Harris 1
1Q/2014 Plant Inspection Findings

Initiating Events

Significance: G Mar 31, 2014
Identified By: Self-Revealing
Item Type: FIN Finding
Failure to prevent recurrence of a significant condition adverse to quality
Green. A self-revealing Green finding was identified for the failure to implement an adequate corrective action to prevent recurrence (CAPR) for a Significant Condition Adverse to Quality (SCAQ) as required by licensee procedure CAP-NGGC-0205, Condition Evaluation and Corrective Action Process, resulting in the failure of the 1D2 transformer on January 18, 2014. Specifically, after the 1E2 transformer failed on August 8, 2013, the licensee determined the event to be a SCAQ, but failed to implement an adequate CAPR to prevent the failure of the 1D2 transformer. The licensee entered this issue into the corrective action program (CAP) as Action Request (AR) #663324. As corrective action, the licensee is replacing the 1D2 transformer and other similar transformers and implemented additional testing to aid in the identification of degradation prior to transformer failure.

The inspectors determined that the failure to implement an adequate CAPR for a SCAQ was a performance deficiency. This finding was more than minor because it was associated with the Initiating Events cornerstone attribute of Equipment Performance, and adversely affected the cornerstone objective of limiting the likelihood of those events that upset plant stability and challenge critical safety functions during power operation. Specifically, a manual reactor trip resulted from the 1D2 failure. Using IMC 0609, Significance Determination Process, Appendix A, Exhibit 1- Initiating Events Screening Questions, the inspectors determined this finding to be of very low safety significance (Green) because the finding did cause a reactor trip but did not result in the loss of mitigation equipment relied upon to transition the plant from the onset of the trip to a stable shutdown condition (e.g., loss of condenser, loss of feedwater). The finding had a cross-cutting aspect of Resolution, as described in the Problem Identification and Resolution cross-cutting area because the licensee did not implement effective corrective actions to address the issue in a timely manner commensurate with their safety significance. Specifically, the licensee's CAPR for the August 8, 2013, event did not resolve the cause for transformer failures. (P.3) (Section 4OA2.2)

Inspection Report# : 2014002 *(pdf)*

Significance: G Dec 31, 2013
Identified By: Self-Revealing
Item Type: FIN Finding
Inadequate transformer preventive maintenance procedure
A self-revealing Green finding was identified for the licensee's failure to adequately establish and implement procedure NGG-PMB-XFM-02, Equipment Reliability Template for Dry-Type Transformers, and implementing procedure PM-E0015, 480 V and 6.9 kV Transformer Electrical and Preventive Maintenance (PM) Check, when the 1E2 transformer failed on August 8, 2013. Specifically, procedure PM-E0015 did not contain steps to identify degradation in the 1E2 transformer windings prior to failure. As corrective action, the licensee replaced the transformer and plans to revise procedure PM-E0015 to incorporate additional testing to aid in the identification of winding degradation prior to transformer failure. The licensee entered these issues into the corrective action program (CAP) as Action Request (AR) #621738.

The inspectors determined that inadequate testing prescribed by procedure NGG-PMB-XFM-02 and performed under procedure PM-E0015 was a performance deficiency. Specifically, licensee procedure ADM-NGGC-0107, Equipment Reliability Process Guideline, resulted in the determination that the 1E2 transformer was a critical component. Licensee procedure NGG-PMB-XFM-02, Equipment Reliability Template for Dry-Type Transformers, states that critical components are maintained to not allow any failure that would result in a trip, transient, or significant challenge to continued safe operation. However, implementing procedure PM-E0015, failed to contain steps to identify degradation in the 1E2 transformer windings prior to failure. This finding was more than minor because it is associated with the procedure quality attribute of the Initiating Events cornerstone and adversely affected the cornerstone objective of limiting the likelihood of those events that upset plant stability and challenge critical safety functions during power operation. Specifically, a power transient resulted from the 1E2 failure. Using IMC 0609, Significance Determination Process, Appendix A, Exhibit 1- Initiating Events Screening Questions, the inspectors determined this finding to be of very low safety significance (Green) because the finding did not cause a reactor trip and the loss of mitigation equipment relied upon to transition the plant from the onset of the trip to a stable shutdown condition (e.g. loss of condenser, loss of feedwater). The finding had a cross-cutting aspect of Long Term Safety, as described in the Resources component of the Human Performance cross-cutting area because the licensee's evaluation of the transformer PM program in March 2012 removed additional testing which might have indicated that the transformer windings had experienced insulation degradation. [H.2(a)] (Section 4OA2.4)
Inspection Report# : 2013005 *(pdf)*

Significance: G Jun 30, 2013
Identified By: NRC
Item Type: FIN Finding
Power Transient due to a Main Feedwater Pump Oil Leak
A self-revealing Green finding (FIN) was identified for the licensee's failure to adequately implement their procedure CAP-NGGC-0205, Condition Evaluation and Corrective Action Process, for two oil leaks from the "B" MFP which occurred on February 14, 2013 and February 17, 2013. Specifically, these failures resulted in a significant oil leak on the "B" MFP which required a rapid downpower to 55 percent RTP on March 29, 2013. The licensee entered this finding into their CAP as Action Request (AR) #598302. The licensee took corrective action to perform a design change to the breather to correct the plant issue.

