Farley 2
2Q/2010 Plant Inspection Findings

Initiating Events

Mitigating Systems

Significance: G 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)*

Significance: G Apr 15, 2010
Identified By: NRC
Item Type: NCV NonCited Violation
Inadequate controls for service water pump procurement
A self-revealing non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion VII, "Control of Purchased Material, Equipment, and Services," was identified for the licensee's failure to establish measures to assure that the 2E service water pump (SWP) installed on November 22, 2006, conformed to purchase order requirements. The failure to assure that the 2E SWP minimum rotor critical speed met the purchase order design specification resulted in an increased susceptibility of the SWP to resonant vibration, which was a factor that contributed to the pump failure. The licensee entered this event into their corrective action program as CR 2009110325.

The finding was determined to be greater than minor because it was associated with the design control attribute of the mitigating systems cornerstone and affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). Specifically, the performance deficiency contributed to the failure of the 2E SWP, and thus impacted the reliability of

the service water system. Using Inspection IMC 0609, “Significance Determination Process,” Attachment 4, “Phase 1 - Initial Screening and Characterization of Findings,” the finding was determined to have very low safety significance (Green) because it did not represent an actual loss of safety function of a single Train for greater than its Technical Specification (TS) allowed outage time. No cross-cutting aspect was identified since the issue was not reflective of current licensee performance, in that the performance deficiency occurred in 2006. (Section 4OA5.3)

Inspection Report# : 2010007 *(pdf)*

Significance: G Mar 31, 2010
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to re-evaluate significant changes in assumption to prompt operability determination of Unit 2 TDAFW pump
The inspectors identified a Green NCV of 10 CFR 50, Appendix B, Criterion V, Instructions, Procedures, and Drawings for the failure to implement procedure NMP-AD-012, Operability Determinations and Functionality Assessments. Specifically, the licensee failed to revise the existing prompt determination of operability (PDO) as required by NMP-AD-012 for the Unit 2 Turbine Driven Auxiliary Feedwater (TDAFW) pump when significant non-conservative changes in water content of oil samples challenged assumptions used to establish pump operability. This issue was entered into the licensee’s CAP as CR 2010101426.

The finding is more than minor because it is associated with the reactor safety mitigating systems cornerstone attribute of equipment performance and adversely affected the associated cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Additionally, this finding was analogous to MC0612, Appendix E example 3.j in that a reasonable doubt about the continued operability of the pump existed prior to further evaluation. This finding was assessed using the Phase 1 screening worksheets of Appendix 4 of MC 0609, SDP and determined to be of very low safety significance because the finding did not result in the loss of safety function of a single train or screen as risk significant due to external events. This finding was assigned a cross-cutting aspect in the Resources component of the Human Performance area in that complete, accurate and up-to-date design documentation, procedures, work packages, and correct labeling of components were not provided (H.2(c)). Specifically, the oil sampling program procedures and methods lacked the detail and rigor necessary to verify assumptions in the PDO and called into question the continued operability of the TDAFW pump. (Section 1R15)

Inspection Report# : 2010002 *(pdf)*

Significance: G Mar 31, 2010
Identified By: NRC
Item Type: NCV NonCited Violation
Violatin of technical specification 5.4.1 for failure to maintain procedures for full flow recirculation after a loss of coolant accident
The inspectors identified a Green NCV of TS 5.4.1 for the failure to maintain emergency procedure FNP-1/2-ESP-1.3, Transfer to Cold Leg Recirculation, Rev. 19. ESP-1.3 contained a step to verify containment sump level was sufficient to adequately cover the containment sump screens prior to initiating cold leg recirculation following a loss of coolant accident (LOCA) which led to a full flow recirculation. The containment sump level specified by the procedure was not sufficient to ensure suction vortexing and air ingestion into the emergency core cooling system (ECCS) would have been prevented. This finding was entered into the licensee’s corrective action program as condition report (CR) 20101101103. Planned corrective actions included issuing a standing night order to ensure adequate containment sump level is verified prior to transferring to cold leg recirculation and formally changing the value in ESP-1.3.

