

Browns Ferry 1 2Q/2014 Plant Inspection Findings

Initiating Events

Significance: G Dec 31, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to document service water freeze protection deficiencies

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)

Inspection Report# : [2013005](#) (*pdf*)

Mitigating Systems

Significance: G Jun 30, 2014

Identified By: NRC

Item Type: FIN Finding

RHRSW pump power cables submerged in water

An NRC-identified finding was identified for the licensee's failure to adhere to TVA General Specification 40 (G-40) for Installation, Modification, and Maintenance of Electrical Systems, section 3.5.7, which required standing water in Handholes be kept below any safety related cables. Hand hole numbers 15 and 26 were discovered to have had standing water above several of the Residual Heat Removal (RHR) service water (safety related) power cables from January to May 2014.

The licensee's failure to adhere to TVA General Specification 40 (G-40) for Installation, Modification, and Maintenance of Electrical Systems, section 3.5.7, which required standing water in hand holes be kept below any

safety related cables was a performance deficiency. Specifically, the licensee allowed hand hole numbers 15 and 26 to have standing water above several of the RHR service water (safety related) power cables. The performance deficiency was more than minor because if left uncorrected, it had the potential to lead to a more significant safety concern including cable degradation and increased likelihood of cable failure. This issue screened as having very low safety significance, Green, using IMC 0609 Appendix A, Exhibit 2, Mitigating Systems Screening Questions issued on June 19, 2012, because it affected the design or qualification of a mitigating SSC but the mitigating SSC maintained its operability. The finding had a cross cutting aspect of Problem Identification and Resolution: Resolution because the licensee failed to ensure that corrective actions addressed the cause of the power cable wetting and failure in 2007. (P.3) (Section 1R06.2)

Inspection Report# : [2014003](#) (*pdf*)

Significance:  Mar 31, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to control transient combustible in designated high risk areas

An NRC-identified non-cited violation (NCV) of the T.S. 5.4.1.d, Fire Protection Program Implementation, was identified for the licensee's failure to control transient combustible materials in designated high risk areas in Unit 1 and Unit 3. The licensee's corrective action was to remove the combustible materials. The licensee entered this issue into their corrective action program as PER 845630 and 846184.

The performance deficiency was determined to be more than minor, because it was associated with the Protection Against External Factors attribute (Fires) of the Mitigating Systems cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, leaving unanalyzed transient combustibles in proximity to safety related equipment could affect the equipment's ability to perform its safety function during a credible fire scenario. The finding was characterized according to IMC 0609, Significance Determination Process (SDP), Appendix F, Attachment 1, Fire Protection SDP Phase 1 Worksheet dated September 24, 2013. This issue screened as low safety significance (Green), per Attachment 1 question 1.3 because it did not affect the ability of the reactor to reach and maintain safe shutdown. The cause of this finding was directly related to the Human Performance cross cutting aspect of Change Management. Plant leaders did not use a systematic process for evaluating and implementing change so that nuclear safety remains the overriding priority. Specifically, the impact of the new procedures for transient combustible controls did not apply change management controls such as site wide communication and training to make workers aware of the new requirements. [H.3] (Section 40A2)

Inspection Report# : [2014002](#) (*pdf*)

Significance:  Feb 28, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to identify the root cause of the failure of the 1B standby liquid control pump breaker

An NRC identified non-cited violation (NCV) of 10 CFR Part 50, Appendix B, Criterion XVI, Corrective Action, was identified for the licensee's failure to adequately identify the root cause for a significant condition adverse to quality as defined in NPG-SPP-22.302 Revision 1, "Corrective Action Program Screening and Oversight." Specifically, the licensee initially failed to identify the root cause of the failure of the 1B Standby Liquid Control (SLC) Pump breaker that resulted in the equipment exceeding the Technical Specification Limiting Condition for Operation. The issue was documented in the licensee's corrective action program as Service Request (SR) 851718.

This performance deficiency was more than minor since it adversely affected the Reactor Safety Mitigating Systems

cornerstone objective of availability and reliability of affected equipment. Specifically, the failure to determine the cause of a crack in the breaker's phase arc chute that fatigued over time impacted the ability to assign effective corrective actions to prevent recurrence and challenges the reliability of the safety-related equipment to provide required reactivity control capability when required for accident mitigation. The inspectors evaluated the risk of this finding using Manual Chapter 0609, Appendix A, Significance Determination Process (SDP) for Findings at Power. This determination was based on the evaluation that the inoperable equipment did not concurrently affect a single reactor protection system (RPS) trip signal to initiate a reactor scram, nor did it involve control manipulations that unintentionally added positive reactivity or result in a mismanagement of reactivity by operators. The finding had a cross-cutting aspect in the area of Problem Identification and Resolution, in the component of Evaluation, since the licensee failed to thoroughly evaluate issues to ensure that resolutions address causes and extent of conditions commensurate with their safety significance (P.2). (Section 40A2.1.c)

