Perry 1
1Q/2012 Plant Inspection Findings

Initiating Events

Significance: G Mar 31, 2012
Identified By: NRC
Item Type: NCV NonCited Violation
REACTOR MANUAL SCRAM ASSOCIATED WITH INADEQUATE MAINTENANCE RISK EVALUATION
A self-revealed finding of very low safety significance (Green) and an associated NCV of 10 CFR 50.65(a)(4) was identified for failure to assess and manage risk associated with maintenance activities. Specifically, the licensee planned and conducted maintenance on a stator water cooling system pressure gauge on March 1, 2012, as a lower risk evolution than required, and conducted the maintenance online despite several decision points which indicated that this maintenance should have been conducted with the unit offline. When performed on line, the activity caused a reactor scram. The licensee entered the issue into the corrective action program as Condition Report 2012-03231.

The finding was evaluated using IMC 0612, Appendix E, “Examples of Minor Issues,” and was determined to be more than minor because it is similar to Example 7.e and resulted in a reactor scram. Additionally, the performance deficiency impacted the Human Performance attribute of the Initiating Events Cornerstone, and adversely affected the cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during power operations. In accordance with IMC 0609, Appendix K, “Maintenance Risk Assessment and Risk Management Significance Determination Process,” a Region III Senior Reactor Analyst performed an analysis of the risk deficit for the unevaluated condition associated with work on a stator water system pressure gauge resulting in a reactor scram. The Perry Standardized Plant Analysis Risk (SPAR) model version 8.15 and SAPHIRE version 8.0.7.18 was used to calculate an Incremental Core Damage Probability Deficit (ICDPD). The result was an ICDPD of less than 7E-8. The dominant core damage sequences involved: (1) loss of the main condenser, failure of suppression pool cooling, failure of containment spray, failure of the power conversion system, failure of containment venting, and failure of late injection; and (2) failure of the reactor protection system to shutdown the reactor with failure of the recirculation pumps to trip. In accordance with IMC 0609, Appendix K, because the calculated ICDPD was not greater than 1E-6, the finding was determined to be of very low safety significance. This finding was associated with a cross-cutting aspect in the Work Planning (H.3(a)) component of the Human Performance cross-cutting area because the licensee did not incorporate appropriate risk insights into the development of the work package. Specifically, the licensee did not evaluate, during the planning phase of the work preparation, for the impact of re-installation of the pressure gauge and the potential for a pressure spike; a spike which caused a sustained runback of the main turbine generator with a resultant required action by the operators to manually scram the reactor.

Inspection Report# : 2012002 *(pdf)*

Significance: SL-IV Dec 31, 2011
Identified By: NRC
Item Type: NCV NonCited Violation
FAILURE TO COMPLY WITH TS 5.5.11, TS BASES CONTROL PROGRAM
The inspectors identified a finding of very low safety significance and an associated Severity Level IV NCV of Technical Specification (TS) 5.5.11 for failure to comply with the TS Bases Control Program. Specifically, the licensee made a change to the TS Bases, which affected TS 3.8.1, without receiving prior approval from the NRC. The licensee immediately declared equipment affected by TS 3.8.1 inoperable, namely one source of offsite power, and restored it in an expeditious manner. The licensee entered the issue into their corrective action program as CR 2011-02474.

The inspectors determined that the violation was more than minor because in order to perform its regulatory function, the NRC relies on licensees to comply with their licensing basis documents and request prior approval for changes that may affect these documents. Because this issue affected the NRC's ability to perform its regulatory function, it

was evaluated using the traditional enforcement process. The inspectors determined that the underlying technical issue could be evaluated using the SDP. Specifically, the Unit 1 transformer, a source of offsite power, was unavailable for longer than allowed by TS 3.8.1. The finding was more than minor because it impacted the Human Performance attribute of the Initiating Events 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. Based on the Phase 3 analysis using IMC 0609, Appendix A, for At-Power situations, the inspectors, in conjunction with a regional senior reactor analyst (SRA), determined that the finding was of very low safety significance (Green). This finding has no cross-cutting aspect as it was not representative of current performance.
Inspection Report# : 2011005 *(pdf)*

Significance: G Dec 31, 2011
Identified By: NRC
Item Type: NCV NonCited Violation
FAILURE TO COMPLY WITH TS 5.5.11, TS BASES CONTROL PROGRAM
The inspectors identified a finding of very low safety significance and an associated Severity Level IV NCV of Technical Specification (TS) 5.5.11 for failure to comply with the TS Bases Control Program. Specifically, the licensee made a change to the TS Bases, which affected TS 3.8.1, without receiving prior approval from the NRC. The licensee immediately declared equipment affected by TS 3.8.1 inoperable, namely one source of offsite power, and restored it in an expeditious manner. The licensee entered the issue into their corrective action program as CR 2011-02474.

