

Farley 2

4Q/2014 Plant Inspection Findings

Initiating Events

Significance: G Mar 31, 2014

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to properly conduct cold weather contingency procedures

A self-revealing non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was identified for the licensee's failure to implement cold weather preparation procedures prior to the onset of anticipated below-freezing temperatures. Specifically, the licensee did not identify and correct missing insulation for the sensing lines associated with the Unit 2 steam line pressure transmitters (PTs) 494, 495, and 496 as required by station procedure FNP-2-EMP-1383.01, "Freeze Protection Inspections." As a result, the PT-496 output signal failed low during below-freezing temperatures on January 7, 2014. The licensee entered this issue into their corrective action program as condition report (CR) 754183, restored operability of PT-496, and installed a tarp and heat lamps as compensatory measures for the missing insulation.

The failure to identify and correct missing insulation associated with PTs 494, 495, and 496, as required by FNP-2-EMP-1383.01 prior to the onset of cold weather, was a performance deficiency. The performance deficiency was more than minor because it could reasonably be viewed as a precursor to a significant event. Specifically, the failure to protect the sensing lines of these pressure transmitters from below-freezing temperatures resulted in a low output signal of pressure transmitter PT-496 as evidenced on January 7, 2014 and could have resulted in an unnecessary safety injection and reactor trip of Unit 2. The significance of this finding was screened under the initiating events cornerstone using IMC 0609 Attachment 4, "Initial Characterization of Findings," issued June 19, 2012 and IMC 0609 Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," issued June 19, 2012. The finding screened as Green (i.e. very low safety significance) because it did not cause a reactor trip. The inspectors determined the finding had a cross-cutting aspect of "procedure adherence" in the human performance area because plant staff failed to comply with written procedures and identify equipment deficiencies prior to the onset of cold weather. [H.8] (Section 1R01)

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

Mitigating Systems

Significance: G Sep 30, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Acceptance Criteria for Steam Generator Steam Flow Channel Checks

Green. A NRC-identified non-cited violation (NCV) of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures and Drawings," was identified for the licensee's failure to include appropriate quantitative acceptance criteria for determining that important activities have been satisfactorily accomplished. Specifically, licensee procedures FNP-1-STP-1.0 and FNP-2-STP-1.0, "Operations Daily and Shift Surveillance Requirements," did not contain adequate acceptance criteria for steam generator (SG) steam flow channel checks. As a corrective action the

licensee removed the inadequate quantitative acceptance criteria from both procedures FNP-1-STP-1.0 and FNP-2-STP-1.0. The licensee entered this issue in their corrective action program as condition reports (CRs) 814962, 838289 and 840501.

The failure to provide adequate acceptance criteria for the steam flow instruments channel check surveillance was a performance deficiency. The performance deficiency was more than minor because it was associated with the procedure quality 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. Specifically, the acceptance criteria allowed by Figure 1 of licensee procedure FNP-1-STP-1.0 and FNP-2-STP-1.0 for the SG steam flow channel check impacted the licensee's determination of operability of the Unit 2 "B" SG steam flow instrument channels during low power operations in Mode 1 between May 17 and 18. This finding was evaluated using IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," issued June 19, 2012. This finding screened to Green using Exhibit 2 – "Mitigating Systems Screening Questions," because it did not represent an actual loss of function of a single train for greater than its TS allowed outage time. Redundant instruments were available to actuate the main steam isolation function at the required setpoint. The inspectors determined the finding had a cross-cutting aspect of "conservative bias" in the human performance area, because the procedures that allowed the larger tolerance associated with the steam flow channel checks at low power levels were not questioned, but used by the operators to rationalize a satisfactory channel check. [H.14]

Inspection Report# : [2014004](#) (pdf)

Significance:  Jun 06, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Operability Evaluation of the CCW Miscellaneous User Isolation Valves

Green. The team identified a Green non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the licensee's failure to perform an adequate operability evaluation following the discovery that the component cooling water miscellaneous user isolation valves would not isolate the safety-related piping from the non-safety related portion. The licensee entered the issue into their corrective action program as condition report 823056. In 2013, the valve actuators were modified from air to open and close, to a spring to close design so this is not a current operability issue.