Inspection Report# : [2014007](#) (*pdf*)

Significance:  Dec 31, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to maintain emergency diesel room floor drains

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)

Inspection Report# : [2013005](#) (*pdf*)

Significance:  Nov 08, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate compensatory actions to minimize the effects of impaired fire protection equipment on fire safe shutdown

The inspectors identified a Green non-cited violation (NCV) of Browns Ferry Nuclear Plant (BFN) Unit Nos. 1, 2, and 3 Technical Specification 5.4.1.d for the failure to establish procedural guidance to implement compensatory measures for the high pressure fire protection (HPFP) system in support of the Fire Protection Report (FPR) and Safe Shutdown Instructions (SSI). The licensee entered this condition in their corrective action program (CAP) as problem evaluation report (PER) 812090 and issued an operations' Standing Order which supplemented existing fire watch patrol compensatory measures in Fire Area (FA) 25-1. The licensee's failure to establish appropriate compensatory measures supporting the FPR and the SSI to ensure an adequate water supply remained available when the diesel driven fire pump was taken out of service was a performance deficiency. The performance deficiency was more-than-

minor because it was associated with the protection against external events (fire) attribute of the Mitigating Systems Cornerstone and that it adversely affected the cornerstone objective of ensuring the availability, reliability and capability of systems that respond to initiating events to prevent undesirable consequences. The finding was screened in accordance with NRC IMC 0609, "Significance Determination Process", dated June 2, 2011, Attachment 4 "Initial Characterization of Findings". This screening determined that an IMC 0609, Appendix F "Fire Protection Significance Determination Process" was required because it affected fixed fire protection systems. Attachment 1, Step 1.4.2, "Fixed Fire Protection Systems" screened the finding to very low safety significance (Green) since the impact of a fire in FA 25-1 is limited to no more than one train/division important to safety and that the reactor would be able to reach and maintain safe shutdown condition. The inspectors determined that no cross cutting aspect was applicable to this performance deficiency this finding because the operability requirements and compensatory actions in effect had been developed in the past (1988) and were not indicative of current licensee performance.. (Section R10.10)
Inspection Report# : [2013010](#) (pdf)

Significance: G Nov 08, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate evaluation of combustible material control fire protection program change

The inspectors identified a Severity Level IV, non-cited violation (NCV) of Browns Ferry Nuclear Plant (BFN) Renewed Facility Operating License Conditions 2.C.(13), (14), and (7) for Units 1, 2, and 3, respectively, and an associated finding of very low safety significance (Green) for the failure to perform an evaluation of the impact of a change to the Fire Protection Report on the fire protection license conditions, as directed by the licensee's procedure, FPD-3, Management of the Fire Protection Report, Revision 3. The failure to adequately evaluate the impact of the change, which permitted the use of fire retardant treated wood materials as transient fire loads in safety related plant areas without further approval, resulted in the implementation of a change to the Fire Protection Program (FPP) that could have adversely affected the ability to achieve and maintain safe shutdown. The licensee also failed to submit the FPP change to the NRC for review and approval prior to implementation which impacted the ability of the NRC to perform its regulatory oversight function. The licensee entered the issue into their corrective action program (CAP) as problem evaluation report PER 812091 and issued an operations' Fire Protection Section Instruction Letter to require all wood products to be evaluated when left unattended in any plant fire area. The inspectors determined that this finding was more than minor because if left uncorrected, could become a more significant safety concern. Specifically, if the licensee does not limit transient fire loads (including fire retardant treated wood) to below the capability of suppression systems or fire barrier ratings for a specific fire area as evaluated by the station's fire hazard analysis, a fire could spread to other fire areas and affect the ability to achieve and maintain safe shutdown in the event of a fire. The finding was evaluated using IMC 0609, Attachment 4, "Initial Characterization of Findings," issued June 19, 2012, for Mitigating Systems, and IMC 0609, Appendix F, "Fire Protection Significance determination Process," issued September 20, 2013, and the inspectors determined the finding was of very low safety significance (Green) because the reactor would have been able to reach and maintain safe shutdown conditions under actual fire loading conditions. The SDP, however, does not specifically consider the regulatory process impact. Thus, although not related to a common regulatory concern, it is necessary to address the violation and finding using different processes to correctly reflect both the regulatory importance of the violation and the safety significance of the associated finding. The traditional enforcement violation was evaluated using the NRC Enforcement Policy, dated January 28, 2013, revised July 9, 2013, and the inspectors determined the violation was SL-IV per Section 6.1.d.2 of the Enforcement Policy, because the associated finding was evaluated by the SDP as having very low safety significance (i.e., Green). The inspectors determined failure to obtain prior NRC approval for fire protection program changes was similar to violations of 10 CFR 50.59 for enforcement purposes. No cross-cutting aspect was assigned to this finding because the cause of the finding was not indicative of present licensee performance, since the change to the Fire Protection Report occurred in 2003. (Section 1R05.11)

