

Robinson 2

4Q/2013 Plant Inspection Findings

Initiating Events

Significance: G Dec 31, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Preparation for Cold Weather Conditions

The inspectors identified a Green non-cited violation (NCV) of Technical Specification 5.4.1 for the licensee's failure to implement freeze protection requirements specified in station procedures. Specifically the inspectors found that the required temporary enclosures were not installed and work orders for freeze protection circuits were not repaired prior to November 1, 2013, in accordance with procedure OP-925, Cold Weather Operation. The licensee initiated CR 645333 and took immediate corrective actions to install the necessary enclosures and to verify the proper operation of freeze protection circuits for safety related and fire protection equipment.

The licensee's failure to implement freeze protection requirements as required by procedure OP-925 was a performance deficiency. The performance deficiency was determined to be more than minor because it was associated with the protection against external factors attribute of the initiating events cornerstone 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 implement the requirements of procedure OP-925 could limit the sites ability to detect, respond to, or mitigate the consequences of an accident. The finding was determined to be of very low safety significance (i.e. Green) because the finding did not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions will not be available. More specifically, the site had not experienced freezing weather conditions of sufficient magnitude to challenge plant systems during this time period. The finding involved the cross-cutting area of Human Performance under the Work Control component in that the licensee failed to appropriately plan work activities by incorporating risk insights to ensure the activities required to prepare the plant for cold weather conditions were completed prior to the onset of cold weather. [H.3(a)]

Inspection Report# : [2013005](#) (*pdf*)

Mitigating Systems

Significance: G Dec 31, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Transient Materials Not Removed from Containment Prior to Reactor Startup

The inspectors identified a Green non-cited violation of Technical Specification (TS) 5.4.1 for the failure to properly implement procedure PLP-006, Containment Vessel Inspection Closeout, prior to startup following RFO 28. The improper closeout resulted in various tools as well as bags of consumable items and debris left in containment that could impact the containment sump strainer following an accident. The licensee initiated CR 640903, removed the items identified by the inspectors, and re-performed procedure PLP-006, Containment Vessel Inspection/Closeout, to

further identify materials that should have been previously removed.

The failure to remove debris and various temporary materials as required by procedure PLP-006 was a performance deficiency. The performance deficiency was determined to be more than minor because it was associated with the equipment performance attribute of the Mitigating Systems Cornerstone and adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the reliability and availability of ECCS equipment would be degraded by the introduction of material in to the containment that would impact and reduce the available area on the recirculation sump strainer. The inspectors determined that this finding is of very low safety significance (Green) because the finding did not represent an actual loss of function of one or more non-Tech Spec Trains of equipment designated as high safety-significant in accordance with the licensee's maintenance rule program for greater than 24 hours. This finding had a cross-cutting aspect in the Work Practices component of the Human Performance area, because the licensee failed to ensure that supervisor and management oversight of procedure PLP-006 ensured that debris was removed as required during containment closeout prior to reactor startup. [H.4(c)]

Inspection Report# : [2013005](#) (*pdf*)

Significance:  Sep 30, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Lack of preventive maintenance results in "B" EDG recirculation damper failure

The inspectors identified a Green non-cited violation (NCV) of 10 CFR 50.65(a)(2) for the licensee's failure to demonstrate that the performance of the "B" Emergency Diesel Generator (EDG) ventilation recirculation damper was effectively controlled through appropriate preventive maintenance (PM) or monitored as specified in 10 CFR 50.65(a)(1), such that the ventilation system remained capable of performing its intended function. The lack of PM on the "B" EDG recirculation damper led to its failure and resulted in the "B" EDG being declared inoperable on May 1, 2013. Following the discovery of this issue, operations declared the "B" EDG inoperable and took immediate corrective actions to close the damper. This issue was entered in the licensee's corrective action program as NCR 60433.

The performance deficiency was determined to be more than minor because it was associated with the equipment performance attribute of the Mitigating Systems Cornerstone and adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the failure to perform appropriate preventive maintenance on the "B" EDG ventilation recirculation damper resulted in its failure and on May 1, 2013, the "B" EDG was declared inoperable. Failure of the "B" EDG ventilation recirculation damper could allow the EDG room design limit temperature of 130F to be exceeded. Using IMC 0609, Appendix A, issued June 19, 2012, The SDP for Findings At-Power, the inspectors determined that this finding is of very low safety significance (Green) because the finding did not represent an actual loss of function of one or more non-Tech Spec Trains of equipment designated as high safety-significant in accordance with the licensee's maintenance rule program for greater than 24 hours. This finding had a cross-cutting aspect in the Operating Experience component of the Problem Identification and Resolution area, because the licensee failed to incorporate lessons learned from a similar event, which occurred in 2012 at the Clinton Power Station, into the preventive maintenance program. [P.2(b)] (1R12)

