

Robinson 2

2Q/2012 Plant Inspection Findings

Initiating Events

Significance: **G** Jun 30, 2012

Identified By: Self-Revealing

Item Type: FIN Finding

Lack of preventive maintenance on feedwater control switch results in an automatic reactor trip

A self-revealing Green finding was identified when the licensee failed to establish adequate preventative maintenance for equipment associated with the feedwater control systems. Specifically, the licensee's inappropriate classification of the feedwater flow loop selector switch as a "run-to-failure" component permitted the switch to remain in service, without preventative maintenance, until its failure on March 28, 2012, which resulted in a feedwater transient and reactor trip. Corrective actions included the replacement of the failed switch and future replacement of seven additional switches that were deemed to be at risk for a similar failure. This issue has been entered into the corrective action program (CAP) as Nuclear Condition Report (NCR) #527203.

The licensee's inappropriate classification of plant equipment in accordance with ADM-NGGC-0107 Rev. 1, Equipment Reliability Process Guideline, which permitted feed flow selector switch 1/FM-488B to remain in service, without preventative maintenance, until failure was a performance deficiency. This finding was determined not to be a violation of NRC requirements. The finding was more than minor because it was associated with the initiating events cornerstone attribute of Equipment Performance, and it affected the associated cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, the performance deficiency caused an automatic reactor trip from 55 percent power operations on March 28, 2012. The finding was determined to be of very low safety significance (Green) because the finding did not contribute to both the likelihood of a reactor trip and the likelihood that mitigating equipment or functions would not be available. The performance deficiency had a cross-cutting aspect of Evaluation of Identified Problems in the area of Problem Identification and Resolution, because the licensee failed to thoroughly evaluate the events in 2010 and 2008 such that the resolutions addressed the causes and extent of conditions as necessary.(P.1(c)) (Section 1R12)

Inspection Report# : [2012003](#) (pdf)

Significance: **G** Sep 30, 2011

Identified By: NRC

Item Type: NCV NonCited Violation

Water Intrusion into Safety-Related Buildings due to Inadequate Design of Site Storm Water Runoff Drainage System

A self-revealing apparent violation (AV) of 10 CFR 50, Appendix B, Criterion III, "Design Control," was identified for the licensee's failure to consider how the aggregate changes to the site's topography could impact the site's ability to drain storm water runoff and adequately respond to localized flooding during periods of heavy rain. This resulted in the ponding of storm water runoff, the subsequent direction of runoff flow towards the power block, overfilling of the retention basin, backup of the storm drainage system, and ultimately, uncontrolled water intrusion into safety-related equipment rooms in the auxiliary building. The licensee took immediate actions to remove the water from the affected plant buildings and grounds. In addition, within a few weeks of the event, the licensee repaired the washed out area of the berm just to the north of the power block, and performed interim adjustments to site topography to limit ponding near the berm. The licensee plans to perform additional site grade and trench restoration and remediation to permanently prevent site ponding. This issue was entered into the licensee's corrective action program as NCR 468235.

The licensee's failure to consider how the aggregate changes to the site's topography could impact the site's ability to

drain storm water runoff and adequately respond to localized flooding during periods of heavy rain as required by procedure EGR-NGGC-0005, "Engineering Change," was a performance deficiency. This performance deficiency was considered more than minor because it was associated with the Initiating Events Cornerstone attributes of the Design Control (plant modifications) and Protection Against External Factors (flood hazard), and adversely affected the cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, the failure to consider aggregate changes to the site's topography on the site's ability to drain storm water runoff resulted in uncontrolled water intrusion into safety-related equipment rooms. The inspectors assessed the finding using Inspection Manual Chapter (IMC) 0609, Significance Determination Process (SDP), Att. 4, Phase 1 - Initial Screening and Characterization of Findings, and determined the finding was potentially greater than very low safety significance because the finding increases the likelihood of an external flooding event. As a result, the characterization worksheet for Initiating Events required a Phase 3 analysis using the Individual Plant Examination for External Event Submittal (IPEEE) or other existing plant specific analyses as inputs. The significance of this finding is designated as To Be Determined (TBD) until the safety characterization has been completed by the NRC Senior Reactor Analyst (SRA). The inspectors determined that the cause of this finding was related to the trending and assessment aspect in the Corrective Action Program component of the Problem Identification and Resolution cross-cutting area. (P.1(b))

2011005 IR:

Green. A self-revealing non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion III, "Design Control," was identified for the licensee's failure to consider how the aggregate changes to the site's topography could impact the site's ability to drain storm water runoff and adequately respond to localized flooding during periods of heavy rain. This resulted in the ponding of storm water runoff, the subsequent direction of runoff flow towards the power block, overfilling of the retention basin, backup of the storm drainage system, and ultimately, uncontrolled water intrusion into safety-related equipment rooms in the auxiliary building. The licensee took immediate actions to remove the water from the affected plant buildings and grounds. In addition, within a few weeks of the event, the licensee repaired the washed out area of the berm just to the north of the power block, and performed interim adjustments to site topography to limit ponding near the berm. The licensee plans to perform additional site grade and trench restoration and remediation to permanently prevent site ponding. This issue was entered into the licensee's corrective action program as NCR 468235.