Inspection Report# : [2013010](#) (pdf)

Significance:  Nov 08, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to meet the requirements of large fire and explosion mitigation strategies

The inspectors identified a Green non-cited violation (NCV) of Browns Ferry Nuclear Plant (BFN) Units 1, 2 and 3, Renewed Operating License Conditions 2.C(4)(b)(7), 2.C(6)(b)(7) and 2.C(10)(b)(7) respectively, for the licensee's failure to meet the requirements of the license condition for large fires or explosion mitigation strategies as discussed in Enclosure 2.

Inspection Report# : [2013010](#) (*pdf*)

Significance:  Sep 30, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to enter Technical Specification for residual heat removal service water maintenance

The NRC identified a non-cited violation (NCV) of Technical Specifications (TS) 5.4.1.a, Procedures, for the licensee's failure to follow OPDP-8, Operability Determination Process and Limiting Conditions for Operation Tracking. Specifically, the licensee failed to enter a seven day action statement C.1 of Technical Specification 3.7.1, Residual Heat Removal Service Water (RHRSW) system and Ultimate Heat Sink when planned maintenance rendered two RHRSW pumps inoperable. The licensee entered this issue into their corrective action program as Problem Event Report (PER) 751300.

This finding was determined to be more than minor because if left uncorrected, the performance deficiency would have the potential to lead to a more significant safety concern. The finding affected the Mitigating Systems cornerstone and using IMC 0609.04, Initial Characterization of Findings and IMC 0609 Appendix A, Exhibit 2 Mitigating Systems screening questions, the finding screened as very low safety significance (Green). The finding did not represent an actual loss of function of a single train for greater than its technical specification allowed outage time and did not represent an actual loss of function of one or more non-technical specification equipment for greater than 24 hours because the licensee restored the C1 and C2 RHRSW pumps on July 5, 2013. The inspectors determined that this finding had a cross-cutting aspect in the area of human performance associated with the work practices component because the licensee failed to ensure that expectations for procedural compliance were properly communicated and that personnel followed procedures. [H.4.b]. (Section 1R13)

Inspection Report# : [2013004](#) (*pdf*)

Significance:  Sep 30, 2013

Identified By: NRC

Item Type: FIN Finding

Failure to clean the safety related pump pit once per two cycles

An NRC identified finding (FIN) was identified for the licensee's exceeding the maximum allowed periodicity for inspecting and cleaning the Residual Heat Removal Service Water (RHRSW) pump pit per Raw Water Corrosion Program procedure (NPG-SPP 9.7.3).

This finding was determined to be more than minor because, if left uncorrected, the failure to maintain the intake pump pit cleaning would have had the potential to lead to a more significant safety concern in that, it could lead to fouling of safety related coolers, challenging the heat exchanger heat removal function. The finding is associated with the Mitigating Systems cornerstone. Using IMC 0609 Appendix A, Exhibit 2, the finding screened as green because the finding did not represent an actual loss of function of a single train for greater than its technical specification allowed outage time and did not represent an actual loss of function of one or more non-technical specification

equipment for greater than 24 hours. The cause of this finding was associated with the human performance area, resources component, cross cutting aspect of maintaining long term plant safety by maintenance of design margins and minimizing preventative maintenance deferrals due to the licensee not allocating resources to clean the intake pump pits. [H.2.(a)]. (Section 1R15)

Inspection Report# : [2013004](#) (*pdf*)

Barrier Integrity

Emergency Preparedness

Significance: **W** Dec 31, 2013

Identified By: NRC

Item Type: VIO Violation

Failure to maintain emergency response staffing levels

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))

Inspection Report# : [2014002](#) (*pdf*)

Inspection Report# : [2013005](#) (*pdf*)

Occupational Radiation Safety

Public Radiation Safety

Security

Although the Security Cornerstone is included in the Reactor Oversight Process assessment program, the Commission has decided that specific information related to findings and performance indicators pertaining to the Security Cornerstone will not be publicly available to ensure that security information is not provided to a possible adversary. Other than the fact that a finding or performance indicator is Green or Greater-Than-Green, security related information will not be displayed on the public web page. Therefore, the [cover letters](#) to security inspection reports may be viewed.

Miscellaneous

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