

Farley 2

2Q/2008 Plant Inspection Findings

Initiating Events

Significance:  Dec 31, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Adequately Assess Risk Resulting in Unit 2 Reactor Trip

The NRC inspectors identified a Green NCV for inadequate risk assessment which resulted in a Unit 2 reactor trip when performing switchyard relay testing. This event has been entered into the licensee's corrective action program (CAP) as Condition Report (CR) 2007109659.

The inadequate risk assessment for the Unit 1 main generation differential lockout relay testing is a performance deficiency. The inspectors determined this finding was more than minor because it was associated with the procedure quality attribute of the Initiating Events cornerstone and adversely affected cornerstone objective in that loss of power to the 2A startup transformer resulted in a reactor trip. The inspectors determined that a Phase 2 risk analysis was required because the finding contributes to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions will not be available. A regional Senior Reactor Analyst performed a Phase 3 risk analysis and concluded that the finding was of finding of very low safety significance (Green). This finding involved human performance cross-cutting aspect of complete, accurate and up-to-date design documentation, procedures, and work packages, and correct labeling of components.

Inspection Report# : [2007005](#) (*pdf*)

Mitigating Systems

Significance:  Apr 04, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

Fire Procedure Credits Unreliable Indication

The team identified a non-cited violation of Technical Specification 5.4.1, Procedures, in that Units 1 and 2 post-fire safe shutdown abnormal operating procedures AOP 28.1, Fire or Inadvertent Fire Protection System Actuation in the Cable Spreading Room, and AOP 28.2, Fire in the Control Room, credited diagnostic instrumentation that would have been potentially unreliable due to fire damage from a postulated fire in the control room or cable spreading room. The finding was entered into the licensee's corrective action program as Condition Report 2005103665.

This issue is a performance deficiency because the safe shutdown procedure relies on an indication which was not protected from fire damage. The finding is more than minor because it is associated with the procedure quality attribute of the Mitigating Systems cornerstone and it affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The inspectors assessed the finding using Inspection Manual Chapter 0609, Appendix F, "Fire Protection Significance Determination Process." The finding was assigned a low degradation rating because it was determined to be a minor procedural deficiency that is compensated by operator experience or familiarity. Because the finding was assigned a low degradation rating, the team determined that this finding was of very low safety significance (Green).

Inspection Report# : [2008006](#) (*pdf*)

Significance:  Apr 04, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

Areas Where OMAS Are Performed Did Not Have ELUs Installed

The team identified a non-cited violation of Farley Unit 2 Operating License Condition 2.C.(6), for the licensee's failure to fully implement the approved fire protection program, in that emergency lighting units (ELUs) were not installed in all areas where local operator manual actions were required to support post-fire safe shutdown. Specifically, the team determined that there were no ELUs installed to illuminate the front panels of the Reactor Coolant Pump (RCP) switchgear, located in the Train 'A' switchgear room, where post-fire safe shutdown local operator manual actions were required to trip the RCP 4160 Volt alternating current breakers. The finding was entered into the licensee's corrective action program under Condition Reports 2008103335, 336, and 337.

The finding is greater than minor because it is associated with the reactor safety Mitigating Systems cornerstone attribute of protection against external factors (i.e., fire) and it affects the cornerstone attribute of ensuring reliability and capability of systems that respond to initiating events. Specifically, the finding adversely affected the ability to perform local operator manual actions required to achieve and maintain safe shutdown conditions following a fire in the cable spreading room. The inspectors assessed the finding using IMC 0609, Appendix F, Fire Protection Significance Determination Process. The team determined that this finding was of very low safety significance (Green) because the operators had a high likelihood of completing the task using flashlights, which operators are directed to carry with them by procedure while performing local actions.

Inspection Report# : [2008006](#) (*pdf*)

Significance:  Apr 04, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

ELU Test Failures Were Not Documented In CRs As Required By Procedure

The team identified a non-cited violation of Farley Unit 2 Operating License Condition 2.C.(6), for the licensee's failure to fully implement test control requirements incorporated in approved plant procedures associated with the periodic testing of emergency lighting units. As a consequence, condition reports (CRs) were not initiated as required, when battery conductance measurements did not meet acceptance criteria. The finding was entered into the licensee's corrective action program as Condition Report 2008103290.

This issue is a performance deficiency because the licensee did not properly document ELU test failures on CRs for trending and evaluation in accordance with the surveillance test procedures. The finding involved systems or components (i.e., emergency lights) required for post-fire safe shutdown of the reactor. The finding is greater than minor because it is associated with the reactor safety Mitigating Systems cornerstone attribute of protection against external factors (i.e., fire) and it affects the cornerstone attribute of ensuring reliability and capability of systems that respond to initiating events. The team determined that this finding was of very low safety significance (Green) because the operators had a high likelihood of completing the task using flashlights, which operators are directed to carry with them by procedure while performing local actions.

