Surry 1
1Q/2012 Plant Inspection Findings

Initiating Events

Significance: G Jan 12, 2012
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Provide Appropriate Procedural Guidance for Component Cooling Water Flow to the Thermal Barrier Heat Exchangers
The team identified a non-cited violation of Technical Specification 6.4.A.3, “Unit Operating Procedures and Programs,” for the licensee’s failure to provide appropriate procedural guidance to assure the operator’s ability to detect and correct a component cooling (CC) water low flow condition through the thermal barrier heat exchanger. The licensee entered this in their corrective action program as CR 455255.

The licensee’s failure to provide appropriate procedural guidance to assure that CC flow to thermal barrier heat exchangers was maintained greater than 35 gpm was a performance deficiency. The performance deficiency was more than minor because it was associated with the procedure quality attribute of the Initiating Event Cornerstone and adversely affected the cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, the failure to translate the appropriate minimum flow requirement value into procedures adversely affected the operator’s ability to detect and correct a CC water low flow condition through the thermal barrier heat exchanger which could result in entering an event with a back-up system in a degraded condition. In accordance with Nuclear Regulatory Commission Inspection Manual Chapter 0609.04, “Initial Screening and Characterization of Findings,” the team conducted a Phase 1 Significance Determination Process screening and determined the finding to be of very low safety significance (Green) because assuming worst case degradation, the finding would not exceed the Technical Specification limit for any reactor coolant system leakage, and the finding did not affect other mitigation systems. The finding was reviewed for cross-cutting aspects and none were identified since the performance deficiency was not indicative of current licensee performance. [Section 1R21.2.1]

Inspection Report# : 2011011 *(pdf)*

Mitigating Systems

Significance: G Jan 12, 2012
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Implement Design Control Measures to Verify the Adequacy of TOLs at Degraded Voltage Conditions
The team identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, “Design Control,” for the licensee’s failure to use the most conservative motor currents in the analysis to determine the adequacy of thermal overloads (TOLs) at degraded voltage conditions. The licensee entered this into their corrective action program as CR 455657, CR454839, CR454841, CR454863, CR455218, and CR 456448.

The licensee’s failure to use the most conservative motor currents in the analysis to determine the adequacy of TOLs at degraded voltage conditions was a performance deficiency. The performance deficiency was more than minor because it was similar to Inspector Manual Chapter 0612, “Power Reactor Inspection Reports,” Appendix E, “Example of Minor Issues”, Example 3.j, which states that if “the engineering calculation error results in a condition where there is now a reasonable doubt on the operability of a system or component” the performance deficiency is not

minor. Further, the performance deficiency was more than minor because it was associated with the design control attribute of the mitigating systems cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the failure to use the most conservative motor currents in the analysis to determine the adequacy of TOLs at degraded voltage conditions resulted in a reasonable doubt that the 480V safety related motors could perform their safety function. In accordance with Nuclear Regulatory Commission Inspection Manual Chapter 0609.04, “Initial Screening and Characterization of Findings”, the team conducted a Phase 1 Significance Determination Process screening and determined the finding to be of very low safety significance (Green) because it was a design deficiency confirmed not to have resulted in the loss of operability or functionality. The finding was reviewed for cross-cutting aspects and none were identified since the performance deficiency was not indicative of current licensee performance. [Section 1R21.2.10]
Inspection Report# : 2011011 *(pdf)*

Significance: G Jan 12, 2012
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Provide Adequate Instructions in the Operations Surveillance Procedure for the Charging Pump Service Water System
The team identified a non-cited violation of Technical Specification 6.4.A.7, “Unit Operating Procedures and Programs”, for the licensee’s failure to provide adequate instructions in the surveillance procedure for the charging pump service water system. The licensee entered this into their corrective action program as CR 456318.