The licensee's failure to consider how the aggregate changes to the site's topography could impact the site's ability to drain storm water runoff and adequately respond to localized flooding during periods of heavy rain as required by procedure EGR-NGGC-0005, "Engineering Change," was a performance deficiency. This performance deficiency was considered more than minor because it was associated with the Initiating Events Cornerstone attributes of the Design Control (plant modifications) and Protection Against External Factors (flood hazard), and adversely affected the cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, the failure to consider aggregate changes to the site's topography on the site's ability to drain storm water runoff resulted in uncontrolled water intrusion into safety-related equipment rooms. The inspectors assessed the finding using Inspection Manual Chapter (IMC) 0609, Significance Determination Process (SDP), Att. 4, Phase 1 - Initial Screening and Characterization of Findings, and determined the finding was potentially greater than very low safety significance because the finding increases the likelihood of an external flooding event. As a result, the characterization worksheet for Initiating Events required a Phase 3 analysis using the Individual Plant Examination for External Event Submittal (IPEEE) or other existing plant specific analyses as inputs. A Senior Reactor Analyst determined the increase in likelihood of flooding was of very low risk significance i.e., Green. The main contributors to the low risk results were: 1) the low frequency of a severe rainfall necessary to impact equipment in the plant, and 2) the limited impact on risk-significant components affected by the postulated worst-case flood i.e., the 230kV switchyard and none of the equipment in the Auxiliary Building. The inspectors determined that the cause of this finding was related to the trending and assessment aspect in the Corrective Action Program component of the Problem Identification and Resolution cross-cutting area. (P.1(b))

Inspection Report# : [2011004](#) (pdf)

Inspection Report# : [2011005](#) (pdf)

Mitigating Systems

Significance:  Jun 30, 2012

Identified By: NRC

Item Type: FIN Finding

Inoperability of the refueling water storage tank not recognized as a safety system functional failure

The inspectors identified a Green finding for the licensee's failure to identify and document Safety System Functional Failures (SSFF) in accordance with REG-NGGC-0009, NRC Performance Indicators and Monthly Operating Report Data. The licensee did not recognize that rendering the refueling water storage tank inoperable by placing the non-seismically qualified purification system in operation as documented in LER 05000261/2011-001-00, "Condition Prohibited by Technical Specifications When Non-Seismic System was Aligned to Refueling Water Storage Tank due to Regulatory Requirements not Adequately Incorporated in Plant Documentation" also created a SSFF. The licensee entered the issue into the CAP as NCR 539132. Corrective actions are still being evaluated.

The inspectors determined that the licensee's failure to identify and document a SSFF was a performance deficiency. Specifically, Attachment 7 of REG-NGGC-009, NRC Performance Indicators and Monthly Operating Report Data, Rev. 11 requires documenting SSFF's. The finding was determined to be more than minor because the minor screening question of whether the performance deficiency would have caused the SSFF PI to exceed a threshold was determined to have occurred. Specifically, had the licensee recognized the SSFFs and documented them during the investigation of LER 05000261/2011-001-00, the SSFF PI would have crossed the green/white threshold in the 4th quarter of 2010. The finding screened as Green because no loss of operability or functionality resulted from the failure to recognize the SSFF and document the event as described in LER 05000261/2011-001-00. The inspectors determined this performance deficiency had a cross-cutting aspect in the Corrective Action Program component of the Problem Identification and Resolution Area, because the licensee did not thoroughly evaluate the condition described in LER 05000261/2011-001-00, to include conditions such as a SSFF. (P.1(c))(Section 4OA1)

Inspection Report# : [2012003](#) (*pdf*)

Significance:  Jun 30, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

Inaccurate safety system functional failure performance indicator submittal

The inspectors identified a Severity Level (SL) IV NCV of 10 CFR 50.9(a), "Completeness and Accuracy of Information," when the licensee inaccurately reported Safety System Functional Failure (SSFF) performance indicator data beginning with the 4th quarter of 2010. The licensee entered the issue into the CAP as NCR 539132. Corrective actions are still being evaluated.

