

## Robinson 2

### 4Q/2014 Plant Inspection Findings

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#### Initiating Events

**Significance:** G Jun 30, 2014

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

##### **Failure to Identify and Correct Degraded Wire Labels in the Reactor Protection Relay Cabinets**

A self-revealing Green non-cited violation (NCV) was identified for the licensee's failure to promptly identify and correct degraded wire labels in the reactor protection cabinets, which were a condition adverse to quality, as required by 10 CFR Part 50, Criterion XVI, Corrective Action. This resulted in an automatic reactor trip. Immediate corrective actions included inspection of both trains of relay racks to identify and remove any potential foreign material. The licensee also tested both trains of reactor protection relays to verify no foreign material was present. Additionally, the licensee plans to replace the wire labels in the reactor protection and safeguards relay racks during refueling outages 29 and 30. The licensee documented the issue in the corrective action program as CR 654789.

The performance deficiency was more than minor because it was associated with the equipment performance attribute of the initiating events cornerstone and adversely affected the cornerstone objective of limiting the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, the degraded wire labels became lodged between contact 2-6 on relay LC-496A1-X(B), which set up the half-trip condition to cause a reactor trip, during the surveillance testing. Using IMC 0609, Appendix A, issued June 19, 2012, The Significance Determination Process (SDP) for Findings At-Power, the inspectors determined that this finding is of very low safety significance (Green) because although the finding caused a reactor trip, it did not cause the loss of mitigation equipment relied upon to transition the plant from the onset of the trip to a stable shutdown condition. This finding had a cross-cutting aspect of identification in the area of problem identification and resolution because the licensee failed to implement a corrective action program with a low enough threshold for identifying issues in that the licensee process did not recognize, during review of the work requests for the degraded wire labels, that this issue should have been entered into the corrective action program as a nuclear condition report. (P.1)

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

**Significance:** G May 09, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

##### **Failure to Take Adequate Corrective Action to Preclude Repetition of a Significant Condition Adverse to Quality Associated with the Steam Generator Tube Leak**

The team identified a Green NCV of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Actions," for the licensee's failure to take adequate corrective action to prevent repetition of a significant condition adverse to quality regarding steam generator tube leakage due to poor maintenance practices. Specifically, on February 27, 2014, the "C" steam generator showed indications of a primary to secondary tube leak due to foreign material that was introduced during the fall 2013 refueling outage. As immediate corrective actions, on March 7, 2014, the licensee shutdown the plant and repaired the leak. This violation was entered into the licensee's CAP as nuclear condition reports (NCRs) 683695, 683593, and 683591.

The licensee's failure to implement appropriate corrective actions to address poor worker practices to prevent recurrence of a steam generator tube leak was a performance deficiency. The finding was more than minor because it

was associated with the initiating events cornerstone equipment performance attribute and it adversely affected the cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, foreign material entered the steam generator and damaged a steam generator tube, which increased the likelihood of a steam generator tube rupture. The finding screened as Green because testing showed that the affected steam generator tube could sustain three times the differential pressure across the tube during normal full power and that the steam generator did not violate the accident leakage performance criterion. The performance deficiency does not have a cross cutting aspect because the last revision of the root cause evaluation was completed in 2011 and it is not indicative of current licensee performance.

Inspection Report# : [2014008](#) (*pdf*)

**Significance:**  Mar 31, 2014

Identified By: Self-Revealing

Item Type: FIN Finding

**Steam generator tube leak resulting from foreign material**

Green. A self-revealing Green FIN was identified for the licensee's failure to thoroughly inspect and remove foreign material from feedwater piping after initial breach of the pipe, as required by licensee procedure MNT-NGGC-0007, Foreign Material Exclusion Program. As a result, foreign material entered the "C" Steam Generator (SG) and damaged a tube which created a primary-to-secondary leak condition.

