

# Farley 2

## 4Q/2009 Plant Inspection Findings

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### Initiating Events

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### Mitigating Systems

**Significance:**  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) uninterrupted 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:**  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:**  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 for failure 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 allowed 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:**  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:**  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 rendering LOSEP ELS inoperable was a perf deficiency greater than minor b/c req surveillance test procedure didn't alert operators that perf of tests rendered LOSEP 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:**  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)

**Significance:**  Jun 30, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

### **Inadequate Test Procedures for SG Blowdown Isolation Valves**

Green. An NRC identified NCV of 10 CFR 50, Appendix B, Criterion XI, Test Control, was identified for failure to establish adequate procedures to verify automatic closure of the Unit 1 and Unit 2 Steam Generator blowdown (SGBD) isolation valves. This finding has been entered into the licensee's CAP as condition report (CR) 2009107127.

The failure to establish and implement adequate test procedures including acceptance criteria necessary to verify safety-related equipment is capable of performing its design function is a performance deficiency. This finding is more than minor because if left uncorrected, the condition could result in the failure to recognize safety function testing acceptance criteria specified by plant design had not been met, and would be a more significant safety concern. This finding was assessed using the Phase 1 screening worksheet of the SDP and determined to be of very low safety significance (Green), because it did not result in an actual loss of safety function of a single train for greater than the Technical Specification (TS) allowed outage time, and was not potentially risk-significant due to external events. This finding was assigned a cross-cutting aspect in the Problem Identification and Resolution (PI&R) area (P.1(d)) because the licensee had identified the need for additional testing of contacts related to SGBD isolation in March 2006, but no corrective actions were taken to address this issue in a timely matter commensurate with safety significance and complexity. (Section 1R19)

Inspection Report# : [2009003](#) (pdf)

**Significance:**  Jun 30, 2009

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

## **Inadequate Test Procedures for Verification of Steam Dump Arming From Reactor Trip (P-4) Signal and P-4 Contact Verification**

Green. A self-revealing NCV of TS 5.4.1.a. for failure to implement FNP-1-STP- 33.8, Verification of Steam Dump Arming from Reactor Trip (P-4) Signal and P-4 Contact Verification, was identified when licensee personnel took actions not directed by the procedure. During performance of FNP-1-STP- 33.8, licensee personnel changed the established initial conditions by placing the Solid State Protection System (SSPS) into a different operating mode. This finding has been entered into the licensee's CAP as CR 2009104718.

The failure to follow FNP-1-STP- 33.8 is a performance deficiency. This finding is more than minor because it was associated with the Mitigating Systems cornerstone attribute of Configuration Control and adversely affected a cornerstone objective in that failure to follow the procedure resulted in changing the initial conditions previously established. This finding was determined to be of very low safety significance because the procedure was successfully performed prior to entering a mode that required the SSPS to be operable. This finding has a cross-cutting aspect of Work Control in the area of Human Performance (H.3(b)) in that the licensee did not keep personnel apprised that the SG LO-LO level reactor trip signal in SSPS would not be blocked using the "Normal Method." (Section 1R22)  
Inspection Report# : [2009003](#) (*pdf*)

**Significance:** G Jun 30, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

### **Failure to Include Water Tight Doors in the Scope of the Maintenance Rule**

Green. An NRC identified NCV of 10 CFR 50.65 (b) was identified for failure to include the Auxiliary Building water-tight doors within the scope of the maintenance rule (MR) monitoring program. During routine plant inspections, the inspectors noticed degraded door seals (excessive hardening of the rubber seal with small chunks missing) and worn hinges on water tight doors located in the Auxiliary Building. The inspectors discovered one Unit 2 door in which the seal area had cracks completely across. The inspectors determined the sealing function assumed in the licensee internal flooding analysis for these doors was challenged. This finding has been entered into the licensee's CAP as CR 2009106669.

The licensee's failure to include the water-tight doors within the scope of their MR program and the subsequent degraded condition of these doors is a performance deficiency. The performance deficiency is more than minor because it adversely affected the equipment performance attribute of the Mitigating System 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 Phase 1 of IMC 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations," and determined the finding was of very low safety significance (Green) because although it did involve degradation of equipment or function specifically designed to mitigate a flooding event (i.e. flooding barriers), it did not result in a loss of safety function. No cross cutting aspects were identified. (Section 4OA2)

Inspection Report# : [2009003](#) (*pdf*)

**Significance:** G Mar 31, 2009

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

### **Inadequate maintenance instructions results in inoperability of the TDAFW pump**

A self-revealing, Green non-cited violation of TS 5.4.1 was identified for inadequate work instructions used to perform corrective maintenance on the Unit 2 TDAFW pump 'A' UPS which resulted in an inoperability of the TDAFW pump. This finding has been entered into the licensee's CAP as condition report (CR) 2009101467.

Failure to provide appropriate work sequence instructions related to the maintenance on the 'A' UPS is a performance deficiency. This finding is more than minor because it is associated with the Procedure Quality attribute of the Mitigating Systems cornerstone and adversely impacted the cornerstone objective because the inadequate work instructions resulted in loss of redundant and diverse control power sources to the TDAFW pump which affected the ability of the pump to respond to initiating events to prevent undesirable consequences. This finding was assessed using the Phase 1 screening worksheet of the SDP and determined to be of very low safety significance (Green) because it did not result in an actual loss of safety function of a single train for greater than the TS allowed outage

time and was not potentially risk-significant due to external events. This finding is assigned a cross-cutting aspect in the Resources component of the Human Performance area (H.2(c)) because the work sequence instructions used to perform the corrective maintenance did not contain complete guidance necessary for proper operation of the UPS breakers. (Section 1R19)

Inspection Report# : [2009002](#) (pdf)

**Significance:** **G** Feb 27, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

**Inadequate Verification of SW Capability to Concurrently Provide System Design Basis Cooling Requirements and the AFW Alternate Water Source.**

Green: The team identified a finding of very low safety significance involving a non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion III, Design Control. Specifically, the licensee failed to establish measures to verify the design capability of the service water (SW) system to provide water as a suction source for the auxiliary feedwater (AFW) pumps while maintaining adequate SW flow to other safety-related components. The Technical Specification's (TS) action statement for Condensate Storage Tank (CST) Operability, 3.7.6.a, and the corresponding TS bases credit SW as a water source for AFW pumps upon a loss of normal feedwater supply from the CST.

The finding is more than minor because it is associated with the design control attribute of the Mitigating System Cornerstone and affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Due to the lack of appropriate analysis or testing, the SW design basis accident capability was not assured. The team assessed the finding using the SDP and determined that the finding was of very low safety significance (Green) since it was a design deficiency determined not to have resulted in the loss of safety function. Specifically, the licensee had not operated in a condition for which the design deficiency in question was relied upon for operation. The finding was entered into the licensee's corrective action program. There is no cross cutting aspect to this finding because it does not reflect recent performance in that the original SW system analyses were performed in 1990 and 1999 and the inspectors identified no subsequent opportunity for the licensee to identify this deficiency. (Sections 1R21.2.1)

Inspection Report# : [2009006](#) (pdf)

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## Barrier Integrity

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## 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*)

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## Occupational Radiation Safety

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## Public Radiation Safety

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## 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.

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## 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 general, 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 : March 01, 2010