Inspection Report# : [2008006](#) (*pdf*)

Significance:  Mar 30, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

Installation of a Maintenance Jumper for the 2C CCW Pump Cell Switch

The NRC identified a Green NCV of 10 CFR 50 Appendix B, Criterion III for failing to implement measures to verify design adequacy resulting in the installation of a maintenance jumper on the cell switch for the Unit 2 2C Component Cooling Water (CCW) pump. This resulted in a condition unknown to the licensee at the time of installation, allowing simultaneous start of both the 2C and 2B CCW pumps in response to a loss of offsite power (LOSP) or safety injection (SI) sequencer signal. This finding has been entered into the licensee's CAP as Condition Report (CR) 2007112315.

Failure to verify design adequacy for safety-related components is a performance deficiency. This finding is more than minor because inadequate design evaluations challenged the operability of the A train of CCW. Subsequently, the A CCW train was shown to be operable following additional engineering evaluations. The finding affects the design control attribute of the Mitigating Systems cornerstone. The cornerstone objective of ensuring the availability, reliability, and capability of systems responding to initiating events to prevent undesirable consequences was not met.

The Phase 1 screening performed by the NRC concluded the finding is of very low safety significance
Inspection Report# : [2008002 \(pdf\)](#)

Significance: **G** Dec 31, 2007

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to Maintain Two ECCS Trains Operable Due to Gas Accumulation in the Charging Pump Suction Piping

A self-revealing NCV was identified for gas binding of the 2A CCP that resulted in a failure to maintain the 'A' train of HHSI in an operable condition, in accordance with T.S. 3.5.2, ECCS. This event has been entered into the licensee's CAP as CR 2005112351.

Performing an inadequate evaluation of external plant operating experience involving gas intrusion events resulting in inoperable HHSI pumps is a performance deficiency. This finding was more than minor because it affected the equipment performance attribute of the Mitigating Systems cornerstone and adversely impacted the cornerstone objective in that gas accumulation in the 2A HHSI pump suction piping rendered ECCS systems unavailable and unreliable. A Phase 3 risk analysis determined the finding was of very low safety significance (Green). This finding involved Problem Identification and Resolution (PI&R) cross-cutting aspects associated with the attribute of the licensee implementing available operating experience through changes to plant processes, procedures, equipment and training to control pressure fluctuations in the volume control tank in order to prevent the formation of gas in HHSI pump suction piping.

Inspection Report# : [2007005 \(pdf\)](#)

Significance: **G** Aug 24, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Promptly Identify the Complete Population of Service Water Valves Affected by the System's Corrosive Environment and Correct the Condition

The inspectors identified a non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion XVI, Corrective Action, for a failure to promptly identify and correct a condition adverse to quality. In November 2004, the licensee identified that the carbon steel valves in the service water system were susceptible to corrosion which caused the valve disc to separate from the stem. The licensee did not promptly identify the complete population of valves affected by this issue. In May 2007, a service water valve failure occurred in which stem-disc separation occurred as a result of similar corrosion issues.

The finding is of more than minor significance because it affects 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, susceptibility of the valves to corrosion reduced the reliability of safety-related systems. The finding is of very low safety significance (Green) because it was not a design or qualification deficiency, and did not represent an actual loss of safety function for greater than the allowed technical specification outage time. The inspectors evaluated this finding for a cross-cutting aspect; no primary cross-cutting aspect was identified.

Inspection Report# : [2007006 \(pdf\)](#)

Significance: **W** Jul 16, 2007

Identified By: NRC

Item Type: FIN Finding

Parallel Performance Indicator White Finding

The NRC identified significant weakness regarding historical evaluations for safety-related breaker failures and the thoroughness of design modification reviews for the installation of new breakers.

In accordance with NRC Inspection Manual Chapter (MC) 0305, a [parallel] PI finding will be opened. This provides for NRC's continued review of the licensee's actions to address the weaknesses identified in this report. In accordance with MC 0305, this finding takes the color of the original PI.

Inspection Report# : [2007008 \(pdf\)](#)

Significance: G Jul 16, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Evaluation of Breaker Failures and Subsequent Corrective Actions.

The NRC identified a Green non-cited violation with two examples of 10 CFR 50, Appendix B, Criterion XVI, for failing to promptly identify and correct a condition adverse to quality. For the first example, weaknesses with the thoroughness of evaluations for safety-related service water breaker failures resulted in a failure to identify backplate bending as a primary root cause for three failures which contributed to the White PI. For the second example, the licensee failed to identify and correct MOC switch alignment problems which resulted in an inoperable breaker for the 1C EDG.