The licensee's failure to adequately implement their procedure CAP-NGGC-0205 was a performance deficiency. The performance deficiency was more than minor because it was associated with the human performance attribute of the Initiating Events cornerstone and affected the cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions. Specifically, this failure resulted in another oil leak on the "B" MFP which required a rapid downpower to 55 percent RTP on March 29, 2013. In accordance with IMC 0609.04, "Initial Characterization of Findings," and Exhibit 1 of IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings at Power," the inspectors determined that this finding was of very low safety significance (Green) because the performance deficiency did not cause a reactor trip or the loss of mitigation equipment. The finding had a cross-cutting aspect of Evaluation of Identified Problems, as described in the Corrective Action component of the Problem Identification and Resolution cross-cutting area because the licensee failed to thoroughly evaluate the two oil leaks in February 2013 to ensure that the resolution addressed the cause, resulting in the transient on March 29, 2013. (P.1(c))

Inspection Report# : 2013003 *(pdf)*

Significance: G Apr 30, 2013
Identified By: NRC
Item Type: FIN Finding

"Reactor Power Transient due to Inadvertent Isolation of the "4B" Feedwater Heater."
A self-revealing Green finding (FIN) was identified for the licensee's failure to establish and implement an adequate operating procedure (OP-136, Feedwater Heaters, Vents and Drains, Revision 41) to restore the "4B" feedwater heater (FWH) alternate level control valve (1HD-323) to automatic operation. The licensee entered this issue into the Corrective Action Program (CAP) as Action Request (AR) #592336. The licensee took corrective action to reduce reactor power immediately and revise OP-136 to include a power reduction prior to restoring 1HD-323 to automatic operation.

The licensee's failure to establish and implement an adequate operating procedure (OP-136, Feedwater Heaters, Vents and Drains, Revision 41) to restore 1HD-323 to automatic operation was identified as a performance deficiency. The performance deficiency was more than minor because it was associated with the procedure quality attribute of the Initiating Events cornerstone and affected the cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions. Specifically, failure to establish and implement an adequate operating procedure resulted in a steam plant transient that caused an unplanned reactor power increase to 101.1 percent Rated Thermal Power (RTP). In accordance with IMC 0609.04, "Initial Characterization of Findings," and Exhibit 1 of IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings at Power," the inspectors determined that this finding is of very low safety significance (Green) because the performance deficiency did not involve the complete or partial loss of a support system that contributes to the likelihood of an initiating event and it did not affect mitigation equipment. The finding has a cross-cutting aspect of Implements and Institutionalizes Operating Experience, as described in the Operating Experience component of the Problem Identification and Resolution cross-cutting area because the licensee failed to institutionalize operating experience from the previous month. (P.2(b))
Inspection Report# : 2013002 *(pdf)*

Mitigating Systems

Significance: G Mar 31, 2014
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to adequately perform the new fuel oil surveillance requirement
Green. The inspectors identified a Green non-cited violation (NCV) of Technical Specification (TS) 6.8.1.a, Procedures and Programs, for the licensee's failure to have an adequate surveillance test to implement the requirements of SR 4.8.1.1.2.c, as required by Regulatory Guide (RG) 1.33, Quality Assurance Program Requirements, Appendix A, Section 8.b. Specifically, licensee procedure RST-209, Technical Specification Surveillance of New Diesel Fuel Oil (DFO), did not adequately ensure a representative sample of the DFO to confirm the required properties prior to addition to the "B" diesel fuel oil storage tank (DFOST). This created the potential for DFO of an unacceptable quality to be introduced to the "B" emergency diesel generator (EDG) on December 4, and 6, 2013. The licensee took corrective action by testing the fuel oil in the "A" and "B" DFOSTs and EDG day tanks to verify that the DFO met the required properties as outlined in TS. Additionally, the licensee planned to revise RST-209 and established interim actions to prevent adding new fuel oil prior to obtaining a representative sample.

