

Farley 1

1Q/2011 Plant Inspection Findings

Initiating Events

Mitigating Systems

Significance:  Mar 31, 2011

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to maintain safety-related cables in a non-submerged environment

A self-revealing Green NCV of 10 CFR 50, Appendix B, Criterion III, Design Control, was identified for the licensee's failure to implement measures to assure safety-related cables remained in an environment for which they were certified. Safety-related cables purchased and installed in underground electrical pull boxes at Farley Nuclear Plant (FNP) have been subjected to submergence, a condition for which they are not designed. The licensee entered this issue into its CAP as CR 2010100512, which included the action to increase the frequency of measuring water level in pull boxes and removing excess water to ensure cables are not submerged. Despite the increased frequency of the preventative maintenance, electrical pull box B1M53 was observed by NRC inspectors to contain safety-related cables completely submerged in water on four separate occasions in the first quarter of 2011. Upon discovery of this condition, the licensee wrote CR 2011103553.

Failure to maintain safety-related electrical cables in a physical environment for which the cables are designed to operate, is a performance deficiency. This performance deficiency is more than minor because it is associated with the design control attribute of the Mitigating Systems (MS) cornerstone, and adversely affected the cornerstone objective to ensure the reliability of systems responding to initiating events to prevent undesirable consequences. The design control attribute of the MS cornerstone was determined to be adversely affected; because 1) testing of these cables has not been performed, 2) the cables have not been maintained within the parameters for which they are designed, 3) the corrective action to increase frequency of preventative maintenance was ineffective in preventing submergence of safety-related cables, and 4) there have been documented failures of cables throughout the nuclear industry due to degradation caused by submergence in water. The significance of this finding was screened using the Phase 1 of the SDP in accordance with NRC Inspection Manual Chapter 0609 Attachment 4. The finding screened as Green, because the finding is a design or qualification deficiency confirmed not to result in loss of operability or functionality. The finding was assigned a cross-cutting aspect in the corrective action program component of the Problem Identification and Resolution area because of the licensee's evaluation of the problem failed to identify a resolution that addressed the cause and extent of conditions (P.1(c)). Specifically, the inspectors determined the increased pull box preventative maintenance was ineffective in preventing safety-related cable exposure to unqualified conditions, and the corrective actions were inadequate in ensuring the problem was resolved. (Section 1R06)

Inspection Report# : [2011002](#) (pdf)

Significance:  Dec 31, 2010

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to Effectively Implement Risk Management Activities Results in Loss of Single Train of Shutdown Core Cooling (Section 40A2.2.b.1)

A self-revealing NCV of 10 CFR 50.65(a)(4) revealed itself when Unit 1 train 'A' RHR was lost because the licensee failed to identify and assess the loss of a plant significant component during plant repairs. On October 15, 2010, Unit 1 was in a refueling outage with fuel in the reactor vessel, the reactor vessel head detensioned, and reactor coolant

system (RCS) water level one foot below the reactor vessel flange. The licensee restored power to motor-operated valve (MOV) 8701A during its initial preparations for flooding the refueling cavity and lifting the reactor vessel head to its refueling stand. Concurrent with this evolution, the licensee danger-tagged the train 'A' solid state protection system (SSPS) to perform repairs to the multiplexer test switch. This activity resulted in relay PY402AX being placed in a de-energized state (actuated). Relay PY402AX provides the interlock to MOV 8701A to close if RCS pressure exceeds 402 psig. Once power was restored to MOV 8701A, the active RCS pressure interlock automatically closed the valve. This isolated the suction source of the train 'A' RHR pump, and the control room operators stopped the pump.

The licensee's failure to effectively implement one of the risk management actions prescribed during the Orange outage risk, which resulted in the loss of a plant significant component during plant repairs, is a performance deficiency. The finding is more than minor because it adversely affected the equipment performance attribute of the MS cornerstone objective of ensuring the availability, reliability, and capability of systems responding to initiating events preventing undesirable consequences (i.e. core damage). Specifically, one of the key safety functions was significantly degraded without sufficient compensation. The significance of this finding was assessed using the Phase 1 screening worksheets of Attachment 4 and Appendix G, Attachment 1, Checklist 3 of MC 0609. Because the finding increased the likelihood that a loss of decay heat removal will occur due to a failure of the system itself or support systems, further review was required by the regional senior risk analyst.

A regional Senior Reactor Analyst evaluated the performance deficiency using the Phase 3 protocol of the Significance Determination Process. Based upon this evaluation, the performance deficiency was characterized as of very low safety significance (Green). The dominant accident sequence involved the loss of the operating train of residual heat removal as the initiating event. The rest of the accident sequence involved the loss of the standby residual heat removal train due to the performance deficiency, the failure of operators to recover one these trains before Reactor Coolant System boiling and a failure of operators to initiate emergency core cooling before core damage. The major assumptions of this evaluation included a short time to boil and there was no credit was considered for recovering the standby residual heat removal train.

This finding was assigned a cross-cutting aspect in the Resources component of the Human Performance area because training of personnel and sufficient qualified personnel to maintain work hours within working hour guidelines was not accomplished (H.2(b)). Specifically, trained personnel with sufficient knowledge to fully understand the effect of removing power to the Unit 1 train A SSPS were not provided to effectively implement the risk management actions prescribed during the Orange outage risk.