The licensee’s failure to provide adequate procedural guidance to flush the charging pump service water system cross-tie components was a performance deficiency. The performance deficiency was more than minor because it was associated with the procedure quality attribute of the mitigating systems cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the surveillance procedure that was developed as a corrective action for CR 169929 was inadequate in that it did not flush the cross-tie piping that was used in procedures 0-AP¬12, and 0-FCA-7. The failure to adequately flush the cross-tie lines resulted in a lack of reasonable assurance that the components would perform their intended function. In accordance with Nuclear Regulatory Commission Inspection Manual Chapter 0609.04, “Initial Screening and Characterization of Findings”, the team conducted a Phase 1 Significance Determination Process screening and determined the finding to be of very low safety significance (Green) because it was not a design deficiency, did not represent the loss of a system safety function, did not result in exceeding a Technical Specification allowed outage time, and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. Additionally, the team assessed the finding using Inspection Manual Chapter 0609, Appendix F, “Fire Protection Significance Determination Process,” and determined that the finding was of very low safety significance (Green) because the finding only affected the ability to reach and maintain cold shutdown conditions. The team identified a cross-cutting aspect in the resources component of the Human Performance area. Specifically, the licensee failed to provide an adequate procedure for the maintenance of the charging pump service water system. [H.2(c)]. [Section 1R21.2.10]

Inspection Report# : 2011011 *(pdf)*

Significance: G Jan 12, 2012
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Monitor or Perform Effective Preventive Maintenance on the AAC Diesel Ventilation Supply Dampers and Exhaust Fans Louvers
The team identified a non-cited violation of 10 CFR 50.65, “Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants,” for the licensee’s failure to perform condition monitoring or otherwise implement an effective preventive maintenance program for the alternate alternating current (AAC) diesel generator ventilation supply dampers and exhaust louvers. The licensee entered this into their corrective action program as CR 449898, CR 450609, CR 454673, and CR 454653.

The licensee’s failure to perform condition monitoring or otherwise implement an appropriate preventative

maintenance program for the AAC ventilation dampers and louvers was a performance deficiency. This performance deficiency was more than minor because it was associated with equipment performance attribute of the mitigating system cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the lack of an effective preventative maintenance program on the ventilation system affected the reliability of the exhaust fan louvers, as evidenced by exhaust fan louver, 0-VS-F-702, being stuck open, and challenged the assurance that these components would remain capable to support the functionality of the AAC diesel. In accordance with Nuclear Regulatory Commission Inspection Manual Chapter 0609.04, "Initial Screening and Characterization of Findings", the team conducted a Phase 1 Significance Determination Process screening and determined the finding to be of very low safety significance (Green) because it was not a design deficiency, did not represent the loss of a system safety function, did not result in exceeding a Technical Specification allowed outage time, and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. The finding was reviewed for cross-cutting aspects and none were identified since the performance deficiency was not indicative of current licensee performance. [Section 1R21.2.13]
Inspection Report# : 2011011 *(pdf)*

Significance: G Jan 12, 2012
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Implement Design Control Measures to Verify the Adequacy of Inputs Into the RS NPSHa Analysis
The team identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for the licensee's use of a non-conservative net positive suction head required (NPSHr) value in the analysis that determined the adequacy of the net positive suction head available (NPSHa) for the recirculation spray pumps. The licensee entered this into their corrective action program as CR 454236.

The licensee's use of a non-conservative NPSHr value in the analysis that determined the adequacy of the NPSHa for the recirculation spray pumps was a performance deficiency. The performance deficiency was more than minor because it was similar to Inspection Manual Chapter 0612, "Power Reactor Inspection Reports," Appendix E, "Examples of Minor Issues", Example 3j, which states that if the engineering calculation error resulted in a condition where there was a reasonable doubt on the operability of a system the performance deficiency is not minor. Further, the performance deficiency was more than minor because it was associated with the design control attribute of the mitigating systems cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the higher NPSHr for the outside recirculation spray pumps, due to the temperature correction, exceeded the NPSHa and resulted in a reasonable doubt that the outside recirculation spray pumps could perform their functions under the most limiting conditions. In accordance with Nuclear Regulatory Commission Inspection Manual Chapter 0609.04, "Initial Screening and Characterization of Findings", the team conducted a Phase 1 Significance Determination Process screening and determined the finding to be of very low safety significance (Green) because it was a design deficiency confirmed not to result in loss of operability or functionality. The finding was reviewed for cross-cutting aspects and none were identified since the performance deficiency was not indicative of current licensee performance. [Section 1R21.2.14]

