Surry 1
3Q/2011 Plant Inspection Findings

Initiating Events

Significance: G Sep 30, 2011
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Consider Instrument Uncertainty and Establish Calibration Controls for Rotameters Used to Vent Gas from ECCS Systems
An NRC-identified non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion XI, “Test Control,” (with two examples) was identified for the failure to establish measures to apply rotameter instrument measurement error and appropriate instrument calibration controls or standards when using instruments of this type to determine the size of voids discovered as a result of ECCS system venting. The issue was entered into the licensee’s corrective action program (CAP) as CR419024 and CR419243.

The failure to establish and implement measures (1) to ensure the application of +/- 5% rotameter instrument error to as-found void measurement, and (2) to ensure that rotameters calibrated to standard pressure conditions were used when utilizing those instruments to evaluate the size of as-found voids were performance deficiencies. The performance deficiencies were greater than minor, because, if left uncorrected, they could result in a more significant safety concern. Specifically, the performance deficiencies represented programmatic issues and if instrument error and/or appropriate calibration standards were not applied to instruments used for future void characterization, then sufficient measurement error could reasonably result such that as-found voids, which challenge or exceed established acceptance criteria, may not be identified as intended by post venting evaluations. The finding was screened for significance using the Mitigating Systems cornerstone column of Inspection Manual Chapter (IMC) 0609, Attachment 4, “Phase 1 - Initial Screening and Characterization of Findings,” and determined to be of very low safety significance (Green) because the finding did not represent a design or qualification deficiency, did not represent the loss of a safety system function, did not represent the loss of a train for greater than the allowed outage time, did not represent the loss of risk significant equipment for greater than 24 hours, and was not potentially risk significant due to external events. Because the licensee had failed to implement complete, accurate, and up-to-date controls necessary to ensure that rotameter error and calibration standards were adequately addressed by procedures used to evaluate the impact of voids on
emergency core cooling systems, this finding is assigned a cross-cutting aspect in resources component of the human performance area [H.2(c)]. (Section 4OA5.1)

Inspection Report# : 2011004 *(pdf)*

Significance: G Dec 31, 2010
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
Failure to Follow Procedure Results in Inadvertent Actuation of Safety Injection
A self-revealing Green NCV of TS 6.4, Unit Operating Procedures and Programs, was identified for the failure to follow procedure 1-OPT-ZZ-001, ESF Actuation with Undervoltage and Degraded Voltage 1H Bus. Specifically, on October 26, 2010, a test lead was incorrectly installed in the Unit 1 relay room for the logic circuit associated with the A train of Consequence Limiting Safeguards (CLS). This resulted in an inadvertent safety injection, isolated component cooling water supply to the standby residual heat removal (RHR) train, and automatically initiated several safety-related components including emergency diesel generator (EDG) #1. Operators entered AP-10.20, Response To Spurious Safety Injection With RCS Temperature Less Than 350°F, and terminated the safety injection in approximately three minutes. The licensee entered this issue into the CAP (CR 400908).
Failure to install the test leads as required by procedure 1-OPT-ZZ-001, is a performance deficiency. The finding is more than minor because it is associated with the configuration control attribute of the Initiating Events Cornerstone and adversely affected the cornerstone’s objective to limit the likelihood of those events that upset plant stability and

challenge critical safety functions during shutdown as well as power operations. The finding, evaluated in accordance with NRC Inspection Manual Chapter (IMC) 0609, Appendix G, “Shutdown Operations Significance Determination Process,” Attachment 1, Checklist 3, identified the finding is of very low safety significance (Green) because the finding did not lead to a loss of decay heat removal. This finding has a cross cutting aspect in the work practices component in the Human Performance area, because human error prevention techniques were not properly used commensurate with the risk significance of the assigned task (H.4(a)).
Inspection Report# : 2010005 *(pdf)*

Mitigating Systems

Significance: G Sep 30, 2011
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Follow Scaffolding Procedure Requirements
The inspectors identified a NCV of Technical Specifications (TS) 6.4.D for failing to follow the requirements of procedure MA-AA-105, “Scaffolding.” Specifically, the licensee did not adequately implement scaffold evaluation, screening, and risk requirements for multiple scaffolds constructed in the vicinity of safety-related equipment.