Inspection Report# : [2013004](#) (*pdf*)

Significance:  Jun 30, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Scope in all CVCS Instruments used in EOPs in the Maintenance Rule Program

The inspectors identified a Green NCV of 10 CFR 50.65(b)(2), "Requirements for Monitoring the Effectiveness of

Maintenance at Nuclear Power Plants," because the licensee failed to scope in all the Chemical Volume and Control (CVCS) instruments used in plant Emergency Operating Procedures (EOPs). Specifically, the CVCS instrument loops for FI-110, Boric Acid Bypass Flow, FI-122A, Charging Flow and LI-115, volume control tank (VCT) Level, were not included in the maintenance monitoring program. Subsequent review by the licensee identified one additional functional failure that was previously unrecognized. The licensee entered the issue into their corrective action program (CAP) as Nuclear Condition Report (NCR) 574956. The licensee corrective actions included adding the associated instruments loops to the maintenance rule program and revising the performance monitoring criteria.

The inspectors determined that the failure to scope in all the CVCS instruments, used in EOPS, into the maintenance rule program was a performance deficiency. The finding was more than minor because if left uncorrected, the performance deficiency would have had the potential to lead to a more significant safety concern. Specifically, the failure to scope in all CVCS instruments into the maintenance rule program could affect the maintenance rule program's ability to effectively monitor the performance of CVCS equipment and the accomplishment of EOPs. This finding was considered to have very low safety significance (Green) because the finding did not cause a loss of mitigation equipment functions and did not represent an actual loss of function of one or more non-Tech Spec Trains of equipment designated as high safety-significant in accordance with the licensee's maintenance rule program for greater than 24 hours. The finding does not have a cross-cutting aspect since the failure to scope this equipment into the maintenance rule program was not recognized during the initial maintenance rule scoping activities and as a result, is not indicative of current performance.

Inspection Report# : [2013003](#) (*pdf*)

Significance: **W** Jun 25, 2013

Identified By: NRC

Item Type: VIO Violation

Failure to Perform Adequate Preventative Maintenance on the DSDG In accordance with Vendor Guidelines

10 CFR 50.63 (c)(2) states, in part, that the alternate AC power source, as defined in section 50.2, will constitute acceptable capability to withstand station blackout provided an analysis is performed which demonstrates that the plant has this capability from onset of the station blackout until the alternate AC source(s) and required shutdown equipment are started and lined up to operate. Robinson Nuclear Plant Station Blackout Coping Analysis Report 8S19-P-101, identifies the Dedicated Shutdown Diesel Generator (DSDG) as its alternate AC power source and specifies that Robinson is required to cope for eight hours following a station blackout and that alternate AC power must be supplied within one hour to shut down equipment by the DSDG. Additionally, the DSDG is required to provide emergency power during selected Fire Safe Shutdown (SSD) scenarios.

Contrary to the above, from August 28, to October 3, 2012, the licensee's failure to have an alternate AC power source with acceptable capability to withstand station blackout for the required durations specified in its coping analysis. Specifically, during surveillance testing of the DSDG on October 2, 2012, the DSDG automatically shut down on high engine temperature due to a failure of the radiator drive belts. The condition of the drive belts was significantly degraded, due in part to a lack of adequate inspection, maintenance, and/or periodic replacement. Based on the failure of the DSDG and necessary repair time, this degraded condition would have prohibited the DSDG from supplying power to shutdown equipment within one hour following a station blackout and could have rendered the plant unable to cope for eight hours after a postulated station blackout or to provide emergency power for certain selected Fire SSD scenarios.

This violation is associated with a White SDP finding.

Inspection Report# : [2013008](#) (*pdf*)

Inspection Report# : [2013009](#) (*pdf*)

Inspection Report# : [2013010](#) (*pdf*)

Significance: **G** May 17, 2013

Identified By: NRC

Item Type: FIN Finding

Failure to Evaluate SBO Coping Equipment for Environmental Conditions

The team identified a Green finding for the licensee's failure to follow NRC Regulatory Guide 1.155, "Station Blackout," guidance (to which they are committed in the Updated Final Safety Analysis Report) for evaluating equipment needed to cope with a station blackout for the required duration for associated environmental conditions. This was a performance deficiency. The licensee entered the issue into their corrective action program as Nuclear Condition Report 600522, and established a calculation that determined the maximum expected temperature inside the compartment housing the dedicated shutdown diesel generator (DSDG) and evaluated the equipment to determine its capability to perform its function for the station blackout coping duration.