The team determined that the failure to perform an adequate operability evaluation as required by NMP-AD-012, "Operability Determinations and Functionality Assessments," was a performance deficiency. The performance deficiency was determined to be more than minor because it was associated with the Mitigating Systems cornerstone attribute of Equipment Performance 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 inspectors had reasonable doubt on the past operability of component cooling water because the operability evaluation relied on assumptions that were not correct, regarding the ability to establish make-up water to the on-service component cooling water train. The team performed a significance screening of this finding using the guidance provided in IMC 0609, "Significance Determination Process," attachment 0609.04, "Initial Characterization of Findings." The team determined the finding required a detailed risk evaluation in accordance with Exhibit 2, "Mitigating Systems Screening Questions," and Exhibit 4, "External Event Screening Questions." A risk analysis was completed by a regional senior reactor analyst in accordance with the guidance of NRC IMC 0609 Appendix A. A bounding analysis was performed using Farley site specific seismic data and a conditional core damage probability determined using the NRC Farley SPAR PRA model. In addition, NUREG/CR6544 and NUREG/CR4550 show SSC fragility data for generic component types. From Table 1 Generic Seismic Fragilities the data shows that offsite power would be affected at 0.3G, electrical equipment and large flat bottomed storage tanks at approx. 1G, heat exchangers at 1.9 G with motor driven pumps at 2.0 G and piping at 3.8G. The major analysis

assumptions included: a one year exposure period, no credit for the reactor coolant pump (RCP) shutdown seals, the performance deficiency was assumed to result in lowering surge tank level and subsequent common cause failure of all three CCW pumps with no recovery, and the miscellaneous headerpiping and components were assumed to fail from a seismic event of magnitude 0.3 –

0.5 G. The dominant sequence was a loss of RCP seal cooling resulting in an RCP seal LOCA caused by loss of CCW. The risk was mitigated by the low frequency of the seismic initiating event. The analysis determined that the risk increase due to the performance deficiency was an increase in core damage frequency of $< 1E-6$ /year, a GREEN finding of very low safety significance. The team did not identify a cross-cutting aspect associated with this finding because this performance deficiency was not indicative of present licensee performance. (Section 1R21.2b.1)
Inspection Report# : [2014007](#) (pdf)

Significance: G Jun 06, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Comply with IEEE 308-1971 for the Required Independence of 120 Volt Vital AC Distribution System Channels

Green. The team identified a Green non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, “Design Control,” for the licensee’s failure to demonstrate compliance with IEEE 308-1971 for the required independence of 120V vital AC distribution system channels. The licensee entered the issue into their corrective action program as condition report 820528 and performed an immediate determination of operability and determined that the inverters were operable but non-conforming.

The team determined that the failure to conform to the independence requirements of IEEE 308-1971, to which the licensee was committed, was a performance deficiency. The performance deficiency was determined to be more than minor because it was associated with the Mitigating Systems cornerstone attribute of Equipment Performance and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the finding resulted in a condition where there was a reasonable doubt of the operability of the 120V vital AC distribution system channels. In addition, the performance deficiency is similar to example 3j of IMC 0612, Appendix E, “Examples of Minor Issues.” The team determined that the finding was of very low safety significance (Green) because it was not a design deficiency resulting in the loss of functionality or operability. The team did not identify a cross-cutting aspect associated with this finding because this performance deficiency is not indicative of present licensee performance.

Inspection Report# : [2014007](#) (pdf)

Significance: G Jun 06, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Correct Lack of Validated Time Critical Operator Actions Analyses

Green. The team identified a Green non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, “Corrective Action,” for the licensee’s failure to promptly correct a lack of documented verification and validation for time critical operator actions which are inputs into design basis plant safety analyses. The licensee entered the issue into their corrective action program as condition report 823401. Initial time validations of the more limiting time critical operator actions have been completed and the remaining Updated Final Safety Analysis Report (UFSAR) described time critical operator actions have been

identified and scheduled for validation.