The inspectors determined that the failure to have an adequate surveillance test to implement the requirements of SR 4.8.1.1.2.c. on December 4, and 6, 2013 was a performance deficiency. Specifically, this created the potential for fuel oil of an unacceptable quality to be introduced to the "B" EDG. This finding was more than minor because, if left uncorrected, the performance deficiency had the potential to lead to a more significant safety concern in that it could have affected operability of the EDGs. Using IMC 0609, Significance Determination Process, Appendix A, Exhibit 2 – Mitigating Systems Screening Questions, the inspectors determined this finding to be of very low safety significance

(Green) because the finding is not a deficiency affecting the design or qualification and does not represent an actual loss of system and/or function. The finding had a cross-cutting aspect of Resources, as described in the Human Performance cross-cutting area because the licensee failed to ensure that personnel, equipment, procedures, and other resources are available and adequate to support nuclear safety. Specifically, procedure RST-209 Revision 23 inappropriately permitted the use of data from a sample that was 20 months old to meet SR 4.8.1.1.2.c. (H.1) (Section 1R22)

Inspection Report# : 2014002 *(pdf)*

Significance: G Mar 31, 2014
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to comply with Technical Specification 3.11.5.2
Green. The inspectors identified a Green NCV of TS 3.11.2.5, Explosive Gas Mixture, for the failure to implement the actions of the limiting condition for operation (LCO). Specifically, during shutdown plant operations in November 2013, the licensee identified oxygen concentrations in the gaseous radwaste treatment system (GRTS) of greater than two percent oxygen, with hydrogen concentration greater than four percent and did not enter nor take the actions of TS LCO 3.11.2.5. The licensee entered the issue into their CAP as AR #651188 and reduced the oxygen concentration to less than two percent on December 11, 2013.

The licensee's failure to enter and implement the actions of TS LCO 3.11.2.5, once oxygen concentrations exceeded two percent, with hydrogen concentrations greater than four percent within the GRTS was a performance deficiency. The performance deficiency was determined to be more than minor in accordance with IMC 0612, Appendix B, because if left uncorrected, it would have the potential to lead to a more significant safety concern such as an explosive gas mixture. Specifically, on November 11, 2013, SR 4.11.2.5 was performed unsatisfactorily; Operations was unaware of the results and did not implement the actions of TS LCO 11.2.5. Using IMC 0609, SDP, Appendix A, Exhibit 2-External Event Mitigation Systems Screening Questions, the inspectors determined this finding to be of very low safety significance (Green) because it was a deficiency that did not result in a degradation or loss of system function. The finding had a cross-cutting aspect of Procedure Adherence, as described in the Human Performance cross-cutting area because the licensee failed to comply with RST-202, Hydrogen and Oxygen Surveillance of the GRTS, and notify Operations of the unsatisfactory test result. (H.8) (Section 4OA2.3)

Inspection Report# : 2014002 *(pdf)*

Significance: N/A Dec 31, 2013
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Submit a License Amendment Request for a Digital Modification to the Solid State Protection System
The inspectors identified a SL IV Green NCV of 10 CFR 50.59, "Changes, Tests, and Experiments," for the licensee's failure to obtain a license amendment before implementing a change that created the possibility of a malfunction of a system, structure, or component important to safety with a different result than previously evaluated. The licensee did not follow guidance in Nuclear Energy Institute document NEI 01-01, "Guidelines on Licensing Digital Upgrades," Rev. 1, (referenced in licensee Procedure EGR-NGGC-0157, "Engineering of Plant Digital Systems and Components," Rev. 7), which resulted in the licensee implementing a change that created the possibility of common cause software malfunctions of the reactor protection system and engineered safety features actuation systems not previously evaluated in the Updated Final Safety Analysis Report. This failure to follow NEI guidance when implementing a change was a performance deficiency. The licensee entered this issue into their corrective action program, performed an evaluation that provided a reasonable expectation of operability, and initiated development of a license amendment request.

The performance deficiency was determined to be more than minor because it was associated with the design control attribute of the Mitigating Systems cornerstone and adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). Additionally, in accordance with the guidance in the
NRC Enforcement Manual, the 10 CFR 50.59 violation was more than minor because there was reasonable likelihood that the change would require NRC approval prior to implementation. The inspectors evaluated the significance of the finding using IMC 0609, "The Significance Determination Process," and determined the finding was of very low safety significance (Green). In accordance with the Enforcement Policy, the
violation of 10 CFR 50.59 was determined to be a SL IV violation because it resulted in a condition evaluated as having very low safety significance (i.e., Green) by the SDP. The finding had a cross-cutting aspect in the "Decision Making" component of the "Human Performance" area because the most significant causal factor of the performance deficiency was that the licensee failed to oversee the work activities of vendors such that
nuclear safety was supported [H.4(c)j.
Inspection Report# : 2013009 *(pdf)*

