicable, inspectors examined the implementation of compensatory measures to verify that they achieved the intended purpose and that the measures were adequately controlled. The inspectors reviewed PERs on a daily basis to verify that the licensee was identifying and correcting any deficiencies associated with operability evaluations. This activity constituted five Operability Evaluation inspection samples. Documents reviewed are listed in the Attachment.

- Unit 1/2, 'B' 4kv shutdown board while 'B' EDG feeder breaker was racked to test with a wooden seismic device, (WO number 05-715371)
- Unit 3, '3D' EDG did not meet acceptance criteria for a pole drop test, (PER 732970)
- RHRSW Pump Seismic Restraints (PERs 794671, 796311, 798502)
- '3D' EDG Heat Exchanger Fouling (PER 782689)
- Average Power Range Monitor Voter Relay Logic Module failures under 10 CFR Part 21 (PER 818017)

b. Findings

No findings were identified.

1R18 Plant Modifications

.1 Permanent Plant Modifications

a. Inspection Scope

The inspectors reviewed the Design Change Notice (DCN) and completed work package (WOs 113899709 and 113900042) for DCN 70752 to Eliminate Fault Propagation on 4kV Breakers, including related documents and procedures. The inspectors reviewed licensee procedures NPG-SPP-09.3, Plant Modifications and Engineering Change Control, and NPG-SPP-06.9.3, Post-Modification Testing, and observed part of the licensee's activities to implement this design change made while the unit was online. The inspectors reviewed the associated 10 CFR 50.59 screening against the system design bases documentation to verify that the modifications had not affected system operability/availability. The inspectors reviewed selected ongoing and completed work activities to verify that installation was consistent with the design control documents. This activity constituted one Permanent Plant Modification sample. Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

1R19 Post Maintenance Testing

a. Inspection Scope

The inspectors witnessed and reviewed post-maintenance tests (PMTs) listed below to verify that procedures and test activities confirmed SSC operability and functional capability following the described maintenance. The inspectors reviewed the licensee's completed test procedures to ensure any of the SSC safety function(s) that may have been affected were adequately tested, that the acceptance criteria were consistent with information in the applicable licensing basis and/or design basis documents, and that the procedure had been properly reviewed and approved. The inspectors also witnessed and/or reviewed the test data, to verify that test results adequately demonstrated restoration of the affected safety function(s). The inspectors verified that PMT activities were conducted in accordance with applicable WO instructions, or licensee procedural requirements. Furthermore, the inspectors verified that problems associated with PMTs were identified and entered into the CAP. This activity constituted four Post Maintenance Test inspection samples. Documents reviewed are listed in the Attachment.

- October 16, 2013, CS, Division II Breaker Testing following DCN 70752 to Eliminate Fault Propagation (WOs 113899709 and 113900042)
- November 8, 2013, '3A' EDG, 3-SR-3.8.1.1(3A), Monthly Operability Test Following Lube Oil Modifications (WO 114395126)
- November 13, 2013, Unit 2 RCIC digital flow controller test following replacement (WO 115269495)
- November 25, 2013, 'A' EDG, 0-SR-3.8.1.1(A), Monthly Operability Test (WO 114456082) Following Fuel Oil Line Repairs (WO 115302820)

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator (PI) Verification

.1 Cornerstone: Initiating Events

a. Inspection Scope

The inspectors reviewed the licensee's procedures and methods for compiling and reporting the following Performance Indicators (PIs). The inspectors examined the licensee's PI data for the specific PIs listed below for the fourth quarter 2012 through third quarter of 2013. The inspectors reviewed the licensee's data and graphical representations as reported to the NRC to verify that the data was correctly reported. The inspectors also validated this data against relevant licensee records (e.g., PERs, Daily Operator Logs, Plan of the Day, Licensee Event Reports, etc.), and assessed any reported problems regarding implementation of the PI program. Furthermore, the inspectors verified that the PI data was appropriately captured, calculated correctly, and discrepancies resolved. The inspectors used the Nuclear Energy Institute (NEI) 99-02, Regulatory Assessment Performance Indicator Guideline, to ensure that industry reporting guidelines were appropriately applied. This activity constituted nine Performance Indicator inspection samples. Documents reviewed are listed in the Attachment.

- Unit 1, 2, and 3 Unplanned Scrams
- Unit 1, 2, and 3 Unplanned Scrams with Complications
- Unit 1, 2, and 3 Unplanned Power Changes

b. Findings

No findings were identified.

## 4OA2 Problem Identification and Resolution

### .1 Review of items entered into the Corrective Action Program:

As required by Inspection Procedure 71152, "Problem Identification and Resolution," and in order to help identify repetitive equipment failures or specific human performance issues for follow-up, the inspectors performed a daily screening of items entered into the licensee's CAP. This review was accomplished by reviewing daily PER and SR reports, and periodically attending Corrective Action Review Board (CARB) and PER Screening Committee (PSC) meetings.

### .2 Semi-annual Trend Review:

#### a. Inspection Scope

As required by Inspection Procedure 71152, the inspectors performed a review of the licensee's CAP and other associated programs and documents to identify trends that could indicate the existence of a more significant safety issue. The inspectors' review was focused on repetitive equipment issues, but also included licensee trending efforts and licensee human performance results. The inspectors' review nominally considered the six-month period of July through December 2013, although some examples expanded beyond those dates when the scope of the trend warranted. The inspectors reviewed licensee trend reports for the period in order to determine the existence of any adverse trends that the licensee may not have previously identified. The inspectors' review also included the Integrated Trend Reports from April 1, 2013, to September 30, 2013. The inspectors verified that adverse or negative trends identified in the licensee's PERs, periodic reports, and trending efforts were entered into the CAP. This inspection constituted one Semi-annual Trend Review inspection sample. Documents reviewed are listed in the Attachment.

