

Robinson 2

3Q/2013 Plant Inspection Findings

Initiating Events

Mitigating Systems

Significance: **G** 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, 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 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 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 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 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*)

Significance:  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:  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:  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:  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)

Significance:  Dec 31, 2012

Identified By: NRC

Item Type: FIN Finding

Failure to Effectively Implement Gas Intrusion Program (GL 2008-01)

Green. The inspectors identified a Finding for the licensee’s failure to perform the 18-month pre-refueling outage (RO) ultrasonic testing (UT) examinations on 47 potential gas accumulation locations required by plant operating manual PLP-085, “Emergency Core Cooling Systems Gas Management Program (GL 2008-01).” Compliance with PLP-085 ensures the capability of the safety injection (SI), residual heat removal (RHR), and containment spray (CS) systems to perform their safety-related functions, and effectively implements the licensee’s gas management program as committed to the NRC in response to Generic Letter 2008-01. The licensee entered the issue into the corrective action program (CAP) as nuclear condition report (NCR) 575063, and is evaluating corrective actions.

The failure to perform pre-RO UT examinations on 47 potential gas accumulation locations, as required by PLP-085 was a performance deficiency. The performance deficiency was more than minor because if left uncorrected, it had the potential to lead to a more significant safety concern. Specifically, if the licensee continued to miss pre-RO UT examinations, conditions that result in the formation of voids in the SI, RHR, and CS systems could go undetected with the potential to adversely affect the systems’ capability to perform their functions. The inspectors assessed the finding using IMC 0609 Attachment 4, “Initial Characterization of Findings;” and IMC 0609 Appendix A, “The Significance Determination Process for Findings At-Power;” and determined the finding was of very low safety significance (Green) because it was not a design deficiency, it did not represent the loss of a system safety function, did not result in exceeding a Technical Specification allowed outage time, and did not screen as potentially risk-significant due to a seismic, flooding, or severe weather initiating event. The inspectors identified a cross-cutting aspect in the work practices component of the human performance area, because the licensee did not define and effectively communicate expectations regarding procedural compliance and personnel following procedures. Specifically, on two occasions, the licensee did not perform pre-RO UTs in accordance with their gas management program, as described in PLP-085. [H.4(b)] (Section 40A5.5)

Inspection Report# : [2012005](#) (pdf)

Significance:  Nov 30, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Maintain Fire Load Limits in Fire Area A

Green. The inspectors identified a Green Non-Cited Violation (NCV) of Robinson's License Condition 3. E, "Fire Protection Program", for increasing the amounts of in-situ combustibles in several fire zones within fire area "A" above required limits in NRC approved licensing exemptions. The licensee has entered the finding into the corrective action program as Nuclear Condition Report (NCR) 567284 and established continuous fire watches as well as restricted transient combustibles permits for the fire areas of concern.

The failure to properly evaluate increases in the quantities of in-situ combustibles above those stated as upper limits for anticipated fire severity and duration in HBR2 exemption requests and an associated SER was a performance deficiency. This performance deficiency was determined to be more than minor because the finding was associated with the protection against external events (i.e. fire) attribute of the mitigating systems cornerstone objective of ensuring the availability, reliability and capability of systems that respond to external events that prevent undesirable consequences. In seven fire zones upper limits for fire severity were exceeded. Using the guidance contained in the IMC 0609 Appendix F, the inspectors concluded that a Phase 3 analysis was necessary because the noncompliance involved fires leading to main control room abandonment. The Phase 3 analysis concluded that this item would be associated with a finding of very low safety significance (Green) because the fire detection systems, fire brigade, fire barriers, and the Dedicated Shutdown Systems were not affected by increase in fire loading in the affected fire areas. The inspectors identified a cross cutting aspect in the decision making component of the human performance area because the licensee did not use conservative assumptions in decision making to demonstrate the proposed action did not affect the validity of the technical basis for granted exemptions. [H.1(b)]
Inspection Report# : [2012008](#) (pdf)

Significance: G Nov 30, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Identify and Correct Deficiencies in the Emergency Lighting System Preventive Maintenance Program

Green. The inspectors identified a Green NCV of 10 CFR Part 50.65, Maintenance Rule, for the licensee's failure to identify and correct deficiencies in the emergency lighting system (ELS) preventive maintenance program. The licensee entered the issues into their corrective action program as NCRs 567517 and 567632. The deficiency will be mitigated by the operator's use of flashlights until the deficiencies are corrected.

The licensee's failure to identify and correct deficiencies in the ELS preventive maintenance program was a performance deficiency. The performance deficiency was more than minor because it was associated with the protection against external events (fire) attribute of the Mitigating Systems Cornerstone and it 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 high failure rate of battery load test resulted in a lack of reasonable assurance that the ELS would perform its design function of providing illumination for 8 hours during fire events. Utilizing IMC 0609, Appendix F, "Fire Protection Significance Determination

Process," the team assigned the performance deficiency to the Post-fire Safe Shutdown category since it affected systems or functions relied upon for post-fire safe shutdown. The finding was then assigned a low degradation rating since the finding minimally impacted the performance and reliability of the fire protection program element. Specifically, the team noted that operators were required to obtain and carry flashlights. Therefore, the finding screened as having very low safety significance (Green). The team identified a cross-cutting aspect in the corrective action program component of the problem identification and resolution area. [P.1(b)]
Inspection Report# : [2012008](#) (*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

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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