The inspectors determined the licensee's failure to identify and document a SSFF was a performance deficiency. Specifically, Attachment 7 of REG-NGGC-009, NRC Performance Indicators and Monthly Operating Report Data, Rev. 11 requires documenting SSFF's for inclusion in the NRC performance indicator (PI) submittal. This resulted in a failure to submit complete and accurate PI data resulting from the investigation of LER 05000261/2011-001-00, "Condition Prohibited by Technical Specifications When Non-Seismic System was Aligned to Refueling Water Storage Tank due to Regulatory Requirements". Due to the inadequate review of LER 05000261/2011-001-00, the licensee submitted inaccurate data for the SSFF PI beginning in the 4th quarter of 2010. If accurate data had been provided the SSFF PI would have transitioned from green to white in the 4th quarter of 2010. The finding was more than minor because it impacted the ability of the NRC to perform its regulatory oversight function. The finding was determined to be a SL IV violation using the examples in the Enforcement Policy, where a licensee submits inaccurate or incomplete PI data to the NRC that would have caused a PI to change from green to white. No cross-cutting aspect was assigned due to traditional enforcement violations are not screened for cross-cutting aspects. (Section 4OA1)

Inspection Report# : [2012003](#) (*pdf*)

Significance:  May 25, 2012

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to Take Adequate Corrective Action to Preclude Repetition of a Significant Condition Adverse to Quality Associated with the Refueling Water Storage Tank Purification

Green: A self-revealing Green NCV of 10 CFR 50, Appendix B, Criterion XVI, Corrective Action, was identified for the licensee's failure to take adequate corrective actions to prevent recurrence (CAPR) in response to a significant condition adverse to quality (SCAQ) associated with the purification of the Refueling Water Storage Tank (RWST). Specifically, on March 16, 2012, with the plant in Mode 4, the licensee aligned the non-seismically qualified Spent Fuel Pool Demineralizer to the seismically qualified boundary of the RWST to perform purification of the RWST. This action rendered the RWST inoperable. This issue was previously identified as a significant condition adverse to quality in May 2011, but the corrective actions taken failed to preclude repetition. The licensee entered this issue in the corrective action program as Nuclear Condition Report (NCR) 524619. As immediate corrective actions, the licensee removed the SFP purification system from service and replaced the caution tags on valves SFPC-805A, Refueling Water Purification Pump Suction from RWST and SFPC-805B, RWST Return, with a Clearance. The licensee plans to revise several operating procedures to correctly apply Technical Specifications implications into procedural steps and they also plan to implement Engineering Change (EC) 80584, to perform a seismic qualification of the spent fuel pool / RWST purification system to allow alignment to the RWST without affecting operability.

The licensee's failure to take adequate corrective actions to prevent recurrence of a SCAQ, aligning the non-seismically qualified spent fuel pool demineralizer system for purification of the safety related and seismically qualified RWST, was a performance deficiency. The finding was more than minor because if left uncorrected, it has the potential to lead to a more significant safety concern. The finding was determined to affect the mitigating systems cornerstone objective of ensuring the availability, reliability, and capability of systems to respond to initiating events to prevent undesirable consequences. Specifically, during a seismic event the purification piping could break and cause a loss of inventory in the RWST which is used in accident mitigation. Inspection Manual Chapter (IMC) 0609, Attachment 4, Table 4a, "Phase 1 – Initial Screening and Characterization of Findings," determined that this finding was within the mitigating systems (MS) cornerstone and was potentially risk significant due to a seismic external event and therefore required a Phase 3 SDP analysis. A phase 3 risk assessment was performed by a regional Senior Risk Analyst (SRA) using the NRC SPAR model. The analysis determined that the risk increase of the performance deficiency was an increase in core damage frequency less than 1E-6/year a GREEN finding of very low safety significance. The cross cutting aspect of the finding was directly related to the CAP component of the Problem Identification and Resolution area, because the licensee failed to take appropriate corrective actions to address safety issues. Specifically, the licensee's corrective actions regarding the alignment of the purification system to the RWST were not adequate to solved the issue and prevent recurrence (P.1(d)).

Inspection Report# : [2012007](#) (pdf)

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Significance: May 25, 2012

Identified By: NRC

Item Type: FIN Finding

Failure to Implement Trending Requirements Set Forth in Plant Procedures

Green: An NRC identified finding was identified for the licensee's failure to implement trending requirements set forth in CAP-NGGC-0206, "Performance Assessment and Trending" and EGR-NGGC-0010, "System Component Trending Program and System Notebooks." Consequently the licensee missed opportunities to identify and enter adverse conditions into the CAP. The licensee entered these issues into the corrective action program as NCRs 535537 and 535926. The licensee has taken immediate corrective actions which include the generation of trend reports that were previously missed.