#### b. Observations and Findings

No findings were identified. In general, the licensee had identified trends and appropriately addressed them in their CAP. The inspectors observed that the licensee had performed a detailed review. The licensee routinely reviewed cause codes, involved organizations, key words, and system links to identify potential trends in their data. The inspectors compared the licensee process results with the results of the inspectors' daily screening. Trends that have been identified by the inspectors and reported to the licensee were appropriately entered into the licensee's trending program and the CAP. These trends included the following:

- Challenges to operability of the RHR heat exchangers due to Asiatic clam fouling
- Secondary plant systems challenging continued operation at 100 percent power and causing plant trips
- Control of transient combustible material in safety-related areas of the plant

.3 Focused Annual Sample Review:

a. Inspection Scope

The inspectors conducted a review of licensee maintenance of floor drain systems in the diesel buildings and reactor buildings with a focus on the preventative maintenance practices and design of the drains with respect to impact on CO<sub>2</sub> actuation on a fire. This inspection constituted one Focused Annual Review inspection sample. Documents reviewed are listed in the Attachment.

b. Observations and Findings

The inspectors noted that licensee preventative maintenance frequency for maintaining plant drains was not identifying a trend of excessive debris on the as-found inspection. Some plant areas did not have an assigned preventative maintenance task. Additionally, the inspectors noted that the drains in the diesel rooms would allow CO<sub>2</sub> concentrations to be diluted on any actuation into the adjacent corridor's floor drain sump.

Introduction: The NRC identified a Green NCV of 10 CFR 50, Appendix B, Criterion III, Design Control, for the licensee's failure to establish design control measures ensure the capabilities of the 'B' EDG room floor drains.

Description: On August 13, 2013, NRC inspectors identified significantly clogged floor drains in the 'B' EDG room. Per Browns Ferry Civil Design Criteria BFN-50-C-7105, Low Energy Piping Evaluation Requirements, the two floor drains installed in the EDG room were required to remove at least 135 gallons per minute (gpm) of water to sumps outside the room. The Browns Ferry Engineering staff reviewed the condition and concluded that the 'B' EDG was inoperable as the drains were incapable of removing flow. Subsequently, NRC inspectors observed licensee staff members dumping debris and dirty water down the '3D' EDG room drains. Despite observed fouling of the drains, licensee staff failed to recognize this as a condition adverse to quality and initiate SR's to address the condition. The inspectors determined that there were no preventative maintenance tasks or periodic testing to ensure the drain capability for the eight EDG rooms. Other plant rooms have a 26 week frequency preventative maintenance task to ensure the design drain capabilities were maintained.

The Browns Ferry EDG room internal flood mitigation strategy is to have the outside sump level alarm alert operators once the sump becomes full. The sump pumps are maintained in an "off" condition at the Browns Ferry plant. With the floor drains clogged, operator action would be delayed because the sump could not receive 135 gpm flood water through the drain piping. The licensee re-evaluated the 'B' EDG drain conditions one month later and determined the drains were only 90 percent and 45 percent clogged on August 13, 2013. This would have allowed the drain water to slowly fill the sump. Based on sufficient operator response time, the 'B' EDG was determined to remain operable. The licensee's immediate corrective action was to clean all the drains in all the EDG rooms.

Analysis: The inspectors determined that the licensee's failure to establish measures to assure the regulatory requirements and design basis of structures, systems, and components were correctly translated into procedures and instructions in accordance with 10 CFR 50, Appendix B, Criterion III, Design Control, was a performance deficiency that was reasonably within TVA's ability to foresee and prevent. Specifically, no measures were established to ensure the EDG floor drains maintained capability of performing their intended functions as described in the design basis. The finding was more than minor because, if left uncorrected, the performance deficiency would have the potential to lead to a more significant safety concern. Specifically, the EDG room floor drains could become sufficiently clogged such that internal flooding would cause the affected EDG to be unable to perform its safety function. The inspectors performed a Phase 1 screening in accordance with IMC 0609, Significance Determination Process, Appendix A, Exhibit 1, Initiating Event screening question E, and determined the finding was of very low safety significance (Green) because it did not impact the frequency of an internal flooding event. This finding has a cross-cutting aspect in the area of Problem Identification and Resolution, Corrective Action Program Component, because TVA did not identify issues completely, accurately, and in a timely manner commensurate with their safety significance. Specifically, TVA did not identify that workers were challenging the drains design feature by routinely dumping dirty water and debris into the floor drains without a mechanism to verify the resultant capability of the drains. [P.1(a)]

Enforcement: 10 CFR 50, Appendix B, Criterion III, Design Control, requires, in part, that measures shall be established to assure the regulatory requirements and design basis of structures, systems, and components are correctly translated into procedures and instructions. Contrary to the above, prior to August 13, 2013, the Tennessee Valley Authority (TVA) did not correctly translate the design basis of the EDG floor drains into procedures and instructions and therefore no measures were established to ensure the EDG floor drains maintained capability of performing their intended function as described in their design basis. The licensee's immediate corrective action was to clean all the drains in all the EDG rooms thus verifying capability of the drains. This violation is being treated as an NCV, consistent with Section 2.3.2 of the Enforcement Policy. The violation was entered into the licensee's corrective action program as PER 765575. (NCV 05000259/2013005-05, Failure to Maintain Emergency Diesel Room Floor Drains)

4OA3 Follow-up of Events and Notices of Enforcement Discretion

.1 (Closed) Licensee Event Report (LER) 05000259/2009-002-01, Unexpected Logic Lockout of the Loop II Residual Heat Removal (RHR) System Pumps

a. Inspection Scope

The inspectors reviewed LER 05000259/2009-002-01 dated September 27, 2013. The licensee event report was reviewed based on the changes that were made to the original report. The changes documented concurrent inoperability of systems described in other LERs. These systems included the Loop II of the RHR system (due to the failure of 1-FCV-74-66) and the RHR pump 1C (due to a rotor/shaft bow). All the other system

operability issues were previously adjudicated in Browns Ferry inspection report 05000259, 260, 296/2010002 (ADAMS Accession No. ML101200508). This LER is closed.

b. Findings

No findings were identified.

.2 (Closed) Licensee Event Report (LER) 05000259/2009-004-01, High Pressure Core Injection Found Inoperable During Condensate Header Level Switch Calibration and Functional Test

a. Inspection Scope

The inspectors reviewed LER 05000259/2009-004-01 dated September 27, 2013. The licensee event report was reviewed based on the changes that were made to the previous report. The changes documented concurrent inoperability of systems described in other LERs. These systems included the Loop II of the RHR system (due to the failure of 1-FCV-74-66) and the RHR pump 1C (due to a rotor/shaft bow). All the other system operability issues were previously addressed in Browns Ferry inspection report 05000259, 260, 296/2009005 (ADAMS Accession No. ML100331517). This LER is closed.

b. Findings

No findings were identified.