The performance deficiency was more than minor because it affected the Mitigating Systems cornerstone attribute of Equipment Performance and adversely affected the cornerstone objective of ensuring reliability, availability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the capability and reliability of the equipment located in the DSDG compartment was not ensured since a comparison of equipment temperature ratings and expected DSDG compartment temperatures was not performed. The finding was determined to be of very low safety significance (Green) because the finding was a deficiency affecting the design or qualification of a mitigating structure, system, or component, and the structure, system, or component maintained its functionality. No cross-cutting aspect was assigned to this finding because the team determined that the cause of the finding was not indicative of current licensee performance due to the age of the installation of the DSDG.

Inspection Report# : [2013007](#) (pdf)

Significance: G May 17, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Have Adequate Analyses Supporting the Degraded Voltage Relay Setpoints

The team identified a Green non-cited violation of 10 CFR 50, Appendix B, Criterion III, "Design Control," for the licensee's failure to have adequate analyses that supported safety-related load operation during a design basis accident while supplied by offsite power. This was a performance deficiency.

The licensee entered the issue into the corrective action program as Nuclear Condition Reports 601201 and 605969, and performed an evaluation that determined the capability of starting the safety-related motors at degraded voltage conditions, as well as the capability of the electrical loads during the degraded grid voltage relay (DGVR) time delay to ensure equipment function was preserved.

The performance deficiency was more than minor because it affected the Mitigating Systems cornerstone attribute of Equipment Performance and adversely affected the cornerstone objective of ensuring reliability, availability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the licensee did not ensure the capability of safety-related loads to respond to a design basis accident under degraded voltage conditions. Evaluations of the effects of starting motors at the DGVR voltage dropout setpoint and the equipment survivability during the DGVR time delay were not performed. The team determined the finding required a detailed risk analysis, because the finding was a deficiency affecting the design or qualification of a mitigating structure, system, or component, and the team assumed the performance deficiency represented a loss of operability or functionality of the equipment that could be lost during the DGVR time delay. This assumption was made to bound the risk of the finding, because the licensee was still investigating whether or not there would be a loss of function of any equipment during the DGVR time delay period as of the date of this inspection report issuance. The team assumed a recoverable loss of function of all 480V motor control centers and assumed a degraded voltage condition exposure time of one hour per year. The one hour per year assumption is conservative relative to actual plant data which indicated a degraded voltage condition exposure of 44 seconds over the past 3 operating years. The results of the detailed risk analysis indicated an increase in core damage frequency $<1E-6$ /year, which is representative of a finding of very low safety significance (Green). No cross-cutting aspect was assigned to this finding because the team determined that the cause of the finding was not indicative of current licensee performance due to the age of the

degraded voltage evaluation.

Inspection Report# : [2013007](#) (pdf)

Significance: G May 17, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Have Adequate Analyses For the E1 Bus Fast Transfer

The team identified a Green non-cited violation of 10 CFR 50, Appendix B, Criterion III, “Design Control,” for the licensee’s failure to verify the adequacy of the plant design during fast bus transfers. Specifically, the licensee failed to have an adequate analysis that ensured a successful fast bus transfer of the safety-related E1 bus feeder from the Unit Auxiliary Transformer to the Startup Transformer when required. This was a performance deficiency. The licensee entered the issue into the corrective action program as Nuclear Condition Reports 603357 and 605562, and performed an additional fast bus transfer evaluation of the E1 feeder breaker to ensure that the breaker would not trip under fast bus transfer conditions.

The performance deficiency was more than minor because it affected the Mitigating Systems cornerstone attribute of Design Control and adversely affected the cornerstone objective of ensuring reliability, availability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the licensee did not ensure the capability of safety-related loads on the E1 bus because the licensee did not verify the E1 feeder breaker would not trip during a fast bus transfer. The finding was determined to be of very low safety significance (Green) because the finding was a deficiency affecting the design or qualification of a mitigating structure, system, or component (SSC), and the SSC maintained its operability and functionality. No cross-cutting aspect was assigned to this finding because the team determined that the cause of the finding was not indicative of current licensee performance due to the age of the fast bus transfer evaluation.