The inspectors determined that the failure to follow TS required procedure MA-AA-105, “Scaffolding,” by not properly identifying scaffolds for safety-related systems and performing the required engineering evaluations, constitutes a performance deficiency. This finding is considered more than minor because it is similar to IMC 0612, Appendix E, Example 4.a in that the licensee routinely failed to perform the required engineering reviews and evaluations for scaffolding. This finding is also associated with the external factors and equipment performance attributes 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. The inspectors screened this finding in accordance with IMC 0609, “Significance Determination Process,” Attachment 4, “Phase 1 - Initial Screening and Characterization of Findings,” and determined the finding was of very low safety significance since it was a deficiency determined not to have resulted in the loss of operability or functionality. The cause of this finding involved the cross-cutting area of human performance, the component of resources and the aspect of training [H.2(b)], because the licensee failed to implement training sufficient to ensure that operators were aware of plant equipment which is designated as safety-related. (Section 1R04)

Inspection Report# : 2011004 *(pdf)*

Significance: G Jun 30, 2011
Identified By: NRC
Item Type: NCV NonCited Violation
Inadequate Qualification Testing of Fire Barrier Penetration Seals
A Green non-cited violation of Surry Units 1 and 2 Operating License Condition 3.I, “Fire Protection,” was identified by the inspectors for failure to have adequate qualification testing results, as directed by Appendix A to Branch Technical Position APCSB 9.5-1. Specifically, the licensee did not have sufficient testing results to qualify certain aluminum conduit configurations that penetrate 3-hour fire rated barriers separating fire areas containing redundant equipment required for safe shutdown. As part of the corrective actions, the licensee performed testing to determine the qualification of aluminum conduit penetrations, and performed modifications, as appropriate, to restore compliance.

The finding is more 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 objective of ensuring the reliability and capability of systems that respond to initiating events. Specifically, not having qualification testing results for aluminum conduits that penetrate fire rated barriers adversely affected the fire confinement capability defense-in-depth element because subsequent testing revealed some conduit configurations that did not meet the penetration seal criteria established in Branch Technical Position APCSB 9.5-1. The inspectors used the guidance of NRC Inspection Manual Chapter 0609, Appendix F, “Fire Protection Significance Determination Process,” and

determined that the performance deficiency represented a finding of very low safety significance (Green). Specifically, the fire areas in question either contained a non degraded automatic gaseous or water-based fire suppression system, or the exposed fire areas did not contain potential damage targets that are unique from those in the exposing fire areas. Inspectors determined that no cross cutting aspect was applicable to this performance deficiency because this finding was not indicative of current licensee performance. (Section 4OA5.3)

Inspection Report# : 2011003 *(pdf)*

Significance: G Mar 31, 2011
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
Failure to Correct Multiple Conditions Adverse to Fire Protection
A Green, self-revealing non-cited violation of Condition 3.I to the Surry Unit 1 and Unit 2 Updated Facility Operating Licenses, DPR-32 and DPR-37, was identified for the licensee's failure to take corrective action for degraded conditions adverse to the fire protection program. The licensee entered this issue into their corrective action program as condition report 398628.

The inspectors found that the failure to take action to correct multiple oversized breakers constituted a performance deficiency. The finding is more than minor because it adversely affected the external factors attribute (fire) 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 Unit 2 '1B' RWST chiller motor and the Unit '2B' hydrogen recombiner breakers were the most susceptible to fire due to their size; also a cable fault could potentially damage safety related cables routed nearby. In addition, the Unit 1 '2B' charging component cooling water pump is safety related and its cable was also unprotected. The inspectors reviewed IMC 0609, Appendix F, Attachment 1, and determined the category of post fire safe shutdown was affected and the finding required a phase 3 analysis. A phase 3 risk analysis was performed by a regional SRA in accordance with IMC 0609 Appendix F, NUREG/CR6850, NUREG/CR 6850 supplement 1, and utilizing the latest NRC Surry SPAR probabilistic risk analysis model and determined that the risk increase in core damage frequency was <1E-6, a finding of very low risk significance, Green. The cause of this finding involved the cross-cutting area of human performance, the component of work control, and the aspect of work planning, H.3(a), because the licensee failed to appropriately prioritize, schedule, and complete work activities consistent with risk insights and the safety significance of the equipment.

Inspection Report# : 2011002 *(pdf)*

Significance: SL-IV Feb 28, 2011
Identified By: NRC
Item Type: VIO Violation
Inaccurate Fire Watch Records
The licensee identified a violation of 10 CFR 50.48 Fire Protection requirements when it was determined that a laborer failed to conduct a roving fire watch patrol. The licensee took substantial disciplinary actions and entered the deficiency into the corrective action program for resolution as CR 379888.