.3 (Closed) Licensee Event Report (LER) 05000259/2010-003-03, Failure of a Low Pressure Coolant Injection Flow Control Valve

a. Inspection Scope

The inspectors reviewed LER 05000259/2010-003-03 dated September 30, 2013. The licensee event report was reviewed based on the changes that were made to the previous reports. The changes documented concurrent inoperability of systems described in other LERs and systems that were inoperable due to maintenance for periods of time less than the allowed limit. All system operability issues were previously addressed in Browns Ferry inspection reports 05000259/2011008 (ADAMS Accession No. ML111290500) and 05000259, 260, 296/2012002 (ADAMS Accession No. ML12121A507). This LER is closed.

b. Findings

No findings were identified.



.4 (Closed) Licensee Event Report (LER) 05000259, 260, 296/2011-003-02, Loss of Safety Function (SDC) Resulting from Emergency Diesel Generator Output Breaker Trip

a. Inspection Scope

The inspectors reviewed LER 05000259, 260, 296/2011-003-02 dated September 30, 2013, and all previous revisions. The licensee event report was reviewed based on the changes that were made to the previous reports. The key change was the documentation of the inoperability of the Diesel Generator based on the failure of the Overspeed Trip Limit Switch (OTLS). The previous revision did not include the total inoperability time. This issue was previously addressed in Browns Ferry Inspection reports 05000259, 260, 296/2011004 (ADAMS Accession No. ML113180503) and 05000259, 260, 296/2011005 (ADAMS Accession No. ML12045A063). This LER is closed.

b. Findings

No findings were identified.

.5 (Closed) Licensee Event Report (LER) 05000259/2011-009-03, As-Found Undervoltage Trip for the Reactor Protection System 1A1 Relay that Did Not Meet Acceptance Criteria During Several Surveillances

a. Inspection Scope

The inspectors reviewed LER 05000259/2011-009-03 dated July 29, 2013. The licensee event report was reviewed based on the changes that were made to the previous reports. The changes documented additional similar failures and a change to the causal factors. Standing order 174 was issued to establish Operations department expectations when as-found data is found outside of acceptable regulatory guidelines. The RPS 1A1 relay and 3C1 relay were replaced. This issue was previously addressed in Browns Ferry Inspection reports 05000259, 260, 296/2012002 (ADAMS Accession No. ML12121A507) and 05000259, 260, 296/2012003 (ADAMS Accession No. ML12227A711). Section 4OA7 of Inspection Report 2012-002 addressed the associated licensee identified violation. No additional findings were identified. This LER is closed.

b. Findings

No findings were identified.

.6 (Closed) Licensee Event Report (LER) 05000296/2013-001-00 and 01, Inoperable Emergency Diesel Generator due to Failed Electric Generator Casing Fan Bearing

a. Inspection Scope

The inspectors reviewed the LER, dated March 11, 2013, and May 10, 2013, and the associated PER 665217, including the root cause analysis, operability determinations,

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and corrective action plans. On January 9, 2013, while performing operator rounds near the Unit 3, 3D Emergency Diesel Generator (EDG), the licensee discovered metal residue and grease around the generator blower shaft. The licensee determined the generator blower inboard bearing (coupling side) had failed during a previous post maintenance test, as verified by licensee vibration data, rendering the 3D EDG inoperable. Following return to service of the 3D EDG and extent-of-condition inspections, the licensee determined that two additional Unit 3 EDGs had blower bearings that were degraded but not failed, and were also determined to be inoperable. The licensee concluded that the direct cause of the 3D EDG bearing failure was the absence of lubrication to the internal parts of the EDG blower bearing due to age related breakdown of the grease. The licensee determined two root causes to be inadequate component level assessment of the blower shielded bearings for failure modes and impacts and ineffective industry vibration monitoring standards. All four Unit 3 EDG generator blower bearings were replaced.

b. Findings

The enforcement aspects of this finding are discussed in Section 40A7. This LER and its revision are closed.

.7 (Closed) Licensee Event Report (LER) 05000259/2013-006-00, 1B Standby Liquid Control Pump Inoperable for Longer than Allowed by Technical Specifications

a. Inspection Scope

The inspectors reviewed LER 05000259/2013-006-00 dated December 3, 2013. A licensee past operability review determined that 1B Standby Liquid Control pump was inoperable from December 1, 2012, to February 14, 2013, due to a piece of the motor breaker's arc chute that had become dislodged and re-located to between the breaker contacts. This LER is closed.

b. Findings

Introduction. A Severity Level IV Non-Cited violation of 10 CFR 50.73(a)(2)(i)(B) was identified by the inspectors for the licensee's failure to submit a License Event Report (LER) within 60 days of a reportable event .

Description. On September 26, 2013, in response to NRC inspector questioning, the licensee reevaluated the past operability results of the failure of the 1B Standby Liquid Control (SLC) pump which occurred on Feb 13, 2013. Following the reevaluation, a revision to the PER 618667 past operability evaluation was made which concluded the 1B SLC pump would not have been able to meet its mission time from December 1, 2012 to February 14, 2013 (74 days). The licensing staff also identified that 1A SLC pump had been out of service for accumulator repairs during the time period that 1B SLC pump was inoperable. Thus the failure was reportable as both a condition prohibited by technical specifications and a loss of system safety function. PER 796578 was initiated with an immediate corrective action to generate a LER. LER 50-259 2013-006-00 was submitted on December 3, 2013.

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Analysis. The inspectors determined that the failure to submit a License Event Report (LER) within 60 days of a reportable event was a violation of the requirements of 10 CFR 50.73(a)(2)(i)(B). This violation had the potential to impede or impact the regulatory process, and therefore subject to traditional enforcement as described in the NRC Enforcement Policy, dated July 9, 2013. The inspectors used the examples provided in Section 6.9, Inaccurate and Incomplete Information or Failure to Make a Required Report, of the NRC Enforcement Policy to determine the severity level (SL). Based on the wording of example 9 under the examples for SL IV violations, the inspectors determined that this violation should be characterized as a SL IV violation. Example 9 states "A licensee fails to make a report required by 10 CFR 50.72 or 10 CFR 50.73". A cross-cutting aspect was not assigned because the violation was dispositioned using traditional enforcement.