This finding is more than minor because it affects the Mitigating Systems Cornerstone objective of ensuring the availability, reliability, and capability of systems (containment spray and residual heat removal) that respond to initiating events (LOCAs which lead to full flow recirculation phase) to prevent undesirable consequences (i.e., core damage) and the cornerstone attribute of Procedure Quality, i.e. Operating (Post Event) Procedures (EOPs). The team assessed this finding using the SDP and determined that the finding was of very low safety significance (Green) because the inspectors determined that there was no loss of safety system function. Safety system function was

determined to be maintained since the analyzed LOCAs in the accident analysis of the facility updated final safety analysis report (UFSAR) would introduce sufficient water into the containment from ECCS and the reactor coolant system (RCS) to provide sufficient containment sump level to ensure water level above the sump screens to prevent air introduction. This finding was reviewed for cross-cutting aspects and none were identified since the performance deficiency has existed since initial operation and is not indicative of current licensee performance. (Section 1R17)

Inspection Report# : 2010002 *(pdf)*

Significance: G Dec 31, 2009
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
Failure to Identify A Credible Source of Flooding in the Internal Flooding Evaluation of Record
A self-revealing NCV of 10 CFR 50, Appendix B, Criterion III, Design Control, identified for licensee's failure to identify a credible source of flooding in their internal flooding evaluation of record (performed in 1999). On March 27, 2009, a licensee flushing evolution of the Unit 2 Main FW system resulted in water entering the Lower Equipment Room through the floor drain system. The licensee discovered the flooding evaluation failed to identify a credible source of flooding from the floor drain system. The licensee performed a root cause analysis and determined a FW line break in the MSVR concurrent with this open drain path, would result in a worst case maximum flood level in the lower equipment room of 1 foot and 10 inches above the floor. This level was determined to adversely affect the Turbine Driven Auxiliary Feedwater Pump (TDAFWP) ninterrupted power supply inverter/rectifier and would render the pump inoperable.

The licensee's failure to identify a credible source of flooding in their internal flooding evaluation of record was a performance deficiency. This finding was greater than minor because it adversely affected the equipment reliability attribute of the mitigating systems cornerstone objective to ensure the availability, reliability and capability of systems responding to initiating events to prevent undesirable consequences (i.e., core damage). This finding was assessed using the Phase 1 screening worksheet of the SDP and it was determined a Phase 3 analysis was required. Phase 3 evaluation under the SDP determined that the finding was of very low safety significance (Green). The dominant accident sequence was a Steamline Break with the normal Air Compressors failing due to common cause followed by operators failing to terminate the Safety Injection. The finding was reviewed against the cross-cutting aspects listed in IMC 0305, Operating Reactor Assessment Program, and determined not to have a cross-cutting aspect reflective of current licensee performance.
Inspection Report# : 2009005 *(pdf)*

Significance: G Dec 31, 2009
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
Failure to Implement Maintenance Inspections of Safety-Related Switchgear
A self-revealing NCV of TS 5.4.1, Procedures, was identified for failure to implement preventative maintenance inspections on the 1-2L 600 volt load center as specified by FNP-0-EMP-1322.10, Maintenance and Cleaning of Westinghouse Switchgear. Failure to perform the specified inspections on the 1-2L 600 volt load center allowed bus fastener torque to degrade so bus bar damage occurred rendering said vlc inoperable. Licensee entered issue into CAP (CR 2008103720) & completed corrective actions to restore operability& schedule specified maintenance inspections on the vlc.

failure to implement preventative maintenance inspections on said vlc specified by FNP-0-EMP-1322.10 was a performance deficiency. This finding was greater than minor because it adversely affected the equipment performance attribute of the MS cornerstone objective to ensure the availability, reliability and capability of systems responding to initiating events to prevent undesirable consequences (i.e., core damage). MS cornerstone column of Phase 1 screening wksheet of SDP used to assess finding. Was determined to require a Phase 3 analysis because finding represented actual LOSF of a single train for greater than its allowed TS outage time. Inspector determined the finding was of very low safety significance (Green). The dominant accident sequence was a failure of ATrain SW thru loss of the 4KV F Bus, failure of the BTrain thru a failure of that train's pump cooling sub-system and inability of the 600 VAC Load Center 1/2L to provide power due to the performance deficiency, leading to total loss of S W to the unit. AFW provided secondary side cooling but, without SW both RCP seal cooling sources, CCW thermal barrier cooling

& HHSI/Charging seal injection, failed. A seal LCA happened w/o ability to makeup to the RCS and core damage ensued. This finding is associated with a cross-cutting aspect in the work control component of the human performance area (H.3(b)).
Inspection Report# : 2009005 *(pdf)*

Significance: G Dec 31, 2009
Identified By: NRC
Item Type: NCV NonCited Violation
1-2R 600 Volt Load Center Operability
NRC-identified NCV of TS 3.8.9 was identified forfailure to meet LCO of maintaining 2 trains of AC vital bus electrical power distribution subsystems operable. Licensee failed to evaluate plant conditions and identify 1-2R 600 vlc was unable to meet surveillance req of correct breaker position/voltage for longer than allowed outage time.