Inspection Report# : [2010005](#) (*pdf*)

Significance: SL-IV Sep 30, 2010

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to adopt appropriate procedures to evaluate deviations and failures to comply with 10 CFR 21 evaluations

SL IV. An NRC identified violation of 10 CFR 21.21, Notification of failure to comply or existence of a defect and its evaluation, was identified for an inadequate procedure, resulting in the licensees' untimely reporting of a substantial safety hazard. Specifically, the licensees' station procedure FNP-0-AP-62, Evaluation of Defects and Non-compliances Potentially Reportable Under 10CFR21, failed to identify the appropriate timeliness aspect required by 10 CFR 21.21(a), and allowed the term "discovery" to be the date of the Plant Review Board (PRB) approval, regardless of the date of discovery of the deviation. This resulted in a substantial safety hazard being reported approximately 260 days after the deviation was identified. The NRC received the Part 21 report on July 6, 2010 (approximately 260 days after discovery of the deviation).

The inspectors determined the inadequate procedure allowing untimely reporting of substantial safety hazards was a performance deficiency. This finding was more than minor because if the procedure was left uncorrected, a more serious safety concern could occur. Specifically, failure to evaluate deviations and to perform notifications within the specified time frame, 60 days, does not allow for timely evaluation of other components that could be subject to the deviation. Because this issue affected a potential reporting requirement and the NRC's ability to perform its regulatory function, it was evaluated using the traditional enforcement process. Consistent with the guidance of the NRC Enforcement Policy, this violation was categorized at Severity Level IV NCV. This finding was assigned a cross-cutting aspect in the CAP component of the PI&R area in that problems should be thoroughly evaluated such that the resolutions address causes and extent of conditions, as necessary. This includes properly classifying, prioritizing, and evaluating for operability and reportability conditions adverse to quality. Specifically, the licensee was untimely in evaluating and reporting the substantial safety hazard (P.1(c)). (Section 40A.2.2)

Inspection Report# : [2010004](#) (pdf)

Significance:  Jun 30, 2010

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to maintain safety-related cables in a non-submerged environment

•Green An NRC-identified Green NCV of 10 CFR 50, Appendix B, Criterion III, Design Control, was identified for the licensee's failure to implement measures to assure that safety-related cables remained in an environment for which they were certified. Safety-related cables purchased and installed in underground electrical pull boxes at Farley Nuclear Plant have been subjected to submergence, a condition for which they are not designed. To address this issue, the licensee has performed the immediate corrective action of increasing the frequency of measuring water level in the pull boxes and removing excess water to ensure cables are not submerged. The licensee entered the issue into their corrective action program as CR 2010100512.

Failure to maintain safety-related electrical cables in a physical environment for which the cables are designed to operate is a performance deficiency. This performance deficiency is more than minor because it is associated with the Design Control attribute of the Mitigating Events cornerstone, and adversely affected the cornerstone objective to ensure the reliability of systems responding to initiating events to prevent undesirable consequences. Specifically; because 1) testing of these cables has not been performed, 2) the cables have not been maintained within the parameters they are designed, and 3) there have been documented failures of cables throughout the nuclear industry due to degradation caused by submergence in water. The significance of this finding was screened using the Phase 1 of the SDP in accordance with NRC Inspection Manual Chapter 0609 Attachment 4. The finding screened as Green, because the finding is a design or qualification deficiency confirmed not to result in loss of operability or functionality. The inspectors determined the inadequate assessment of available information in the CAP caused the licensee to fail to aggregate the programmatic and common cause problems reflective of cross-cutting aspect P.1(b). (Section 4OA2)

Inspection Report# : [2010003](#) (pdf)

Barrier Integrity

Emergency Preparedness

Occupational Radiation Safety

Significance:  Jun 30, 2010

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to perform adequate surveys to identify potential radiological hazards during reactor cavity drain down

•Green A self-revealing non-cited violation (NCV) of 10 CFR Part 20.1501(a) was identified for failure to perform adequate surveys to identify rising radiation levels during the lowering of water level in the reactor cavity. This resulted in an uncontrolled High Radiation Area (HRA) in a worker-occupied area of the refueling floor near the edge of the reactor cavity. The immediate corrective actions were to post the affected areas as required by licensee procedures and re-flood the cavity. The licensee entered the issue into their corrective action program as condition report (CR) 2010105943.

This finding is more than minor because it was associated with the Occupational Radiation Safety Cornerstone attribute of Program and Process (Monitoring and Radiation Protection Controls) and adversely affects the cornerstone objective of ensuring adequate protection of worker health and safety from exposure to radiation from radioactive material during routine nuclear reactor operation. The finding was evaluated using the Occupational Radiation Safety Significance Determination Process (SDP) and was determined to be of very low safety significance (Green) because it was not related to As Low As Reasonably Achievable (ALARA) Planning and the ability to assess dose was not compromised. In addition, it did not involve overexposure or substantial potential for overexposure because the lower cavity was inaccessible at the time of the event. The cause of this finding was directly related to the cross-cutting aspect of radiological safety in the Work Control component of the Human Performance area because the potential job site conditions (radiological hazards) associated with reduction of water shielding following underwater cutting of significant radiation sources were not adequately identified [H.3(a)]. (Section 2RS1)

Inspection Report# : [2010003](#) (*pdf*)

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 : June 07, 2011