Enforcement. 10 CFR 50.73(a)(2)(i)(B) required, in part, that licensees report any conditions prohibited by plant technical specifications within 60 days via a License Event Report. Contrary to the above, from April 14, 2013, through December 3, 2013, the licensee did not report within 60 days the failure to comply with Condition A of Technical Specification 3.1.7 after the February 13, 2013, 1B SLC pump breaker failure. This issue was documented in the licensee's corrective action program as Problem Evaluation Reports 796578 and 817510. Corrective actions included reporting the conditions in LER 050000- 259/2013-06-00. This violation is being treated as an NCV, consistent with Section 2.3.2 of the Enforcement Policy. The violation was entered into the licensee's corrective action program as PER 796578. (NCV 05000259/2013005-06, [Failure to report a condition prohibited by Technical Specifications.])

.8 (Closed) Licensee Event Report (LER) 050000260/2012-006-01, Automatic Reactor Scram Due to Loss of Power to the Reactor Protection System

a. Inspection Scope

On December 22, 2012, Unit 2 automatically scrambled from approximately 100 percent power due to loss of power to both RPS buses. The 4kV Shutdown Board D had de-energized during testing of the emergency diesel generators which resulted in a loss of the RPS Bus 2B. While attempting to re-energize the RPS Bus 2B, a procedural error resulted in de-energizing the RPS Bus 2A which resulted in a reactor scram and closure of the main steam isolation valves.

The original LER 05000260/2012-006-00, dated February 20, 2013, and applicable PER 660862, were reviewed by the inspectors and documented in Section 4OA3.3 of NRC IR 05000260/2013002 (ADAMS Accession No. ML13134A237), where a self-revealing apparent violation (AV) of Technical Specification 5.4.1 was identified for the licensee's failure to properly implement procedure 2-OI-99, Reactor Protection System. The finding was determined to have a low to moderate safety significance (white) and a notice of violation was issued to Browns Ferry for this event in NRC IR 05000260/2013013 (ADAMS Accession No. ML13235A058).

The inspectors reviewed Revision 1 of the LER dated December 6, 2013, and applicable PER 740259, including the revised cause determination and corrective action plans. This revised LER was submitted to provide the results of the licensee's completed investigation and revised causal analysis. The inspectors verified that the supplemental information provided in the revised LER was complete and accurate. No additional licensee significant performance deficiencies were identified by the inspectors. This LER is closed

b. Findings

No additional findings were identified..

4OA5 Other Activities

.1 Operation of an Independent Spent Fuel Storage Installation (ISFSI) (60855)

a. Inspection Scope

Under the guidance of IP 60855.1, the inspectors observed operations involving spent fuel transfer and storage for dry cask campaign number seven. Inspectors interviewed personnel and reviewed the licensee's documentation regarding storing spent fuel to verify that these independent spent fuel storage installation (ISFSI) related programs and procedures fulfill the commitments and requirements specified in the Safety Analysis Report (SAR), Certificate of Compliance (CoC), 10 CFR Part 72, and the Technical Specifications. Specifically one year of related 10 CFR 72.48 evaluations, 10 CFR 72.212(b) evaluations, and lid welding records associated with multi-purpose canisters (MPC) S/N 0326 and S/N 0330 were reviewed. The inspectors conducted independent ISFSI related activities to ensure that the licensee performed spent fuel loading and transport in a safe manner. Inspectors performed focused operational reviews on new methodologies concerning forced helium dehydration and supplemental cooling.

Inspectors attended briefings and observed operations in the field including overall supervisory involvement, coordination, and oversight of ISFSI-related work activities. The inspectors reviewed the fuel loading plan for MPC-0326 and verified that the fuel assemblies were properly selected and loaded in accordance with characterization documents and approved procedures. The inspectors verified that selected individuals had received the necessary training in accordance with approved procedures for their ISFSI-related job duties.

The inspectors reviewed work orders, completed procedures, logs, welding records, inspection records, qualification records, and overall guidelines for MPC-0326 ISFSI activities. The inspectors determined that the licensee had established, maintained, and implemented adequate control of dry cask processing operations, including loading, transportation, and storage per approved procedures and technical specification requirements. Records of spent fuel stored at the facility were properly maintained.

b. Findings and Observations

No findings were identified.

.2 (Closed) Temporary Instruction 2515/182 – Review of the Industry Initiative to Control Degradation of Underground Piping and Tanks

a. Inspection Scope

The inspectors conducted a review of records and procedures related to the licensee's program for buried piping and underground piping and tanks in accordance with Phase II of temporary instruction (TI) 2515-182 to confirm that the licensee's program contained attributes consistent with Sections 3.3.A and 3.3.B of Nuclear Energy Institute (NEI) 09-14, "Guideline for the Management of Buried Piping Integrity," Revision 3, and to confirm that these attributes were scheduled and/or completed by the NEI 09-14 Revision 3 deadlines. The inspectors interviewed licensee staff responsible for the buried piping program and reviewed activities related to the buried piping program to determine if the program was managed in a manner consistent with the industry's buried piping initiative.

The licensee's buried piping and underground piping and tanks program was inspected in accordance with paragraph 03.02.a of the TI and it was confirmed that activities which correspond to completion dates specified in the program which have passed since the Phase 1 inspection was conducted, have been completed. The licensee's buried piping and underground piping and tanks program was inspected in accordance with paragraph 03.02.b of the TI and responses to specific questions found in <http://www.nrc.gov/reactors/operating/ops-experience/buried-pipe-ti-phase-2-insp-req-2011-11-16.pdf> were submitted to the NRC headquarters staff.

b. Findings

No findings were identified. Based upon the scope of the review described above, Phase II of TI-2515/182 was completed.

.3 Quarterly Resident Inspector Observations of Security Personnel and Activities

a. Inspection Scope

During the inspection period the inspectors conducted observations of security force personnel and activities to ensure that the activities were consistent with licensee security procedures and regulatory requirements relating to nuclear plant security. These observations took place during both normal and off-normal plant working hours. These quarterly resident inspector observations of security force personnel and activities did not constitute any additional inspection samples. Rather, they were considered an integral part of the inspectors' normal plant status reviews and inspection activities.

b. Findings

No findings were identified

4OA6 Meetings, Including Exit

On January 10, and 21, 2014, the resident inspectors presented the quarterly inspection results to Mr. Steve Bono, Plant Manager, and other members of the licensee's staff, who acknowledged the findings. The inspectors verified that all proprietary information was returned to the licensee.