Inspection Report# : [2013007](#) (pdf)

Significance: G May 17, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Have Appropriate Procedure to Verify Degraded Voltage Relay Circuit Status

The team identified a Green non-cited violation of 10 CFR 50, Appendix B, Criterion V, “Instructions, Procedures, and Drawings,” for the licensee’s failure to prescribe an adequate procedure that verified DGVR circuit operability following degraded voltage disable switch operation for reactor coolant pump (RCP) starts. This was a performance deficiency. The licensee entered the issue into the corrective action program as Nuclear Condition Report 602516, developed a test procedure, and verified the DGVR operability on both emergency buses.

The performance deficiency was more than minor because if left uncorrected, it could become a more significant safety concern. Specifically, by not properly testing the DGVR circuit to ensure continuity following switch manipulation for RCP starts, the circuit could unknowingly become inoperable and non-functional for an entire operating cycle. The finding was determined to be of very low safety significance (Green) because the finding was not a design or qualification deficiency, did not represent a loss of system function, did not represent an actual loss of function of at least a single train for greater than its technical specification (TS) allowed outage time or two separate safety systems out-of-service for greater than its TS allowed outage time, and did not represent an actual loss of function of one or more non-TS trains. No cross-cutting aspect was assigned to this finding because the team determined that the cause of the finding was not indicative of current licensee performance due to the age of the modification that added the degraded voltage disable switches.

Inspection Report# : [2013007](#) (pdf)

Barrier Integrity

Significance:  May 17, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Account for Containment Temperature Measurement Uncertainty

The team identified a Green non-cited violation of 10 CFR 50, Appendix B, Criterion III, “Design Control,” for the licensee’s failure to account for instrument uncertainty on the containment bulk temperature instrumentation which was used to verify technical specification (TS) containment operability. This was a performance deficiency. The licensee entered this issue into their corrective action program as Nuclear Condition Report 603294 and performed an evaluation of the temperature instrumentation uncertainty. In addition, the licensee issued Standing Instruction 13-001 which specified the indicated containment temperature for entry into TS Limiting Condition for Operation 3.6.5 was to be 118 degrees Fahrenheit, a value that compensated for the temperature measurement uncertainty.

The performance deficiency was more than minor because if left uncorrected, it would have the potential to lead to a more significant safety concern. Specifically, if the licensee did not account for the temperature measurement accuracy, containment temperature could unknowingly exceed the TS operability limit, and the licensee may not declare containment inoperable. The finding was determined to be of very low safety significance (Green) because the finding did not represent an actual open pathway in the physical integrity of reactor containment, containment isolation system, or heat removal components and did not involve a reduction in function of hydrogen igniters in the reactor containment. The cause of the finding was indicative of current licensee performance because the licensee failed to consider instrument uncertainty when they performed a containment re-analysis in 2013. The cause of the finding was directly related to the maintaining long term plant safety by maintenance of design margins cross-cutting aspect of the resources component in the area of human performance because when the containment re-analysis was performed, the licensee reduced margin between the analyzed value for containment starting temperature and the TS limit, making the instrument uncertainty of the temperature instruments more significant. [H.2(a)]

Inspection Report# : [2013007](#) (*pdf*)

Emergency Preparedness

Occupational Radiation Safety

Significance:  Dec 31, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Unauthorized Entry Into a HRA

A self-revealing, Green, non-cited violation (NCV) of TS 5.7.1, “High Radiation Area,” was identified for an unauthorized entry into a High Radiation Area (HRA). Specifically, two workers entered the residual heat removal pump room without knowledge of current radiological conditions and without wearing the prescribed electronic dosimetry for the area. The licensee entered this issue into the Corrective Action Program as Nuclear Condition Report 524523 and took immediate corrective actions including restriction of the workers from access to the Radiologically Controlled Area.

This finding was determined to be greater than minor because it was associated with the Occupational Radiation Safety Cornerstone attribute of Human Performance and adversely affected the cornerstone objective of ensuring adequate protection of worker health and safety from exposure to radiation from radioactive material during routine civilian nuclear reactor operation. The finding was evaluated using the Occupational Radiation Safety Significance Determination Process. The finding was not related to As Low As Reasonably Achievable planning, nor did it involve an overexposure or substantial potential for overexposure, and the ability to assess dose was not compromised. Therefore, the inspectors determined the finding to be of very low safety significance (Green). This finding involved the cross-cutting aspect of Human Performance, Work Practices because the HRA event was a direct result of inadequate pre-job briefings and a lack of self and peer checking on the part of the work crew. [H.4.a]

Inspection Report# : [2013005](#) (*pdf*)

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

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