The team determined the licensee's failure to promptly correct a lack of documented verification and validation for time critical operator actions, which are inputs into design basis plant safety analysis was a performance deficiency. The performance deficiency was determined to be more than minor because it was associated with the Mitigating Systems cornerstone attribute of Design Control and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the programmatic failure to ensure design basis operator actions could be accomplished within required time limits could impact the availability and capability of systems that respond to initiating events and result in unanalyzed plant conditions. The team determined that the finding was of very low safety significance (Green) because it was not a design deficiency resulting in the loss of functionality or operability. The team determined this finding was associated with the cross-cutting aspect of Evaluation in the area of Problem Identification and Resolution because following the identification of this deficiency in 2012, the licensee did not adequately evaluate the current operability for mitigating SSCs reliant upon these time critical operator actions described in the UFSAR. [P.2] Inspection Report# : [2014007](#) (pdf)

Significance: G Jun 06, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

Acceptance Criterion for UHS Temperature Did Not Consider Instrument Uncertainty

Green. The team identified a Green non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the licensee's failure to include an appropriate acceptance criterion for ultimate heat sink (UHS) temperature in surveillance procedures. Specifically, the acceptance criterion did not account for instrument uncertainty. The licensee entered the issue into their corrective action program as condition report 810638. As an immediate corrective action, the licensee established an action tracking item for control room operators to declare UHS inoperable if indicated temperature exceeded 90 degrees Fahrenheit. In addition, the licensee performed a historic review and did not find an example where the technical specifications (TS) temperature limit of 95 degrees Fahrenheit was exceeded.

The team determined the failure to include appropriate acceptance criterion for UHS temperature in surveillance procedures was a performance deficiency. The performance deficiency was determined to be more than minor because it was associated with the Mitigating Systems cornerstone attribute of Equipment Performance and adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of the UHS system to respond to initiating events to prevent undesirable consequences. Specifically, the failure to account for UHS temperature instrument uncertainty was significant enough to require revision of the associated surveillance procedures to ensure the validity of heat exchanger performance calculations and compliance with TS limits. The team determined the finding was of very low safety significance (Green) because it was not a design deficiency resulting in the loss of functionality or operability. The team did not identify a cross-cutting aspect associated with this finding because it is not indicative of present licensee performance.

Inspection Report# : [2014007](#) (pdf)

Significance:  Jun 06, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Acceptance Criterion for Testing of Check Valves

Green. The team identified a Green non-cited violation of 10 CFR 50.55a(f), "Inservice testing requirements," subsection (4), American Society of Mechanical Engineers Operation and Maintenance of Nuclear Power Plants code, Subsection ISTC-5221, "Check Valves," with two examples for the licensee's failure to incorporate adequate acceptance criteria for testing safety-related check valves into the procedures. The licensee entered both examples into their corrective action program as condition reports 816150 and 816303. A review of past pump data and testing indicated the check valves caused no degradation to the high-head safety injection system.

The team determined the failure to establish acceptance criteria that demonstrates closure of safety-related check valves was a performance deficiency. The performance deficiency was determined to be more than minor because it was associated with the Mitigating Systems cornerstone attribute of Design Control 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, testing Unit 1 & 2 refueling water storage tank (RWST) supply to charging header check valves (Q1/2E21V026) using an acceptance criterion of boric acid tank pump discharge pressure greater than 80 psig (normally 115+ psig) with no change in boric acid tank level, may have resulted in the check valves not seating and allowed reverse flow to the RWST. In addition, using an acceptance criterion of no reverse rotation of the charging pump impeller when testing the Unit 1 & 2 charging pump mini-flow check valves (Q1/2E21V0121) and Unit 1 & 2 charging pump discharge check valves (Q1/2E21V0122) may result in the check valves not seating and challenge high head safety injection flow. The team determined that the finding was of very low safety significance (Green) because it was not a design deficiency resulting in the loss of functionality or operability. The team did not identify a cross-cutting aspect associated with this finding because it is not indicative of present licensee performance.

