

Robinson 2

1Q/2012 Plant Inspection Findings

Initiating Events

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:  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)

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)

Significance: G Jun 30, 2011

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Seismic Analysis for Installation of Safety Related Cable Trays and Conduit

•Green. The inspectors identified a Non-Cited Violation (NCV) of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for the licensee's failure to perform an adequate seismic analysis during the plant modification of the 125VDC Battery Chargers. Specifically, the interface evaluation for installation of the safety-related, Battery Charger, cable tray and conduit failed to consider the seismic interaction with the adjacent air-handling unit structure. Subsequent review and analysis determined that the modification introduced a degraded/nonconforming condition which does not affect operability. The licensee documented the issue in Nuclear Condition Report 458971 and initiated actions for a plant modification.

The failure to perform an adequate seismic analysis for the installation of the safety-related cable trays and conduit is a performance deficiency. This performance deficiency is associated with the design control attribute of the Mitigating System Cornerstone. It is more than minor since it is similar to Inspection Manual Chapter 0612, Appendix E, Example, 3.a, in that the seismic analysis for the cable trays and conduits require revision and modification to the air handling unit structural supports to correctly resolve the seismic concerns. In accordance with IMC 0609 (Table 4a), "Phase 1 – Initial Screening and Characterization of Findings," the finding was determined to be of very low safety significance (Green) because the finding was not a design or qualification deficiency which resulted in a loss of operability or functionality. The inspectors did not identify a cross-cutting aspect associated with this finding because the performance deficiency occurred in 1991 and does not represent current licensee performance.

Inspection Report# : [2011003](#) (pdf)

Significance: G Jun 30, 2011

Identified By: NRC

Item Type: NCV NonCited Violation

Refueling Water Storage Tank Inoperable While On Purification

Green. The inspectors identified a NCV of Technical Specification (TS) 3.5.4 Refueling Water Storage Tank (RWST), which required the RWST to be operable in modes 1 through 4. The licensee failed to comply with the TS Action Statements when the RWST was rendered inoperable by placing the non-seismically qualified purification loop in operation. Upon discovery the licensee promptly restored the RWST to operable status by removing the purification loop from service, put administrative controls in place to prevent use of the purification loop, and initiated Action Request (AR) 452093 to evaluate the event.

Use of the non-seismically qualified Spent Fuel Pool Demineralizer System for purification of the Refueling Water Storage Tank was determined to be a performance deficiency. This action rendered the RWST inoperable and the licensee failed to comply with the required action statement for an inoperable RWST. The finding is more than minor because if left uncorrected, the performance deficiency has the potential to lead to a more significant safety concern. Specifically, during a seismic event the purification piping could break and cause a loss of inventory in the RWST. Significance Determination Process (SDP) Phase 1 screening determined that this finding was within the mitigating systems 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 SRA using the NRC SPAR model. An exposure period of 213 days was utilized as this represented the worst case one year exposure period determined using the RWST purification history data. No recovery credit was assumed in the analysis. The non-seismic RWST purification piping and the dedicated shutdown diesel generator were assumed to fail at the same seismic input as that assumed for a loss of offsite power. The dominant sequence was a seismically induced loss of offsite power leading to a station blackout with failure of the emergency power system and failure to recover offsite power or the emergency

diesel generators. Subsequent battery depletion and operator failure to control the turbine driven auxiliary feedwater pump would lead to core damage. The risk was mitigated by the low probability of a seismic event and the failure probability of the emergency diesel generators. 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 cause of the finding was directly related to the conservative assumptions aspect in the Decision Making component of the Human Performance area because during a previous review of this evolution the licensee did not demonstrate the proposed action was safe in order to proceed. Instead the licensee could not find a requirement to show it was unsafe and concluded placing the RWST on purification was acceptable (H.1(b))

Inspection Report# : [2011003](#) (*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

Physical Protection

Although the NRC is actively overseeing the Security cornerstone, the Commission has decided that certain findings pertaining to security cornerstone will not be publicly available to ensure that potentially useful information is not provided to a possible adversary. Therefore, the [cover letters](#) to security inspection reports may be viewed.

Miscellaneous

Last modified : May 29, 2012