4OA7 Licensee-Identified Violations

The following violation of very low safety significance (Green) was identified by the licensee and is a violation of NRC requirements which meets the criteria of the NRC Enforcement Policy, for being dispositioned as a Non-Cited Violation.

Unit 3 Technical Specification 3.3.8.1, AC Sources - Operating, required EDGs to be operable in Modes 1, 2, and 3, and with multiple EDGs inoperable, required all but one EDG be returned to service in 2 hours or be in Mode 3 within 12 hours and in Mode 4 within 36 hours. Contrary to this, between December 22, 2012, and January 9, 2013, the licensee determined that multiple EDGs were inoperable as a result of failed 3D EDG and degraded 3A and 3B EDG generator blower bearings. This TS violation was entered into the licensee's CAP as PERs 665217, 675339, and 675952. This finding represented an actual loss of function of the 3D EDG for greater than the TS allowed outage time, and therefore, required a detailed risk evaluation. Because of the short exposure time related to the performance deficiency, the finding was determined to be of very low safety significance (Green).

## **SUPPLEMENTARY INFORMATION**

### **KEY POINTS OF CONTACT**

#### Licensee

E. Bates, Licensing Engineer  
D. Campbell, Assistant Ops Superintendent  
P. Campbell, System Engineer  
S. Christman, Ops Shift Manager  
D. Drummonds, Underground and Buried Piping Program Owner  
J. Emens, Nuclear Site Licensing Manager  
D. Green, Licensing Engineer  
R. Guthrie, System Engineer  
L. Hughes, Manager Operations  
E. Johnson, System Engineer  
J. Lacasse, System Engineer  
J. McCormack, System Engineer  
M. Oliver, Licensing Engineer  
J. Paul, Nuclear Site Licensing Manager  
K. Polson, Site Vice President  
M. Roy, Maintenance Rule Coordinator  
S. Samaras, Civil Design Engineer  
T. Scott, Performance Improvement Manager  
M. Webb, Site Licensing  
A. Yarborough, System Engineer

### **LIST OF ITEMS OPENED, CLOSED AND DISCUSSED**

#### Opened

05000259, 260, 296/2013005-02	AV	Failure to Maintain Emergency Response Staffing Levels (Section 1R11.2)
05000259, 260, 296/2013005-03	AV	Inaccurate Information Provided Concerning Onsite Emergency Response Organization Staffing Requirements (Section 1R11.2)
05000259, 260, 296/2013005-04	AV	Inappropriate Amendment of License Conditions (Section 1R11.2)

#### Opened and Closed

05000259, 260, 296/2013005-01	NCV	Failure to Document Service Water Freeze Protection Deficiencies (Section 1R01)
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05000259, 260, 296/2013005-05	NCV	Failure to Maintain Emergency Diesel Room Floor Drains (Section 4OA2.3)
05000260/2013005-06	SL-IV	Failure to report a condition prohibited by Technical Specifications (Section 4OA3.7)
<u>Closed</u>		
05000259/2009-002-01	LER	Unexpected Logic Lockout of the Loop II Residual Heat Removal System Pumps (Section 4OA3.1)
05000259/2009-004-01	LER	High Pressure Core Injection Found Inoperable During Condensate Header Level Switch Calibration and Functional Test (Section 4OA3.2)
05000259/2010-003-03	LER	Failure of a Low Pressure Coolant Injection Flow Control Valve (Section 4OA3.3)
05000259, 260, 296/2011-003-02	LER	Loss of Safety Function (SDC) Resulting from Emergency Diesel Generator Output Breaker Trip (Section 4OA3.4)
05000259/2011-009-03	LER	As-Found Undervoltage Trip for the Reactor Protection System 1A1 Relay that Did Not Meet Acceptance Criteria During Several Surveillances (Section 4OA3.5)
05000259/2013-006-00	LER	1B Standby Liquid Control Pump Inoperable for Longer than Allowed by Technical Specifications (Section 4OA3.7)
05000260/2012-006-01	LER	Automatic Reactor Scram Due to Loss of Power to the Reactor Protection System (Section 4OA3.8)
05000296/2013-001-00	LER	Inoperable Emergency Diesel Generator due to Failed Electric Generator Casing Fan Bearing (Section 4OA3.6)
05000296/2013-001-01	LER	Inoperable Emergency Diesel Generator due to Failed Electric Generator Casing Fan Bearing (Section 4OA3.6)
2515/182	TI	Review of the Industry Initiative to Control Degradation of Underground Piping and Tanks, Phase II (Section 4OA5.2)



Discussed  
None

## LIST OF DOCUMENTS REVIEWED

### **Section 1R01: Adverse Weather Protection**

0-GOI-200-1, Freeze Protection Inspection, Rev. 76  
EPI-0-000-FRZ001, Freeze Protection Program for RHRSW pump rooms and Diesel Generator Building, Rev. 19  
PER 8000190  
PER 821246, Prompt Determination of Operability  
SR 821249  
System Code FZ Discrepancy WO List, dated December 16, 2013

### **Section 1R04: Equipment Alignment**

3-OI-71/ATT-3 RCIC Electrical Lineup Checklist, Rev. 50  
3-OI-71/ATT-1 Reactor Core Isolation Cooling (RCIC) Valve Lineup Checklist, Rev. 50  
Browns Ferry Electrical Distribution drawing  
Browns Ferry Plan of the Day, 10-15-2013  
DWG 2-47E814-1, Flow Diagram Core Spray System, Rev. 52  
FSAR Section 4.7, RCIC  
Load Dispatcher switching order for opening MOD 5240  
NEDP-27, Past Operability Evaluations, Rev. 0  
PER 696780, Frequency change required on SLC pump breakers  
PER 681667, 1B SLC pump tripped  
SR 791672, Unit 3 RCIC Steam flow indication reads 10,000 lbm/hr at zero flow  
SR 791254, Unit 2 RCIC deferral of rupture disk replacement  
System Health Reports, Standby Liquid Control, 2-1-13 to 5-31-13  
System Health Reports, Standby Liquid Control, 6-1-13 to 9-30-13  
Unit 2 Core Spray Fragnet Update dated 10-15-2013