Inspection Report# : [2014007](#) (*pdf*)

Significance:  Jun 06, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Characterization of IST Program Valves

Green. The team identified a Green non-cited violation of 10 CFR 50.55a(f), "Inservice testing requirements," subsection (4), American Society of Mechanical Engineers Operation and Maintenance of Nuclear Power Plants code, Subsection ISTC-1300, "Valve Categories," for the licensee's failure to categorize Unit 1 & 2 charging pump suction isolation valves (LCV115 B & D), and Unit 1 & 2 refueling water storage tank (RWST) supply to charging header check valves (Q1/2E21V026) as Class "A" for which seat leakage is limited to a specific maximum amount in the closed position. Specifically, the licensee's inservice testing program did not test safety-related valves to ensure they could perform their safety function in the closed direction and meet seat leakage requirements. The licensee entered the issue into their corrective action program as condition reports 823022 and 815699. A review of past pump data indicated the valve held against system pressure and would not allow a significant reverse flow.

The team determined that failure of the licensee to properly categorize LCV115 B & D and QV026 in their inservice testing program to ensure they could perform their safety function was a performance deficiency. The performance deficiency was determined to be more than minor because it was associated with the Mitigating Systems cornerstone attribute of Design Control 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 licensee failed to properly categorize valves as Category "A" resulting in failure to leak test the valves to ensure reverse flow of containment sump water to the RWST did not result in exceeding the plant's post accident dose rate limits. The team determined the finding was of very low safety significance (Green) because it was not a design deficiency resulting in the loss of functionality or operability. The team did not identify a cross-cutting aspect associated with this finding because it is not indicative of present licensee performance.

Inspection Report# : [2014007](#) (pdf)

Significance:  Jun 06, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Ensure that the RHR System Would Be Capable to Mitigate a MODE 4 LOCA

Green. The team identified a Green non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for the licensee's failure to ensure the residual heat removal (RHR) system would be capable to respond to a MODE 4 loss of coolant accident (LOCA). Specifically, low pressure coolant injection may not be available during MODE 4, which is required for a large break LOCA. The licensee entered the issue into their corrective action program as condition report 826059. As an immediate corrective action, the licensee performed an extent of condition to identify other deficient procedures. In addition, the licensee implemented action tracking items in the control room to limit one train of decay heat removal operation while above 212 degrees Fahrenheit.

The team determined that the failure to ensure that RHR would be capable to respond to a LOCA that initiates in MODE 4 as required by TS 3.5.3., "ECCS - Shutdown," was a performance deficiency. The performance deficiency was determined to be more than minor because it was associated with the Mitigating System cornerstone attribute of Equipment Performance 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, procedures and design for the RHR system did not ensure the capability to perform its emergency core cooling system mitigating function of low pressure injection while in MODE 4 because steam void formation could occur and was not evaluated. The finding was screened in accordance with NRC Inspection Manual Chapter (IMC) 0609 Attachment 4 and was transitioned to IMC 0609 Appendix G as the finding represented a degraded condition, which could occur only during shutdown conditions. NRC IMC 0609 Appendix G Attachment 1 screening determined that the finding represented a potential loss of system safety function and required a phase 2 shutdown risk assessment. A bounding phase 2 shutdown risk assessment was performed by a regional senior reactor analyst in accordance with NRC IMC 0609 Attachment 2. The major assumptions in the analysis included an exposure interval of 5 minutes for Unit 1 only and a bounding conditional core damage probability of 1.0 given a LOCA. The risk was mitigated by the short

exposure period and the low probability of a LOCA during shutdown conditions. The result of the analysis was an increase in core damage frequency of $< 1E-6$ /year a GREEN finding of very low safety significance. The team did not identify a cross-cutting aspect associated with this finding because it is not indicative of present licensee performance.

Inspection Report# : [2014007](#) (*pdf*)

Significance:  Mar 31, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

Lack of acceptance criteria for nuclear instrument channel checks

The inspectors identified an NCV of 10 CFR 50 Appendix B, Criterion V, “Instructions, Procedures and Drawings,” was identified for the licensee’s failure to include appropriate quantitative or qualitative acceptance criteria for determining that important activities have been satisfactorily accomplished. Specifically, licensee procedures FNP-1-STP-1.0 and FNP-2-STP-1.0, “Operations Daily and Shift Surveillance Requirements,” did not include acceptance criteria for the intermediate range (IR) neutron flux channel check required by technical specifications (TS). The licensee entered this issue into their corrective action program as CR 775544 and was evaluating corrective actions.