The finding was more than minor because the licensee's failure to correct trending program implementation deficiencies could have the potential to lead to a more significant safety concern. Specifically, these trending program implementation deficiencies leave the station vulnerable to not identifying less significant issues that may be providing precursor insights that could prevent a more significant condition adverse to quality. The finding was determined to affect the mitigating systems cornerstone objective of ensuring the availability, reliability, and capability of systems to respond to initiating events to prevent undesirable consequences. In accordance with NRC

Inspection Manual Chapter 0609.04, Significant Determination Process – Phase 1 screening, the finding was determined to be of very low safety significance (Green) because the finding did not result in a loss of system safety function or a loss of safety function of a single train for greater than allowed Technical Specification allowed outage time. This finding has a cross-cutting aspect in the area of problem identification and resolution associated with the corrective action program component. Specifically, the licensee failed to periodically trend and assesses information from the CAP and other assessments in the aggregate to identify programmatic and common cause problems P.1(b) Inspection Report# : [2012007](#) (pdf)

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Significance: Mar 31, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Implement Technical Specification Action Requirements Regarding ‘B’ Battery Inoperability

The inspectors identified a Green NCV of Technical Specification (TS) 3.8.4, DC Electrical Sources, when the licensee failed to comply with the action time following discovery of reasonable information to determine that Surveillance Requirement (SR) 3.8.4.6 had not been performed within its frequency plus 25 percent grace period for the ‘B’ safety related battery. The “B” battery was inoperable due to the SR not being performed. The issue was documented in the corrective action program as Nuclear Condition Report (NCR) 511315. As corrective actions, the licensee shut down the plant and successfully performed the SR. The failure to declare in a timely manner that the TS surveillance requirement for the ‘B’ safety related battery was not met, was a performance deficiency. This performance deficiency is more than minor because it is associated with the equipment performance attribute and adversely affected the Mitigating Systems Cornerstone objective to ensure the availability and reliability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the licensee mistakenly extended the amount of time that they operated in Mode 1 with an inoperable safety related system. The significance of this finding was assessed in accordance with Inspection Manual Chapter 0609, Attachment 4. Using the Mitigating Systems Cornerstone column of Table 4a of

Attachment 4, it was determined that the finding was of very low significance (Green) because the finding did not represent a loss of safety function and did not screen as potentially risk significant due to a seismic, flooding or severe weather initiating event. The inspectors determined this performance deficiency has a cross-cutting aspect in the Decision Making component of the Human Performance Area, because the licensee did not use conservative assumptions to determine operability of the ‘B’ safety related battery.

Inspection Report# : [2012002](#) (pdf)

G

Significance: Mar 31, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Design Change resulted in Interference and Inoperability of Containment Water Level Indication

The inspectors identified a Green NCV of 10 CFR 50, Appendix B, Criterion III, “Design Control,” for the licensee’s installation of a plant modification that adversely affected the operability of nearby safety related equipment.

Specifically, the licensee’s installation of radiation barriers in containment impeded the travel path for equipment associated with containment water level transmitter, LT-802E, and resulted in the “B” train of containment sump water level instrumentation being inoperable for a period of time greater than allowed in Technical Specification 3.3.3. The licensee took immediate actions to remove the interference with the level instrumentation. This issue was entered into the licensee’s corrective action program as NCR 510240. The licensee’s installation of a plant modification that adversely affects the operability of nearby safety related equipment was a performance deficiency and resulted in containment water level transmitter, LT-802E, being inoperable for greater than the allowed outage time specified in Technical Specification 3.3.3. The performance

deficiency was considered more than minor because it affected the Mitigating Systems Cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e. core damage). Specifically, reactor operators would have unreliable indication of containment water level during a postulated Loss of Coolant Accident (LOCA). Using Manual Chapter 0609.04, “Phase 1 Initial Screening and Characterization of Findings,” the issue was evaluated to be a degradation of the Mitigation Systems cornerstone because it affects long term core decay heat removal in the event of a LOCA. Table 4a of the Phase 1 worksheet requires a Phase 2 significance determination evaluation, because the finding represents an actual loss of safety function of a single train, for greater than its Technical Specifications Allowed Outage Time. A further

characterization of the safety significance could not be performed in Phase 2 because the function (i.e., containment water level indication) was not modeled and necessitated that a Phase 3 SDP be done. The SRA performed a bounding event assessment. The dominant accident sequence was where a LOCA occurs and, as a result of the depressurization, a Steam Generator Tube Rupture happens. This leads to the water from the steam generator adding to the internal flooding event. Subsequently operators fail to isolate the ruptured steam generator thus continuing to feed the break. The increase in core damage probability (?CDF) for this event was determined to be $< 1E-6$ therefore, this condition should be treated as very low safety significance (Green). The inspectors did not identify a crosscutting aspect associated with this finding because the performance deficiency occurred in 2005 and does not represent current licensee performance.