### **Section 1R05: Fire Protection**

Browns Ferry Nuclear Plant Fire Protection Report, Volume 1, Rev. 16  
Browns Ferry Nuclear Plant Fire Protection Report, Volume 1A, Rev 16  
Browns Ferry Nuclear Plant Fire Protection Report, Volume 2, Rev. 51

### **Section 1R11: Licensed Operator Requalification**

NP-REP, Tennessee Valley Authority Nuclear Power Radiological Emergency Plan, Rev. 100  
Training Focus Areas for Cycle 5, 2013  
Unit 2 Simulator Exercise Guide (SEG) OPL173.R227, Anticipated Transient without Scram

### **Section 1R12: Maintenance Effectiveness**

0-TI-346, Maintenance Rule Performance Indicator Monitoring, Trending, and Reporting – 10 CFR 50.65, Rev. 46  
0-TI-346, Maintenance Rule Performance Indicator Monitoring, Trending, and Reporting – 10 CFR 50.65, Rev. 46, Attachment 11 (Control Air System)  
CDE Record 1371, 2A RHR HX Inspection  
Control Air Compressor Trips/Anomalies Report, dated 3/12/13

Attachment

Control Bay Chilled Water System 031-E a(1) Plan Rev 1, 1-10-2012  
 DWG 0-47E845-1  
 DWG 0-47E845-2  
 DWG 1-47E610-32-1  
 DWG 2-47E610-32-1  
 FSAR Chapter 10.14 Service and Control Air  
 NPG-SPP-03.4, Maintenance Rule Performance Indicator Monitoring, Trending, and Reporting–  
 10 CFR 50.65, Rev. 2  
 PDO for PER 674502  
 PER 674502  
 PER 692613  
 PER 784085  
 PER 814796, Review the Maintenance Rule Performance Criteria Established in 0-TI-346  
 System Health Report for the Control Air System, dated 11/18/13  
 System Health Report, System 31, A/C, Heating and CREV, (6-1-2013 – 9-30-13)  
 U0 RHRSW, Functions 023-B, C, & D (a)(1) Plan, Rev. 4  
 WO 111456773  
 WO 113206742  
 WO 113632455  
 WO 114245152  
 WO 114245153  
 WO 114687057  
 WO 114731364  
 WO 114917994  
 WO 115045078  
 WO 115057307

**Section 1R13: Maintenance Risk Assessments and Emergent Work Control**

NPG-SPP-09.11.1, Equipment Out of Service Management, Revs. 6, 7  
 Operations EOOS Desktop Users Guide, Effective Date: 4/27/2012  
 10/1-3/2013, Plan of the Day  
 10/1-3/2013, Operators Daily Logs and EOOS Profiles  
 10/23-25/2013, Plan of the Day  
 10/23-25/2013, Operators Daily Logs and EOOS Profiles  
 SR 797298, Expected EOOS Color Change Not Communicated to OPS Shift Crew  
 10/29-30/2013, Plan of the Day  
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 11/13/2013, Plan of the Day  
 11/13/2013, Operators Daily Logs and EOOS Profiles  
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 NRC Generic Letter 80-113 Control of Heavy Loads  
 MSI-0-000-LFT001, Lifting Instructions for the Control of Heavy Loads, Rev. 0064

**Section 1R15: Operability Determinations and Functionality Assessments**

0-GOI-300-2, Electrical General Operating Instruction  
 Calculation CD-Q0999-890268

Calculation MDQ0082000016, Diesel Generator Jacket Water Cooler Capacity and Tube Plugging, Rev. 2  
 Common cause failure evaluation for PER 728243  
 DWG 0-37W205-10, Mechanical Pumping Station & Water Treatment – Piping & Equipment, Rev. 6  
 DWG 0-37W205-5, Mechanical Pumping Station & Water Treatment – Piping & Equipment, Rev. 6  
 EWR13-BOP-023-202, Evaluation of Conservatism within EPRI document 1025271 and Applicability of EPRI Guidelines at BFN, Rev. Original  
 Failure Analysis for PER 732970  
 IEEE-115 Code requirements for Pole Drop testing  
 Past Operability Evaluation for PER 782689  
 PDO for PER 732970  
 PER 401732, 3C Diesel Generator Shorted Rotor Pole  
 PER 728243, 3D Diesel Generator did not meet acceptance criteria for a pole drop test  
 PER 732970, The PDO for PER 728243 appeared inconclusive  
 PER 782689, Fouling Seen During Raw Water Inspection of 3D DG HEX  
 PER 794671, Missing Bolts Found on B3 EECW Pump Seismic Restraint  
 PER 796311, Missing and Deteriorated Hardware Discovery on A3 RHRSW Pump Restraint  
 PER 798502, Repairs Needed to C1 RHRSW Pump Seismic Restraint  
 Prompt Determination of Operability for PER's 794671, 796311, 798502  
 UFSAR, Appendix C, Structural Qualification Of Subsystems And Components, Amendment 25  
 UFSAR, Section 10.9, RHR Service Water System, Amendment 25  
 Unit 3 TS 3.8.1  
 WO 115052074, Heat Exchanger Visual Inspection and Evaluation Form  
 WO number 05-715371

### **Section 1R18: Plant Modifications**

NPG-SPP-06.3, Pre-/Post-Maintenance Testing, Rev. 1  
 NPG-SPP-06.9.3, Post-Modification Testing, Rev. 4  
 NPG-SPP-09.3, Plant Modifications and Engineering Change Control, Rev. 15  
 DCN 70752, Install Separate Fusing for Trip Circuits on 4KV Breakers to Eliminate Fault Propagation issue, Rev. A  
 WO 113899709, DCN 70752 – Stage 16: Install ATM6 Fuse in 4kV Board Trip Circuit  
 WO 113900042, DCN 70752 – Stage 23: Install ATM6 Fuse in 4kV Board Trip Circuit  
 DCN 70752 – Stage 16, Testing Steps  
 DCN 70752 – Stage 23, Testing Steps  
 2-SR-3.5.1.6(CS II), Core Spray Flow Rate Loop II, Rev. 33  
 0-GOI-300-2, Electrical, Rev. 122  
 EII-0-000-BKR005, 4KV Horizontal Breaker 52STA Switch Test Linkage and Position Switch Blocking and Tie-Up, Rev. 7  
 NRC Generic Letter No. 96-01: Testing Of Safety-Related Logic Circuits