The failure to include appropriate qualitative or quantitative acceptance criteria for the IR nuclear instruments channel check surveillance was a performance deficiency. The performance deficiency was more than minor because it adversely affected the procedure quality attribute of the mitigating systems cornerstone to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the lack of qualitative or quantitative acceptance criteria for the IR channel check impacted the determination of continued operability of the NI-36 instrument channel during the reactor startup. This finding was evaluated using IMC 0609, Appendix A, “The Significance Determination Process (SDP) for Findings At-Power,” issued June 19, 2012. This finding screened to Green because the questions listed under the Reactivity Control Systems in Exhibit 2, Mitigating Systems Screening Questions of IMC 0609, Appendix A, were answered “No”. The inspectors determined the finding had a cross-cutting aspect of “resources” in the human performance area because procedures did not have adequate acceptance criteria to perform TS required IR neutron flux channel checks. [H.1] (Section 1R15)

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

Significance:  Mar 31, 2014

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to implement fire protection program requirements

A self-revealing NCV of TS 5.4.1.c, “Fire Protection Program Implementation,” was identified for the licensee’s failure to establish and implement adequate procedures required to maintain functionality of the Unit 2 auxiliary building fire protection system (pyro panel). On January 18, 2014, the operations shift crew determined the Unit 2 pyro panel was non-functional when multiple suppression alarms came in on a main control room panel and all of the detection alarms came in on Unit 2 pyro panel. The licensee entered this issue into their corrective action program as CR 760108 and established continuous fire watches, as compensatory measures, until the Unit 2 pyro panel was returned to service on January 20, 2014.

The failure to establish and implement adequate procedures to maintain functionality of the Unit 2 auxiliary building fire protection pyro panel was a performance deficiency. The performance deficiency was more than minor because it adversely affected the protection against external factors (fire) 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 failure to establish and implement adequate procedures to maintain functionality of the Unit 2 auxiliary building fire protection pyro panel led to a degraded fire indicating unit, which resulted in a non-functional Unit 2 fire protection pyro panel and certain auxiliary building fire detection systems. The finding was evaluated using IMC 0609, Appendix F, "Fire Protection Significance Determination Process," issued September 20, 2013. According to question 1.4.2-G, the finding screened to Green because the Unit 2 auxiliary building suppression system was still able to suppress a fire such that no additional equipment important to safety would be affected by a fire. The inspectors determined the finding had a cross-cutting aspect of "change management" in the human performance area, because licensee staff failed to maintain functionality of the Unit 2 pyro panel before a design change could be implemented. [H.3] (Section 1R19)

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

Barrier Integrity

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

Significance: N/A Jun 06, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Update the UFSAR with the Safety Analysis Performed in Response to GL 2008-01

Severity Level IV. The team identified a Severity Level (SL) IV non-cited violation of

10 CFR 50.71, “Maintenance of Records, Making of Reports,” for the licensee’s failure to update the Updated Final Safety Analysis Report (UFSAR). Specifically, the UFSAR was not updated to reflect the analysis requested by the NRC in GL 2008-01, “Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems.” The licensee entered the issue into the corrective action program as condition report 823270.

The team determined the failure to update the UFSAR with the analyses performed for GL 2008-01 was a performance deficiency. Failures to update the UFSAR are dispositioned using the traditional enforcement process instead of the SDP in accordance with IMC 0612, Appendix B, Block TE2, because they potentially impede or impact the regulatory process. Specifically, failures to update the UFSAR challenges the regulatory process because it serves as a reference document used, in part, for recurring safety analyses, evaluating license amendment requests, and in preparation for and conduct of inspection activities. As a result, the team compared the performance deficiency against the examples in Section 6.1 of the NRC Enforcement Policy and determined it constituted a more than minor traditional enforcement violation because it rose to a SL-IV violation. Specifically, SL-IV violation example d.3 stated “A licensee fails to update the UFSAR as required by 10 CFR 50.71(e) but the lack of up-to-date information has not resulted in any unacceptable change to the facility or procedures.” The team determined an evaluation for cross-cutting aspect was not applicable because this was a traditional enforcement violation.

Inspection Report# : [2014007](#) (*pdf*)

Last modified : February 26, 2015