

# Robinson 2

## 4Q/2011 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:**  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*)

**Significance:**  Mar 31, 2011

Identified By: Self-Revealing

Item Type: FIN Finding

**Two of Six Operating Crew Failures on the Simulator Operational Evaluation Portion of the 2011 Annual Requalification Operating Test**

Green: A self-revealing Green finding associated with operating crew performance on the simulator during facility-administered requalification examination was identified. Two of the six crews evaluated failed to pass their simulator examinations. As immediate corrective action, the failed operating crews were remediated (i.e., the operating crews were re-trained and successfully retested) prior to returning to shift. The licensee has entered this issue into the corrective action program as non-conformance report (NCR) 444843.

The inspectors determined that the crew failures constituted a performance deficiency based on the fact that licensed operators are expected to operate the plant with acceptable standards of knowledge and abilities demonstrated through periodic testing as required by 10 CFR 55.59(a)(2). Two out of six crews of licensed operators failed to demonstrate a satisfactory understanding of the required actions and mitigating strategies required to safely operate the facility under normal, abnormal, and emergency conditions. The finding is more than minor because the performance deficiency potentially affects the Human Performance attribute of the Mitigating Systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the finding reflected the potential inability of the crew to take appropriate safety-related action in response to actual abnormal and emergency conditions (loss of cooling to the RCP seals). The perceived risk associated with the number of crews failing the annual operating test is provided in the Simulator Operational Evaluation matrix of NRC Manual

Chapter 0609, Appendix I, "Licensed Operator Requalification Significance Determination Process (SDP)." The finding is of very low safety significance (Green) because less than 34 percent of the operating crews failed, the failed operating crews were remediated (i.e., the operating crews were re-trained and successfully retested) prior to returning to shift, and because there were no operating crew failures the previous year. The cause of this finding was directly related to the cross-cutting aspect of personnel training and qualifications in the Resources component of the Human Performance area, in that the licensee failed to ensure the adequacy of the training provided to operators to assure nuclear safety. (H.2(b))

Inspection Report# : [2011002](#) (*pdf*)

**Significance:** SL-IV Mar 31, 2011

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Update the Updated Final Safety Analysis Report Contributed to Insufficient Emergency Diesel Generator Lube Oil Inventory**

Green. The inspectors identified a Severity Level IV (SL-IV) non-cited violation (NCV) for failure to update the Updated Final Safety Analysis Report (UFSAR), as required by 10 CFR 50.71(e), to include the minimum required inventory of lube oil for operation of the emergency diesel generators, following the conversion to improved standard technical specifications (ISTS). The inspectors determined that the failure to include this information contributed to the licensee falling below the minimum lube oil inventory required for the Emergency Diesel Generators to meet their seven day mission time. The licensee took immediate corrective actions to obtain sufficient lube oil and entered the issue into the corrective action program as nuclear condition report (NCR) 452251.

This issue was considered as traditional enforcement because it had the potential for impacting the NRC's ability to perform its regulatory function. This issue is more than minor because not having an updated portion of the UFSAR

hinders the licensee's ability to perform adequate 10 CFR 50.59 evaluations and can impact the NRC's ability to perform adequate regulatory reviews for license amendments and inspections. Consequently, it can have a material impact on licensed activities. This issue was determined to meet the criteria for a severity level IV violation in the NRC Enforcement Policy because the information was not used to make an unacceptable change to the facility or procedures. No cross-cutting aspect was assigned because cross-cutting aspects are not assigned to violations being dispositioned through the traditional enforcement process.

Inspection Report# : [2011002](#) (pdf)

**Significance: SL-IV** Mar 31, 2011

Identified By: NRC

Item Type: NCV NonCited Violation

**Inadequate 10 CFR 50.59 evaluation results in Emergency Core Cooling System Inoperability**

Green. The inspectors identified a Severity Level IV (SL-IV) non-cited violation (NCV) of 10 CFR 50.59 for the licensee's failure to perform an adequate safety evaluation documenting why implementing a procedure change for the Emergency Core Cooling System (ECCS) Residual Heat Removal (RHR) injection sub-system did not present a more than minimal increase in the likelihood of occurrence of a malfunction of a structure, system, or component (SSC) important to safety previously evaluated in the updated safety analysis report (UFSAR). The licensee erroneously referenced a vendor analysis which was not part of the licensing basis to support the safety evaluation. The procedure change was used by Operations and resulted in a violation of Technical Specification (TS) 3.5.3 ECCS – Shutdown for the required RHR injection sub-train being inoperable in Mode 4 and the associated action statement was not complied with. After the fact and upon discovery, the licensee established administrative controls to ensure compliance with TS in the future. The issue was entered into the corrective action program as NCR 425136.

The licensee's use of an unapproved vendor evaluation of LOCA response as justification to support a 10 CFR 50.59 safety evaluation was a performance deficiency. The traditional enforcement review of the performance deficiency is more than minor because plant procedures were changed without prior NRC review and approval, which impacted the regulatory process. Violations of 10 CFR 50.59 are dispositioned using the Traditional Enforcement process instead of the SDP because they are considered to be violations that could potentially impede or impact the regulatory process. However, if possible, the underlying technical issue is evaluated under the SDP to determine the severity of the violation. In this case, the inspectors determined the finding could be evaluated under the SDP because the ECCS RHR injection subsystem became inoperable because of an inadequate safety evaluation and procedure change resulting in a violation of TS 3.5.3, ECCS-Shutdown. The finding was evaluated using IMC 0609.04, Significance Determination Process (SDP) Phase 1 screening worksheets. This finding adversely impacted the Mitigating Systems cornerstone objective to ensure the availability of systems that respond to initiating events to prevent undesirable consequences. Because it represented an actual loss of safety function of both trains of RHR, an SDP Phase 2 analysis was required. The inspectors determined that the finding could not be adequately assessed using the Phase 2 process; therefore, a SDP Phase 3 analysis was performed for the deficiency using an at-power (vice a shutdown evaluation) because the performance deficiency would manifest itself immediately after shutting down the unit or immediately preceding returning to power. The NRC's risk model was modified to reflect the total loss of RHR injection capability due to either voiding of the pump suction or the associated waterhammer event. The resulting analysis, including the risk contribution due to external sources, was less than 1E-6/year and the finding is Green. The dominant cutsets were medium and small break loss of coolant accidents that proceed immediately to core damage due to the lack of low pressure injection. In accordance with Section 6.1.d.2 of the NRC Enforcement Policy, this violation is categorized as Severity Level IV because the resulting changes were evaluated by the SDP as having very low safety significance (Green). The inspectors determined the cause of the finding was directly related to verification of underlying assumptions aspect in the decision making component of the Human Performance area because the licensee did not validate whether the vendor analysis was part of the licensee's licensing basis (H.1(b)).

Inspection Report# : [2011002](#) (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 : March 02, 2012