### **Section 1R19: Post Maintenance Testing**

0-GOI-300-2, Electrical, Rev. 122  
 0-SR-3.8.1.1(A), Diesel Generator 'A' Monthly Operability Test, Rev. 50  
 2-OI-71 Reactor Core Isolation Cooling Operating Instruction, Rev. 0068  
 2-SR-3.5.1.6(CS II), Core Spray Flow Rate Loop II, Rev. 33

3-SR-3.8.1.1(3A), Diesel Generator 3A Monthly Operability Test, Rev. 55  
 DCN 70752 – Stage 16, Testing Steps  
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 EII-0-000-BKR005, 4KV Horizontal Breaker 52STA Switch Test Linkage and Position Switch Blocking and Tie-Up, Rev. 7  
 MMDP-1, Maintenance Management System, Rev. 27  
 NPG-SPP-06.3, Pre-/Post-Maintenance Testing, Rev. 1  
 NPG-SPP-06.9.3, Post-Modification Testing, Rev. 4  
 NRC Generic Letter No. 96-01: Testing Of Safety-Related Logic Circuits  
 PER 786196, Oil on Floor beneath 3A D/G Platform  
 PER 806291, Diesel Generator 3A Control Circuit Ground Alarm Received  
 PER 807494, Fail light is illuminated on Unit 2 RCIC flow controller  
 PER 808811, PDO Request for PER 789196  
 WO 113899709, DCN 70752 – Stage 16: Install ATM6 Fuse in 4kV Board Trip Circuit  
 WO 113900042, DCN 70752 – Stage 23: Install ATM6 Fuse in 4kV Board Trip Circuit  
 WO 114395126, Diesel Generator '3A' Monthly Operability Test  
 WO 114456082, Diesel Generator 'A' Monthly Operability Test  
 WO 115263298, Attachment 1 to Task 10, BFN-3-ENG-082-0003A, Rev. 0  
 WO 115269495, Replacement of BFN-2-FIC-071-0036A (Digital Flow controller for Unit 2 RCIC)  
 WO 115302820, Re-Seal NPT Pipe Threads at Inlet to Check Valve

**Section 40A1: Performance Indicator (PI) Verification**

Browns Ferry Daily Operator Logs, October 1, 2012, through September 30, 2013

**Section 40A2: Problem Identification and Resolution**

Integrated Trend Report, Q3FY13  
 Integrated Trend Report, Q4FY13  
 NPG-SPP 22.303, PER Analysis, Actions, Closures, and Approvals, Rev. 0001  
 NPG-SPP 22.305, Apparent Cause Analysis, Rev. 0001  
 NPG-SPP 22.306, Root Cause Analysis, Rev. 0001

**Section 40A3: Follow-up of Events and Notices of Enforcement Discretion**

2-AOP-99-1, Loss of Power to One RPS Bus, Rev. 27 and Rev. 29  
 2-OI-99, Reactor Protection System, Rev. 79 and Rev. 80  
 LER 259, 260, 296/2011-003-02, Loss of Safety Function (SDC) Resulting from Emergency Diesel Generator Output Breaker Trip  
 LER 259/2009-002-01, Unexpected Logic Lockout of the Loop II Residual Heat Removal (RHR) System Pumps  
 LER 259/2009-004-01, High Pressure Core Injection found Inoperable during Condensate Header Level Switch Calibration and Functional Test  
 LER 259/2010-003-03, Failure of a Low Pressure Coolant Injection Flow Control Valve  
 PER 660235, 3D EDG Units in Parallel with D EDG Failed PMTI  
 PER 660862, U2 Scram while restarting 2B RPS using 2B RPS MG Set  
 PER 740259, RPS Scram, White Finding  
 Unit 1 FSAR  
 Unit 1 Technical Specifications 3.5.1 and 3.8.1

**Section 40A5: Other Activities****ISFSI Inspection**

10 CFR 72.212, Report of Evaluations, Rev. 5, dated 6/11/2012  
 10 CFR 72.48 Screening Review, 0-GOI-100-3B, Manual Operation of the Refuel Platform  
 10 CFR 72.48 Screening Review, 0-SR-DCS3.1.2.1, High Storm Inspection log, attachment 1  
 10 CFR 72.48 Screening Review, DCN 64063A, Revised setpoint changes for radiation monitors 2-R-90-142, 2-R-90-143, 3-R-90-142, 3-R-90-143  
 10 CFR 72.48 Screening Review, EDC 70586A, Use of HBF IAW Holtec CoC Amend. 5, Rev. 0  
 10 CFR 72.48 Screening Review, EDC 70586A, Use of HBF IAW Holtec CoC Amend. 5, Rev. 1  
 10 CFR 72.48 Screening Review, EPI-0-111-CRA009, Annual Inspection of Reactor Building Crane, Rev. 000  
 10 CFR 72.48 Screening Review, MSI-0-079-DCS036, ISFSI Abnormal Conditions Procedure  
 10 CFR 72.48 Screening Review, MSI-0-079-DCS043, Dry Cask Campaign Review Program, Rev. 1  
 10 CFR 72.48 Screening Review, MSI-0-079-DCS300.2, Alternate Cooling Water System Operation, Rev. 3  
 10 CFR 72.48 Screening Review, MSI-0-079-DCS400.1, ISFSI Abnormal Conditions Procedure, Placing the MPC in a Safe Condition  
 10 CFR 72.48 Screening Review, Work Order 1131655560  
 Certificate of Compliance No. 1014, Appendix B, Design Features for the HI-STORM 100 Cask System, Section 3.6, Forced Helium Dehydration System, Amendment 5  
 Drawing 0-47E201, ISFSI Dry Storage Implementation Notes  
 Drawing 4838, Standard MPC Shell and Details for MPC24, 32, & 68  
 EDC 70586, Allow Use of the FHD and SCS to Enable the Storage of High Burnup Fuel in the ISFSI, Rev. A  
 HOLTEC HI STORM 100 Cask System, Safety Evaluation Report, Amendment 1  
 MSI-0-079-DCS036, ISFSI Abnormal Conditions Procedure, Rev. 2  
 MSI-0-079-DCS200.1, Dry Cask Preparations and Start Up, Rev. 5  
 MSI-0-079-DCS200.2, MPC Loading and Transport Operations, Rev. 28  
 MSI-0-079-DCS300.10, Forced Helium Dehydration System Operation, Rev. 3  
 MSI-0-079-DCS300.11, Supplemental Cooling System Operation, Rev. 0  
 MSI-0-079-DCS300.2, Alternate Cooling Water System Operation, Rev. 3  
 MSI-0-079-DCS400.1, ISFSI Abnormal Conditions Procedure, Placing the MPC in a Safe Condition, Rev. 3  
 MSI-0-079-DCS500.3, MPC Cooldown and Weld Removal, Rev. 3  
 MSI-0-079-DCS500.5, MPC Unloading Operations, Rev. 3  
 Work Order 1131655560