This issue was dispositioned using traditional enforcement due to the deliberate aspects of the performance deficiency. Furthermore, the failure to provide complete and accurate information has the potential to impact the NRC's ability to perform its regulatory function. An individual assigned as a fire watch deliberately documented the completion of fire watch rounds (Fire Watch Tour Documentation Sheet, Attachment 14) for locations in which he did not conduct the fire watches. This issue was considered more than minor due to the deliberate aspects of the performance deficiency. In accordance with the guidance in Supplement VII of the Enforcement Policy, this issue is considered a Severity Level IV violation because it involved information that the NRC required to be maintained by a licensee that was incomplete or inaccurate and of more than minor safety significance. No cross-cutting aspect was identified because this performance deficiency was dispositioned using traditional enforcement.
Inspection Report# : 2011004 *(pdf)*

Inspection Report# : 2011012 *(pdf)*

Barrier Integrity

Significance: G Dec 31, 2010
Identified By: NRC
Item Type: NCV NonCited Violation
Heavy Load Lift of the 1B RCP Motor Over Exposed Reactor Fuel
An NRC-identified Green NCV of Technical Specification (TS) 6.4, Unit Operating Procedures and Programs, was identified. Personnel failed to follow the defined heavy load shipping path inside containment as specified in procedure, GMP-001, Heavy Load Rigging and Movement, which resulted in the movement of the 1B reactor coolant pump motor over exposed reactor fuel. The licensee has entered the issue into the CAP (CR 404106).

Transport of the 1B reactor coolant pump motor over the exposed reactor core is a performance deficiency. The finding is more than minor because it can reasonably be viewed as a precursor to a significant event, the heavy load traveled over exposed irradiated fuel with the reactor vessel head removed. In accordance with NRC Inspection Manual Chapter (IMC) 0609, Appendix G, “Shutdown Operations Significance Determination Process,” Attachment 1, Checklist 4, the inspectors conducted a Phase 1 SDP screening and determined the finding required a Phase 2 analysis. The Phase 2 analysis determined the finding is of very low safety significance (Green) because: (1) there is a low probability of dropping the load based on a study in NUREG-1774 performed for crane operating experience; (2) the polar crane was in working condition and had no known deficiencies that would have affected the crane’s ability to lift the load; and, (3) the duration of the heavy load lift over the exposed reactor core was very short. In addition, in accordance with NRC IMC 0609, Appendix H, “Containment Integrity SDP,” the finding would not contribute to LERF due to the time since the reactor was shutdown. The finding has a cross-cutting aspect in the work practices component of the Human Performance area because plant supervisors failed to properly supervise workers executing procedure steps (H.4(c)).

Inspection Report# : 2010005 *(pdf)*

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 Jun 24, 2011
Identified By: NRC
Item Type: FIN Finding
PI&R inspection results
The inspection team concluded that, in general, problems were adequately identified, prioritized, and evaluated; and effective corrective actions were implemented. Site management was actively involved in the corrective action program (CAP) and focused appropriate attention on significant plant issues. The team found that employees were encouraged by management to initiate condition reports (CRs) as appropriate to address plant issues.

The licensee was effective at identifying problems and entering them into the CAP for resolution, as evidenced by the relatively few deficiencies identified by the NRC that had not been previously identified by the licensee during the review period. The threshold for initiating CRs was appropriately low, as evidenced by the type of problems identified and large number of CRs entered annually into the CAP. In addition, CRs normally provided complete and accurate characterization of the problem.

Generally, prioritization and evaluation of issues were adequate and consistent with the licensee's CAP guidance. Formal root cause evaluations for significant problems were adequate, and corrective actions specified for problems did address the cause of the problems. The age and extensions for completing evaluations were closely monitored by plant management, both for high priority condition reports, as well as for adverse conditions of less significant priority. Also, the technical adequacy and depth of evaluations (e.g., root cause investigations) were typically adequate. However, the team identified two minor issues associated with the licensee's identification of issues and effectiveness of corrective actions.

Corrective actions were generally effective, timely, and commensurate with the safety significance of the issues.

The operating experience program was effective in screening operating experience for applicability to the plant, entering items determined to be applicable into the CAP, and taking adequate corrective actions to address the issues. External and internal operating experience was adequately utilized and considered as part of formal root cause evaluations for supporting the development of lessons learned and corrective actions for CAP issues.

The licensee's audits and self-assessments were critical and effective in identifying issues and entering them into the corrective action program. These audits and assessments identified issues similar to those identified by the NRC with respect to the effectiveness of the CAP.

Based on general discussions with licensee employees during the inspection, targeted interviews with plant personnel, and reviews of selected employee concerns records, the inspectors determined that personnel at the site felt free to raise safety concerns to management and use the CAP as well as the employee concerns program to resolve those concerns.

Inspection Report# : 2011008 *(pdf)*

Last modified : January 04, 2012