This finding was more than minor because it was associated with the Equipment Performance attribute of the Initiating Events cornerstone, and it adversely affected the cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, foreign material entered the SG and damaged a SG tube, which increased the likelihood of a SG tube rupture (SGTR) and challenged the reactor coolant system (RCS) integrity safety function during shutdown. The inspectors used IMC 0609, Significance Determination Process, Attachment 0609.04, issued June 19, 2012, Initial Characterization of Findings, and Appendix A, issued June 19, 2012, The Significance Determination Process (SDP) for Findings At-Power, and determined that the finding was of low safety significance (Green) because testing showed that the affected SG tube could sustain three times the differential pressure across the tube during normal full power and that the SG did not violate the accident leakage performance criterion. The performance deficiency had a cross-cutting aspect of Challenge the Unknown in the area of Human Performance because the licensee did not stop when faced with the unknown or evaluate and manage risk before proceeding. Specifically, the licensee should have evaluated and addressed the FME issue resulting from the pipe spring condition during the initial breach of the feedwater piping before continuing. (H.11) (Section 1R08)

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

**Significance:**  Mar 31, 2014

Identified By: Self-Revealing

Item Type: FIN Finding

**Inadequate preventive maintenance on 4 KV breaker 52/7 results in an automatic reactor trip**

Green. A self-revealing Green finding (FIN) was identified for the licensee's failure to perform adequate preventive maintenance (PM) in accordance with, licensee procedure ADM-NGGC-107, Equipment Reliability Process, for 4 KV Breaker 52/7, Unit Auxiliary to 4 KV Bus 1. As a result, while transferring loads from the start-up transformer, a broken operating rod for breaker 52/7 prevented the breaker from closing and caused an automatic reactor trip.

The finding was more than minor because it was associated with the Initiating Events cornerstone attribute of Equipment Performance, and it adversely 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 resulted in breaker 52/7 failing to close and subsequently causing an

automatic reactor trip from 19 percent power operations on November 5, 2013. Using IMC 0609, Appendix A, issued June 19, 2012, The Significance Determination Process (SDP) for Findings At-Power, the inspectors determined that this finding is 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 Resolution in the area of Problem Identification and Resolution, because the licensee failed to take effective corrective actions to address a similar failure of an operating rod for the “A” circulating water (CW) pump breaker in 2011. (P.3) (Section 1R12)

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

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## Mitigating Systems

**Significance:**  Dec 31, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

### **Failure to Protect Diesel Driven Equipment from Effects of Extreme Cold Temperatures**

The inspectors identified a Green non-cited violation (NCV) of Technical Specification (TS) 5.4.1, for failure to establish procedural guidance to protect diesel driven equipment important to safety from the effects of extreme cold temperatures. Specifically, the licensee’s cold weather procedures failed to include actions to maintain fuel oil temperatures above the diesel fuel oil cloud point for the dedicated shutdown diesel generator (DSDG) and/or the engine driven fire pump (EDFP). The licensee entered this into the corrective action program (CAP) as AR 715032 and took immediate corrective actions to revise station procedures to protect the diesel driven equipment during periods of extreme low temperatures.

The failure to establish procedural guidance to protect diesel-driven equipment important to safety from the effects of extreme cold temperatures 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, failure to maintain the fuel oil temperatures for the DSDG and/or the EDFP greater than the measured cloud point, may impact the operation of the equipment during extreme low temperature conditions, due to the associated fuel oil transfer system becoming non-functional. A detailed risk assessment was performed by a regional Senior Reactor Analyst in accordance with NRC IMC 0609 Appendices A and F. The latest NRC Robinson SPAR risk model was used to quantify the internal events risk and a calculation was performed to estimate the fire risk. The major analysis assumptions included: both the EDFP and the DSDG were simultaneously considered unavailable without recovery for a 1-day exposure interval, DSDG fire scenarios were considered for the emergency switchgear room (ESWGR), the cable spreading room, and the main control room, where fire could cause a loss of offsite power and the emergency diesel generators (EDGs), compartment total ignition frequency data from the Robinson NFPA 805 project was used and a bounding Conditional Core Damage Probability for the fire scenarios of 1.0. The dominant sequence was a fire in the ESWGR which remained unsuppressed long enough to cause a loss of offsite power and the EDGs requiring use of alternate shutdown which failed due to the performance deficiency impact on the DSDG resulting in station blackout, and core damage due to an unmitigated reactor coolant pump seal loss of cooling accident. The risk was mitigated by the low likelihood of the initiators occurring during the specific cold weather vulnerability periods. The risk due to the performance deficiency was determined to be an increase in core damage frequency of <math><1E-6</math>/year, a GREEN finding of very low safety significance. The performance deficiency had a cross cutting aspect of Evaluation in the area of Problem Identification and Resolution because the licensee failed to thoroughly evaluate the effects of cold weather on the fuel system for diesel driven equipment to ensure that resolutions address the extent of conditions commensurate with their safety significance (P.2).