Significance: G Dec 31, 2013
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to maintain environmental qualification for electric equipment
The inspectors identified a Green non-cited violation (NCV) of 10 CFR 50.49 for the failure to adequately implement the environmental qualification (EQ) program for electric equipment important to safety. Specifically, between September 2013 and November 2013, multiple EQ program deficiencies were identified including design documentation and the qualification of electric equipment installed in the plant. The licensee took corrective action to repair or schedule repair for all of the identified issues. The licensee entered these issues into the CAP as AR #663071.

The inspectors determined that the failure to completely implement the EQ program as required by 10 CFR 50.49 was a performance deficiency. Specifically, between September 2013 and November 2013, multiple EQ program deficiencies were identified including design documentation and the qualification of electric equipment installed in the plant. This finding was more than minor because, if left uncorrected, it would have the potential to lead to a more significant safety concern if the functions of other components in the EQ program are challenged. Using IMC 0609, Significance Determination Process, Appendix A, Exhibit 2- Mitigating Systems Screening Questions, the inspectors determined this finding to be of very low safety significance (Green) because it was a deficiency affecting the design or qualification of equipment. The finding had a cross-cutting aspect of Conducts Self-Assessments, as described in the Self and Independent Assessments component of the Problem Identification and Resolution cross-cutting area because the licensee failed to identify these issues during their recent self-assessments. [P.3(a)] (Section 1R18)

Inspection Report# : 2013005 *(pdf)*

Significance: G Sep 30, 2013
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to compensate for a blocked open fire door
The inspectors identified a Green non-cited violation (NCV) of the Shearon Harris Nuclear Power Plant Operating License NPF-63 condition 2.F, Fire Protection Program, and 10 CFR 50.48(c), National Fire Protection Association (NFPA) Standard 805, for failing to implement required compensatory measures per licensee procedure FPP-013, Fire Protection. Specifically, the licensee failed to establish an hourly fire watch and stage backup fire suppression equipment for a blocked open fire door (FD-241) between the "A" and "B" safety related switchgear rooms on

September 9, 2013. The licensee took corrective action by restoring the fire door to functional. The licensee entered this into the corrective action program (CAP) as Action Request (AR) #627493.

The failure to implement fire compensatory measures in accordance with licensee procedure FPP-013, Fire Protection during the two hour exposure period when the fire door between Switchgear Rooms A and B was propped open was determined to be a performance deficiency. The performance deficiency was determined to be more than minor because it was associated with the protection against external factors (fire) attribute of the Mitigating Systems Cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, this failure inadvertently bypassed a three hour fire barrier and created the potential for a fire to affect both safety related switchgear rooms. The finding was screened in accordance with NRC Inspection Manual Chapter (IMC) 0609 attachment 4 which determined that an evaluation using NRC IMC 0609 Appendix F (Fire SDP) was required. The propped open door constituted a high degradation condition per NRC IMC 0609 appendix F Attachment 2 which required a detailed risk evaluation. A bounding phase 3 risk analysis was done by a regional SRA using a hand calculation and guidance from NRC IMC 0609 Appendix F. The major analysis assumptions included a duration factor of 2 hours, an ignition frequency of 2E-2/year, a base case conditional core damage probability (CCDP) of 0.1 (assumed large single SWGR room fire would require alternate safe shutdown), a non-conforming case
CCDP of 1.0 (assumed a dual SWGR fire scenario would result in core damage), and a probability of non-suppression (PNS) of 1E-3. The dominant sequence was a challenging SWGR room fire which remained unsuppressed long enough to develop into a damaging hot gas layer scenario which would fail SSD equipment in both SWGR rooms A and B due to the open fire door and result in core damage. The licensee's fire PRA produced similar results. The short exposure period, ability to close the fire door, and the low PNS mitigated the risk. The analysis result was an increase in core damage of < 1E-6/year, a finding of very low safety significance (Green). The finding had a cross-cutting aspect of Work Planning, as described in the Work Control component of the Human Performance cross-cutting area because the licensee failed to identify the need for a compensatory action due to the blocked open fire door. [H.3(a)] (Section 1R05)

Inspection Report# : 2013004 *(pdf)*

Significance: G Apr 30, 2013
Identified By: NRC
Item Type: NCV NonCited Violation
"Inadequate Corrective Actions Involving the Incorrect Determinations of Operability."
An NRC-identified Green NCV of 10 CFR 50, Appendix B, Criterion XVI,
Corrective Action was identified for the licensee's failure to take corrective actions related to incorrect operability determinations which resulted in violation of TS 3.8.1.1
(Electrical Power Sources) associated with the S-2B-SB failure to secure on October 26, 2012. The licensee entered the issue into their CAP as AR #569593. As corrective actions, on October 31, 2012, Operations opened the supply breaker (1B21-SB-4B) for the primary shield fan to remove any impact to the Emergency Diesel Generator (EDG) operability. Additionally, the licensee created AR #584473 to evaluate and correct issues associated with their operability determinations.