Inspection Report# : [2012002](#) (pdf)

Significance:  Sep 30, 2011

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Take Prompt Corrective Actions to Establish Guidance to Monitor and Operate Service Water Strainers Following LOOP

Green. The inspectors identified a Green NCV of Technical Specification (TS) 5.4.1, Administrative Controls, Procedures, for failure to establish procedural guidance to monitor Service Water System (SWS) parameters and operate the SWS strainers following a loss of offsite power (LOOP). Following a LOOP, the operator's ability to recover from a plugged SWS strainer would be impacted due to the loss of the associated control alarm and the lack of procedural guidance to manually operate the SWS strainers. The licensee has revised plant procedures to include additional instructions that will ensure that operators can recover from plugged SWS strainers and preserve the operation of the SWS following a LOOP. This issue was entered into the licensee's corrective action program as NCR 473900.

The failure to establish procedural guidance to locally monitor SWS parameters and manually operate the SWS strainers following a LOOP was a performance deficiency. This issue was more than minor because if left uncorrected this finding would have the potential to lead to a more significant safety concern. Specifically, the inability to clean the service water strainers, following a prolonged LOOP, could impact the operation of the service water system. The SDP Phase 1 screening determined that this finding was within the mitigating systems cornerstone and was potentially risk significant due to a seismic, flooding or severe weather initiating event and therefore required a Phase 3 SDP analysis. An NRC Senior Reactor Analyst (SRA) determined the lack of procedure for a loss of the service water strainers due to an external event (i.e., loss of offsite power removing power to the strainers and causing debris to clog the system) was of very low risk significance i.e., Green. The main contributors to the low risk results were: 1) the low likelihood of a total loss of service water event, and 2) the probability of recovery of the strainers and/or the system despite the lack of procedures. The inspectors determined that the finding has a cross-cutting aspect in the Corrective Action Program component of the Problem Identification and Resolution area, because the licensee failed to thoroughly evaluate the issue such that the resolution addressed the cause and extent of conditions, as necessary. Specifically, licensee's evaluation of the NCR associated with the lack of plant procedures to manually operate the SWS, failed to recognize that the control room indication associated with a plugged SWS strainer would be lost following a LOOP. (P.1(c))

Inspection Report# : [2011004](#) (pdf)

Barrier Integrity

Significance:  Mar 31, 2012

Identified By: NRC

Item Type: FIN Finding

Low Temperature Overpressure System Rendered Inoperable For Operational Convenience

The inspectors identified a Green finding for failure to follow the TS bases associated with Improved Technical Specification (ITS) 3.0.2 Limiting Condition for Operability (LCO) Applicability. Specifically, the licensee rendered

the Low Temperature Overpressure Protection System (LTOP) inoperable and entered ITS 3.4.12 Condition G for operational convenience. On March 11, 2012, for approximately 90 minutes, while transitioning the Low Temperature Overpressure System from ITS LCO 3.4.12 b. to ITS LCO 3.4.12 a., the LTOP system was rendered inoperable. This issue has been entered in the corrective action program as NCR 523648. Corrective actions are being evaluated. Rendering the LTOP system inoperable for operational convenience was a performance deficiency. The finding was more than minor because it impacted the Equipment Performance attribute of the Barrier Integrity Cornerstone, and adversely affected the cornerstone objective to provide reasonable assurance that the physical design barriers of the reactor coolant system protect the public from radionuclide releases caused by accidents or events. Specifically, with an inoperable LTOP system the RCS protection from an overpressure event is reduced. The significance of this finding was assessed using Inspection Manual Chapter 0609 Shutdown Significance Determination Process Appendix G. The inspectors determined that the finding was of very low safety significance (Green) and it did not adversely impact the five guidelines contained in Checklist 4 of core heat removal, inventory control, power availability, containment closure, or reactivity. No cross-cutting aspect is associated with this finding as the performance deficiency does not reflect current licensee performance in that licensee has utilized this process for years.

Inspection Report# : [2012002](#) (*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 : September 12, 2012