Failure 2 properly eval plant conditions & recognize surveillance req of TS 3.8.9 unmet was perform deficiency. LCO of maintaining 2 trains of AC vital bus elect pwr distribution subsystems available unmet 4 longer than allowd outage time. 8/ 5 through 8/ 9 (85 hours and 6 minutes), Unit 2 pwr supply to vlc was unavail 2 meet Unit 2 portion of TS 3.8.9. Finding greater than minor because adversely affected equip performance attribute of the MS cornerstone objective ensuring availability, reliability& capability of systems responding to IEs to prevent undesirable conseq. 1-2R 600 vlc unable to perform automatic function during dual unit LOSP w/ LOCA on specified unit. Finding determined requiring Phase 2 analysis b/c condition existed longer than allowed outage time for single trn of safety-related equip. Phase 3 eval done under SDP determnd finding was very low safety significance (Green). Although 1 pwr source to R1/2 600 VAC lc was OOS, analysis assumed lc totally OOS. 112 hour exp time also used. Dominant accident seq dual unit LOSP due to severe weather leading to station blackout by combo of EDG failures & perform deficiency. Finding assigned cross-cutting aspect in work practices component of HP area (H.4(b)) b/c licensee failed to execute sequence req by restoration tagout proc. controlling plant config.
Inspection Report# : 2009005 *(pdf)*

Significance: G Dec 31, 2009
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
Failure to Implement Performance Monitoring of SWP Seismic Supports
Self-revealing NCV of 10CFR50.65(a)(1) identified for failure to perform monitoring of SWIS seismic rings resulting in inability of 2A,B,C&E SWP seismic rings to perform their func.b/c of fastener degradation. Licensee entered CR into CAP as 2009109700 and completed corrective actions to restore ring function.

The ring failure is a performance deficiency. Finding greater than minor b/c adversely affected equip reliability attribute of MS cornerstone objective ensuring availability, reliability, capability of systems reponding to IE preventing undesired conseq. Phase 1 Screen Wksht of SDP used to assess finding. SWP determined not degraded. Finding associated w/cross-cutting aspect in CAP component for PI&R area (P.1)(d)).
Inspection Report# : 2009005 *(pdf)*

Significance: G Dec 31, 2009
Identified By: NRC
Item Type: NCV NonCited Violation
Load Sequencer Operability during EDG Surveillance Tests
NRC identified Green NCV of 10CFR50, Appendix B, Criterion III, Design Control, for failure to translate EDG system inoperable during test performance. Licensee entered issue into CAP as CR2008105195 & is taking corrective action to modify the EDG LOSP circuit perf. of EDG surveillance tests.

Failure to translate system design into procedures/instruct for perf EDG surveill tests rending LOSP ELS inoperable was a perf deficiency greater than minor b/c req surveillance test procedure didn't alert operators that perf of tests rendered LOSP load seq inop & tests perf exceeding allowed outage time for inop seq. SDP phase 1 screening determined core decay heat removal affected w/in MS cornerstone when the perf deficiency represented loss of train of a safety function for greater than its TS allowed outage time. Phase 3 SDP req b/c phase 2 wksheets don't provide

allowed outage time. Phase 3 analysis was performed. The SDP result was Green, a finding of very low safety significance. No cross-cutting aspect was assigned to this finding.
Inspection Report# : 2009005 *(pdf)*

Significance: G Sep 30, 2009
Identified By: NRC
Item Type: NCV NonCited Violation
Degraded Emergency Air System Conditions
Green. A self revealing NCV of 10 CFR 50.65(a)(1), Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants, was identified for failure to monitor and maintain the emergency air system's capability to operate the steam generator atmospheric relief valves (ARVs) and turbine driven auxiliary feedwater (TDAFW) pump steam admission valves since 1995.

This finding was greater than minor because it was associated with the equipment performance attribute and affected the Mitigating Systems cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to preclude undesirable consequences (i.e. core damage). The degradation of the reliability and capability of the emergency air system was attributed to the lack of adequate monitoring and maintenance. This finding was assessed using the Phase 1 screening worksheet of the SDP and determined a Phase 3 analysis was required. Phase 3 results characterized the performance deficiency as very low safety significance (Green) based on risk. The inspectors identified a cross-cutting aspect in the problem identification and resolution area of corrective action program P(1)(c).