The licensee's failure to take timely, appropriate corrective actions for inadequate operability determinations was a performance deficiency. The performance deficiency was more than minor because if left uncorrected, it would have the potential to lead to a more significant safety concern. Specifically, the failure to take timely, appropriate corrective actions could have resulted in a more safety significant violation of TS than the identified violation of TS 3.8.1.1 (Electrical Power Sources) associated with the S-2B-SB failure to secure on October 26, 2012. In accordance with IMC 0609.04, "Initial Characterization of Findings," and Exhibit 2 of IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings at Power," the inspectors determined that this finding is of very low safety significance (Green) because the performance deficiency did not involve a deficiency affecting the design or

qualification of a mitigating system and did not represent a loss of system function. The cause of the finding was directly related to the cross-cutting aspect for appropriate corrective actions to address safety issues in a timely manner commensurate with their safety significance and complexity in the CAP component of the cross-cutting area of Problem Identification and Resolution, in that the licensee failed to take appropriate and timely corrective actions to address incorrect determinations of operability (P.1(d)).
Inspection Report# : 2013002 *(pdf)*

Significance: G Apr 30, 2013
Identified By: NRC
Item Type: NCV NonCited Violation
"Failure to Implement Design Control Measures for the EDG Starting and Control Air System."
The inspectors identified a non-cited violation of 10 CFR 50, Appendix B, Criterion III, "Design Control," involving two examples. In one example, the licensee did not translate instrument uncertainties associated with the EDG low-pressure alarm and pressure indicator into operating and alarm response procedures. In the second example, the licensee failed to verify the design adequacy for blocking the EDG non-emergency generator trips during emergency operation. The licensee entered the first example into their CAP as ARs #586788, #586837, #588517, and #589308 and initiated a standing instruction to verify starting air pressure was maintained above 200 psig while evaluating appropriate corrective actions. The licensee entered the second example into their CAP as ARs #382359 and #412546, and implemented a facility change to correct the design deficiency.

The failure to translate instrument uncertainties associated with the EDG low-pressure alarm and pressure indicator into operating and alarm response procedures, and failure to verify the design adequacy for blocking the EDG non-emergency generator trips were performance deficiencies. The performance deficiencies were more than minor because they were associated with the Design Control attribute of the Mitigating System Cornerstone and affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The inspectors assessed the finding using IMC 0609 Attachment 4, "Initial Characterization of Findings;" and IMC 0609 Appendix A, "The Significance Determination Process for Findings At-Power," and determined the finding was of very low safety significance (Green) because the design deficiencies were confirmed not to result in loss of operability of the EDGs. The finding was reviewed for cross-cutting aspects and none were identified since the performance deficiencies were not indicative of current licensee performance.
Inspection Report# : 2013002 *(pdf)*

Barrier Integrity

Significance: N/A May 31, 2013
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Report a Degraded Primary Safety Barrier per 10 CFR 50.73(a)(2)(ii)(A)
The inspectors identified a non-cited violation of Title 10 of the Code of Federal Regulations (10 CFR) Part 50.73(a)(2)(ii)(A) for the licensee's failure to submit a 60-day Licensee Event Report (LER) for a condition in which one of the plant's principal safety barriers was seriously degraded. The licensee generated Action Request 00606893 to document the failure to provide the required 60-day LER.

The inspectors determined that the failure to report a seriously degraded principal safety barrier as required by 10 CFR 50.73(a)(2)(ii)(A) was a performance deficiency. Using the guidance of Inspection Manual Chapter 0612, Appendix B, "Issue Screening," the team determined the performance deficiency involved a violation that could have impacted the regulatory process, therefore, it was dispositioned using the traditional enforcement process. In accordance with

Section 6.9.d.9 of the NRC Enforcement Policy, a failure to make a report required by 10 CFR 50.73 is a Severity Level IV violation. Cross-cutting aspects are not assigned to traditional enforcement violations.
Inspection Report# : 2013010 *(pdf)*

Emergency Preparedness

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

Last modified : May 30, 2014