Inspection Report# : [2014005](#) (pdf)

**Significance:**  Mar 31, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to adequately critique fire brigade drills**

Green. A Green NRC-Identified non-cited violation (NCV) of Facility Operating License DPR-23, Condition 3.E, Fire Protection Program, was identified for the licensee's failure to identify, critique, and develop corrective actions for fire brigade performance weaknesses during two fire drills as required by procedure TPP-219, Fire Protection Training Program. Upon identification of these weaknesses by the inspectors, the licensee entered them into the corrective action program (CAP), performed an apparent cause evaluation, and revised procedure TPP-219 to further define the roles and responsibilities of the drill controllers as well as the standards used to critique the fire brigade.

The licensee's failure to identify, critique, and develop appropriate actions for fire brigade performance weaknesses during two fire drills as required by procedure TPP-219 was a performance deficiency. The performance deficiency was more than minor because it was associated with the protection against external factors attribute of the Mitigating Systems cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using IMC 0609, Appendix A, issued June 19, 2012, The Significance Determination Process (SDP) for Findings At-Power, Exhibit 2, "Mitigating Systems Screening Questions," the finding was determined to be of very low safety Significance (Green) in accordance with question D.1 because although the finding involved fire brigade training requirements, the fire brigade demonstrated the ability to meet the required times for fire extinguishment for the fire drill scenarios and the finding did not significantly affect the fire brigade's ability to respond to a fire. The performance deficiency had a cross-cutting aspect of Consistent Process in the area of Human Performance, because the licensee failed to use a consistent, systematic approach during conduct of fire brigade drills and during the subsequent critique process. (H.13) (Section 1R05)

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

**Significance:**  Mar 31, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to provide adequate design control measures for diesel fuel oil cloud point**

Green. The inspectors identified a Green NCV of 10 CFR Part 50, Appendix B, Criterion III, Design Control, because the licensee failed to provide adequate design control measures to ensure appropriate specifications were translated into procedures for diesel fuel oil (DFO) to ensure that the DFO temperatures remained above the DFO cloud point. The licensee entered this into the CAP as action request (AR) 664223 and took immediate corrective actions to change the cloud point acceptance criteria from 23 degrees to 10 degrees Fahrenheit and revise procedure OP-925, Cold Weather, to install temporary heaters if outside temperatures fell below 15 degrees Fahrenheit.

The licensee's failure to provide design control measures to ensure that the DFO temperature was maintained such that the cloud point was not reached was a performance deficiency. This finding is more than minor because it is associated with the protection against external factors attribute of the Mitigating Systems cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). Specifically, during periods of cold weather the DFO temperature could have been allowed to fall below its cloud point and affect operation of the emergency diesel generator (EDG) and/or the dedicated shutdown diesel generator operation due to the DFO transfer system becoming inoperable. The inspectors evaluated the significance of this finding using IMC 0609 Appendix A, dated June 19, 2012, The Significance Determination Process (SDP) for Findings at Power, Exhibit 2, Mitigating Systems

Screening Questions. The inspectors determined that this finding was of very low safety significance (Green) because the finding is a deficiency affecting the design or qualification of a mitigating SSC; however, the SSC maintained its operability or functionality since the design conditions were not actually reached. The performance deficiency had a cross-cutting aspect of Design Margins in the area of Human Performance because the licensee failed to recognize that additional actions were required to maintain operability of the DFO system when ambient temperatures are below the maximum administrative limit even though samples are reviewed monthly per the DFO Testing Program. (H.6) (Section 1R15)

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

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## **Barrier Integrity**

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## **Emergency Preparedness**

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## **Occupational Radiation Safety**

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## **Public Radiation Safety**

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## **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.

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## **Miscellaneous**

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