Inspection Report# : 2009004 *(pdf)*

Barrier Integrity

Emergency Preparedness

Significance: W May 02, 2009
Identified By: NRC
Item Type: VIO Violation
Failure to Establish Effective Means of Providing Early Notification (Inaccurate Tone Alert Radios Addresses)
An AV of 10 CFR 50.47(b)(5) was identified for a failure to maintain the means to provide alert and notification and clear instruction to all of the population within the plume exposure pathway emergency planning zone (EPZ). Specifically, in February 2008 the licensee determined that they had not provided tone alert radios (TARs) to approximately 171 addresses requiring radios, and failed to ensure the State of Georgia had established the capability for compensatory alerting measures. The licensee's failure to maintain the public alert and notification system to meet the design requirements of the Federal Emergency Management Agency (FEMA) approved Alert and Notification system (ANS) design report and supporting FEMA approval letter resulted in a degradation of a risk significant planning standard.
The licensee's failure to provide the means for notification and instruction to the populace within the plume exposure pathway EPZ in the event of a radiological emergency as required by 10 CFR 50.47(b)(5) is a performance deficiency. The licensee's failure to remain in compliance with the FEMA approved ANS design report and supporting FEMA approval letter contributed to the performance deficiency. This finding is more than minor because it is associated with the emergency preparedness cornerstone attribute of facilities and equipment, and affected the cornerstone objective of ensuring that the licensee is capable of implementing adequate measures to protect the health and safety of the public in the event of a radiological emergency. The significance of this finding was determined using Manual Chapter 0609 Appendix B,

Emergency Preparedness Significance Determination Process (sheet 1) – Failure To Comply.
The NRC preliminarily determined this finding to have low to moderate safety significance (White) in that it resulted in the degradation of a Risk Significant Planning Standard (RSPS) function (10 CFR 50.47(b)(5)).
This finding had a cross cutting aspect of Human Performance because the licensee did not adequately ensure supervisory and management oversight of work activities, including the electrical utilities providing connect and disconnect information regarding addresses within the emergency planning zone, such that nuclear safety was supported (H.4.c).

Update:
NOTICE OF VIOLATION
Southern Nuclear Operating Company, Inc. Docket Nos. 50-348, 50-364
Joseph M. Farley Nuclear Plant License Nos. NPF-2, NPF-8
Units 1 and 2 EA-09-103
During an inspection completed by the NRC on May 18, 2009, a violation of NRC requirements was identified. In accordance with the NRC Enforcement Policy, the violation is set forth below:
10 CFR 50.54(q) states, in part, that a licensee authorized to possess and operate a nuclear power reactor shall follow and maintain in effect emergency plans which meet standards in 10 CFR 50.47(b).
10 CFR 50.47(b)(5) requires, in part, that the licensee establish a means to provide early notification and clear instruction to the populace within the plume exposure pathway Emergency Planning Zone (EPZ).
The Farley emergency plan identifies both tone alert radios (TARs) and sirens as the means by which it provides alert and notification to the populace within the plume exposure pathway.
Contrary to the above, the licensee failed to maintain an effective means of providing early notification and clear instruction to the populace within the plume exposure pathway EPZ. Specifically, in January 2008, the licensee identified that approximately 109 TARs had not been provided to residences that were outside the limits of the sirens but within the 10 mile EPZ of Farley Nuclear Plant. The licensee's subsequent review identified additional residences within the 10 mile EPZ which were required to have TARs in accordance with the Farley emergency plan, but were not provided TARs.
This violation is associated with a White Significance Determination Finding.
Inspection Report# : 2009502 *(pdf)*
Inspection Report# : 2009503 *(pdf)*

Occupational Radiation Safety

Significance: G 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 Nov 20, 2009
Identified By: NRC
Item Type: FIN Finding
PI&R Identification and Resolution of Problems
The team concluded that, in gerneral, problems were properly identified, evaluated, prioritized, and corrected. Generally, the threshold for initiating condition reports was appropriately low, as evidenced by the types of problems identified and the large number of condition reports entered annually into the CAP. Employees were encouraged by management to initiate condition reports. However, the team did identify some examples where plant issues were not appropriately entered into the CAP.

Generally, prioritization and evaluation of issues were consistent with the licensee's CAP guidance, formal root cause evaluations for significant problems were adequate, and corrective actions specified for problems were acceptable. Overall, corrective actions developed and implemented for issues were generally timely, effective, and commensurated with the safety significance of the issues. However, the team did identify some examples where plant issues were not appropriately evaluated consistent with the licensee's CAP guidance.

The team determined that, overall, audits and self-assessments were adequate in identifying deficiencies and areas for improvement in the CAP, and appropriate corrective actions were developed to address the issues identified. The licensee's operating experience usage was found to be generally acceptable and integrated into the licensee's process for performing and managing work, and plant operations.

Based on discussion and interviews conducted with plant employees from various departments, the inspectors determined that personnel at the site felt free to raise safety concerns to management and use the CAP to resolve those concerns.
Inspection Report# : 2009007 *(pdf)*

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 : September 02, 2010