**Corrective Action Documents Reviewed**

PER 733056, UPTI Milestone Completion  
 PER 734268, UPTI Database Trending  
 PER 790632, Radwaste Discharge Pipe Leak Inspection

**Corrective Action Documents Generated**

SR 824118 Leaks  
 SR 824122 GPR  
 SR 824126 Programs  
 SR 824128 NACE SP0169

SR 824132 Soil Analysis  
 SR 824136 Health Reporting  
 SR 824138 Pipe Location  
 SR 824140 BP Manager  
 SR 824142 SBGT Pipe Repair

Procedure

0-TI-364, ASME Section XI System Pressure Tests, Rev. 16  
 0-TI-561, Underground Piping and Tanks Integrity Program (UPTI), Rev. 14  
 0-TI-561, Underground Piping and Tanks Integrity Program (UPTI), Rev. 5  
 0-TI-561, Buried Piping Component Management Program (UPTI), Rev. 0  
 0-TI-623, Aging Management Program Basis Document for Buried Piping and Underground Piping and Tanks, Rev. 0  
 2-SI-4.5.C.1(3), RHRSW Pump and Header Operability and Flow Test, Rev. 18  
 NPG-SPP-22.303, PER Analysis, Actions, Closures and Approvals, Rev. 1  
 NPG-SPP-09.15, Underground Piping and Tanks Integrity Program (UPTI), Rev. 6  
 NPG-SPP-09.16.1, System, Component and Program Health, Rev. 3  
 SI-GWT-100, Structural Integrity GWT Piping and Inspection General Procedure, Rev. 3  
 SI-GWT-103, Ultrasonic Thickness in Support of Guided Wave Testing (GWT), Rev. 1

Other Documents

Drawing # 0-17E300-8-23-13, Mechanical Isometric RHR Service Water Piping, Rev. 2  
 Drawing # 0-17E401-11, Mechanical Hardened Wetwell Vent Piping, Rev. 1  
 Drawing # 017W-9-67-1, Mechanical Isometric Emergency Equipment Cooling Water, Rev. 0  
 Drawing # 0-47E830-3-77-1, Flow Diagram Radwaste, Rev. 26  
 EPRI TR 1016456, Recommendations for an Effective Program to Control the Degradation of Buried Pipe  
 Nuclear Energy Institute (NEI) 09-14, Guideline for the Management of Buried Piping Integrity, Rev. 3  
 Program Health Report, 1/1/2013-6/30/2013  
 Program Health Report, 7/1/2012-12/31/2012  
 Report No. R06131219899, Radwaste Leak Inspection Report  
 Report No. R06121220058, Condition Assessment – Underground Piping and Tanks  
 Report No. R06131217892, Underground Piping and Tanks Inspection Plan, Rev. 5  
 Report No. BFN-ENG-F-10-002, Buried Piping Program Self-Assessment Report  
 Report No. 1200135.401, Structural Integrity Associates Report on GWT Excavation of Radwaste Pipes  
 Report No. 04226.15, Underwater Construction Report on Condensate Storage Tank No. 1 Immersion Area In-Service Cleaning & Inspection  
 Report No. BFN-ENG-S-13-014, Self-Assessment of Buried Piping and Underground Piping and Tanks  
 Report No. L2909128800, Benchmarking to Calloway Report  
 Report No. CRP-ENG-F-12-0002, TVA Fleet wide Piping and Tanks Inspection Program Self-Assessment  
 Work Order No. 112816452, 2-SI-4.5.c.1(3) RHRSW Pump and Header Operability and Flow Tests, 4/24/2012

## LIST OF ACRONYMS

ADAMS	-	Agencywide Document Access and Management System
ADS	-	Automatic Depressurization System
ARM	-	area radiation monitor
CAD	-	containment air dilution
CAP	-	corrective action program
CCW	-	condenser circulating water
CFR	-	Code of Federal Regulations
CoC	-	certificate of compliance
CRD	-	control rod drive
CS	-	core spray
DCN	-	design change notice
EECW	-	emergency equipment cooling water
EDG	-	emergency diesel generator
FE	-	functional evaluation
FPR	-	Fire Protection Report
FSAR	-	Final Safety Analysis Report
IMC	-	Inspection Manual Chapter
LER	-	licensee event report
NCV	-	non-cited violation
NRC	-	U.S. Nuclear Regulatory Commission
ODCM	-	Off-Site Dose Calculation Manual
PER	-	problem evaluation report
PCIV	-	primary containment isolation valve
PI	-	performance indicator
RCE	-	Root Cause Evaluation
RCW	-	Raw Cooling Water
RG	-	Regulatory Guide
RHR	-	residual heat removal
RHRSW	-	residual heat removal service water
RTP	-	rated thermal power
RPS	-	reactor protection system
RWP	-	radiation work permit
SDP	-	significance determination process
SBGT	-	standby gas treatment
SLC	-	standby liquid control
SNM	-	special nuclear material
SRV	-	safety relief valve
SSC	-	structure, system, or component
TI	-	Temporary Instruction
TIP	-	transverse in-core probe
TRM	-	Technical Requirements Manual
TS	-	Technical Specification(s)
UFSAR	-	Updated Final Safety Analysis Report
URI	-	unresolved item
WO	-	work order