Inspection Report# : 2011011 *(pdf)*

Significance: G Dec 31, 2011
Identified By: NRC
Item Type: NCV NonCited Violation
Inadequate Corrective Actions to Address Rainwater Intrusion into the Unit 1 RPS Relay Room
The inspectors identified a non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," for the licensee failing to correct a condition adverse to quality. Specifically, the licensee failed to correct a known degraded building seam which allowed rainwater into the Unit 1 Reactor Protection System (RPS) Relay Room on four separate occasions over a four year time period.

The inspectors concluded that the failure to correct the known degraded building seam was a performance deficiency that was within the licensee's ability to foresee and correct and which should have been prevented. The finding was

more than minor because it is associated with the Mitigating Systems cornerstone attribute of Protection Against External Factors - Weather (heavy rain), and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the potential existed that under design basis rainfall conditions the water would migrate to a point where RPS equipment would be impacted. The inspectors determined that this finding was of very low safety significance because the finding was not a design issue, did not result in a loss of a safety function of a mitigating system, and did not screen potentially risk significant due to a seismic, flooding, or severe weather initiating event. The cause of this finding involved the cross-cutting area of problem identification and resolution, the component of corrective action program, and the aspect of appropriate corrective actions [P.1(d)], because the licensee failed to take appropriate and timely corrective actions commensurate with the safety significance of the rainwater intrusion events. (Section 4OA2)

Inspection Report# : 2011005 *(pdf)*

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 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 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)*

Barrier Integrity

Emergency Preparedness

Significance: G Mar 31, 2012
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Maintain a Standard Emergency Action Level Scheme for Earthquakes
The inspectors identified a self-revealing non-cited violation (NCV) of 10 CFR 50.54(q) for the failure to maintain in

effect, an emergency plan which meets the requirements of 10 CFR 50.47(b)(4). Specifically, a standard emergency classification and action level scheme which includes facility system parameters. The licensee's plan contained Alert and Notification of Unusual Event (NOUE) emergency action levels (EALs) which relied on indications from the station's Strong Motion Accelerograph (seismic monitoring equipment) while that instrument was incapable of functioning. The licensee entered the problem into their corrective action program as condition report, CR-469813.

The inspectors determined that the failure to properly maintain the seismic instrumentation was a performance deficiency and resulted in an emergency plan requirement which could not be met. The performance deficiency was determined to be more than minor because it is associated with the Emergency Preparedness Cornerstone attribute of Emergency Response Organization Performance. The finding impacted the cornerstone objective because it is associated with a program element not meeting 50.47(b) planning standards to protect the health and safety of the public in the event of a radiological emergency. Specifically, the licensee's ability to declare an Alert and NOUE based on Natural Phenomenon was degraded. The finding was assessed for significance in accordance with NRC Inspection Manual Chapter (IMC) 0609, using the Phase I SDP worksheets for emergency preparedness and was determined to be very low safety significance because there was a degraded risk-significant planning standard function. IMC 0609, Appendix B states, "FAILURE TO COMPLY means that a program is noncompliant with a REGULATORY REQUIREMENT." The inspectors determined the licensee was noncompliant with 10 CFR 50.54 (q), 50.47(b)(4), and App. E, Section IV.B in that the Natural Phenomenon Emergency Action Level contained Alert and NOUE classification decision inputs requiring Strong Motion Accelerograph activation, which could not function due to inadequate maintenance. This would require use of other means to determine whether the classification thresholds had been exceeded. Using IMC 0609 App. B, Figure 5.4-1, Significance Determination for Ineffective EALs and Overclassification, the inspectors determined that an Alert (HA1.1) would not be declared, resulting in Green significance. The cause of this finding involved the cross cutting area of human performance, the component of resources, and the aspect of complete, accurate, and up-to-date procedures [H.2(c)] (Section 4OA2.3)

Inspection Report# : 2012002 *(pdf)*

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 : May 29, 2012