The first example is more than minor because the finding affected the equipment performance attribute of the Mitigating Systems cornerstone objective involving equipment reliability in that affected service water breakers could open when demanded to close. This finding is of very low safety significance (Green) because the failure to identify and correct backplate bending in the three failures did not result in the actual loss of safety function of a single Train for greater than its Technical Specification allowed outage time. The example was found to be associated with the thoroughness of evaluation aspect of the Problem Identification and Resolution cross-cutting area in that backplate bending was not effectively evaluated as a cause for breaker failures.

The second example is more than minor because it adversely affected the equipment performance attribute of the Mitigating Systems Cornerstone objective involving equipment reliability in that the 1C EDG sequencer was not functional for 176 days. Because there was an actual loss of safety function of a single train for greater than the TS allowed outage time, a Phase 3 evaluation was performed. This finding was determined to be of very low safety significance (Green) due to mitigation/recovery credit for the failure based on emergency procedures that clearly direct operators to manually load the 1C EDG with the required safety equipment. The example was also found to be associated with the thoroughness of evaluation aspect of the Problem Identification and Resolution cross-cutting area in that earlier MOC switch failures were not thoroughly evaluated resulting in a thorough design evaluation not being accomplished.

This violation was entered into the licensee's corrective action program (CAP) as CR 2007104129. (Section 02.04.2)

Inspection Report# : [2007008](#) (pdf)

Significance: Y Jul 03, 2007

Identified By: NRC

Item Type: VIO Violation

Failure to Promptly Identify and Correct a Condition Adverse to Quality for RHR Pump 2A Containment Sump Suction Valve

The inspectors identified an apparent violation (AV) of 10 CFR 50, Appendix B, Criterion XVI, Corrective Action, for the licensee's failure to promptly identify and correct a condition adverse to quality (CAQ) which resulted in a Unit 2 residual heat removal (RHR) containment sump suction valve failing to stroke full open during testing on April 29, 2006, and again on January 5, 2007. The licensee did not take corrective actions to address the high humidity condition inside the valve encapsulation which caused rust/corrosion accumulation on valve components and adversely impacted valve performance. After the valve failure on January 5, 2007, the licensee implemented interim corrective actions to support valve operability until long-term corrective actions were completed.

This finding is more than minor because failure of a RHR containment sump suction valve to fully open impacts long-term core decay heat removal (emergency core cooling system sump recirculation) and therefore, affects the mitigating systems cornerstone to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using the Phase 1 and Phase 2 significance determination process worksheets from NRC Inspection Manual Chapter 0609, the finding was determined to have potential safety significance greater than Green. A regional Senior Reactor Analyst, with peer review from other qualified regional and headquarters personnel, performed a Phase 3 significance determination with a preliminary result of substantial safety significance. This finding has a cross-cutting aspect in the area of problem identification and resolution because the licensee failed to thoroughly evaluate the condition adverse to quality such that the resolution addressed the cause. (Section 40A5.02.b)

A Regulatory Conference was held on September 12, 2007, in Region II office. A Final Significance Determination for a Yellow finding and Notice of Violation (NRC Inspection Report Nos. 05000348/2007011 and 05000364/2007011) was issued on October 31, 2007. This AV became the violation with a Yellow significance determination process finding.

Inspection Report# : [2007009](#) (pdf)

Inspection Report# : [2008008](#) (pdf)

Barrier Integrity

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Physical Protection

Although the NRC is actively overseeing the Security cornerstone, the Commission has decided that certain findings pertaining to security cornerstone will not be publicly available to ensure that potentially useful information is not provided to a possible adversary. Therefore, the [cover letters](#) to security inspection reports may be viewed.

Miscellaneous

Significance: N/A Aug 24, 2007

Identified By: NRC

Item Type: FIN Finding

Biennial Identification and Resolution of Problems Inspection Results

One finding of very low safety significance (Green) was identified. The licensee was generally effective in identifying problems at a low threshold and entering them into the corrective action program. The licensee properly prioritized issues entered into the corrective action program (CAP) and routinely performed evaluations that were technically accurate and of sufficient depth to address the issue documented in the condition reports (CRs). Overall, corrective actions were effective; however, minor examples of inadequate condition report broadness reviews and documentation issues related to the closure of action items were identified. In general, operating experience was found to be used both proactively and reactively by personnel involved in the corrective action program; however, an example of industry operating experience was identified in which the licensee did not completely develop interim compensatory measures for a condition to which Farley was vulnerable. The licensee's programmatic self-assessments and audits were generally effective in identifying weaknesses in the corrective action program; however, a missed opportunity in the trending of issues which could result in adverse effects on safety-related plant components was identified. The inspectors also concluded that the workers at Farley felt free to report safety concerns.

Inspection Report# : [2007006](#) (pdf)

Last modified : August 29, 2008