The inspectors determined that the violation was more than minor because in order to perform its regulatory function, the NRC relies on licensees to comply with their licensing basis documents and request prior approval for changes that may affect these documents. Because this issue affected the NRC's ability to perform its regulatory function, it was evaluated using the traditional enforcement process. The inspectors determined that the underlying technical issue could be evaluated using the SDP. Specifically, the Unit 1 transformer, a source of offsite power, was unavailable for longer than allowed by TS 3.8.1. The finding was more than minor because it impacted the Human Performance attribute of the Initiating Events 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. Based on the Phase 3 analysis using IMC 0609, Appendix A, for At-Power situations, the inspectors, in conjunction with a regional senior reactor analyst (SRA), determined that the finding was of very low safety significance (Green). This finding has no cross-cutting aspect as it was not representative of current performance.
Inspection Report# : 2011005 *(pdf)*

Significance: G Dec 02, 2011
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Adequately Protect Safety Related Equipment from Internal Flooding
The inspectors identified a finding of very low safety significance and associated Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion III, “Design Control,” for failure to ensure safety-related equipment would be adequately protected from internal flooding. Specifically, the licensee failed to adequately evaluate the volume of water originating from a postulated crack in service water (SW) piping within the control complex. This finding was entered into the licensee’s corrective action program. The corrective actions included performing additional analyses, establishing compensatory measures, issuing procedure orders, and revising operating procedures.

The performance deficiency was determined to be more than minor because it was associated with the Initiating Events cornerstone attribute of Equipment Performance and affected the cornerstone objective of limiting the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Based on the Phase III Analysis, the inspectors determined the finding was of very low safety significance (Green). The inspectors determined the cause of this finding did not represent current licensee performance and no cross-cutting aspect was assigned.

Inspection Report# : 2011008 *(pdf)*

Significance: SL-IV Dec 02, 2011

Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Report Unanalyzed Condition Related to Internal Flooding
The inspectors identified a Severity Level IV violation of 10 CFR 50.72, “Immediate Notification Requirements for Operating Nuclear Reactors,” for failure to report within eight hours an unanalyzed condition that significantly degrades plant safety. Specifically, the licensee failed to notify NRC upon discovery of a postulated internal flood in the control complex could result in loss of single failure capability of safety-related equipment. This violation was entered into the licensee’s corrective action program.

The performance deficiency was determined to involve a traditional enforcement violation because it potentially impeded or impacted the regulatory process. The traditional enforcement violation was determined to be more than minor because the information that was not provided through the event notification had a material impact on safety and licensed activities. The traditional enforcement violation was determined to
be a Severity Level IV violation because the failure to report within eight hours an unanalyzed condition did not result in an unacceptable change to the facility or procedures. An evaluation for cross-cutting aspect was not applicable because this was a traditional enforcement violation.

Inspection Report# : 2011008 *(pdf)*

Significance: G Jun 30, 2011
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
FAILURE TO VERIFY EXPECTED EFFECTS RESULTS IN OVERFLOWING THE AUXILIARY BUILDING SUMP
A finding of very low safety significance and associated NCV of Technical Specification 5.4.1 was self-revealed for the licensee’s failure to follow plant procedures. The inspectors determined that the licensee failed to follow a procedure which requires verification of expected effects when operating plant components. This failure led to draining approximately 15,000 gallons of suppression pool water which overflowed the Auxiliary Building sump and caused the spread of contamination to various areas of the Auxiliary Building. The licensee entered the issue into their corrective action program. Immediate actions included securing all sources of water to the Auxiliary Building sump and removing water from the Auxiliary Building.

This performance deficiency was determined to be more than minor because it impacted the Human Performance attribute of the Initiating Events cornerstone, and adversely affected the cornerstone objective of limiting the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. The finding is of very low safety significance because it did not increase the likelihood of a loss of reactor coolant system inventory, degrade the licensee’s ability to terminate a leak path or add inventory, or degrade the licensee’s ability to recover decay heat removal. The finding was associated with a cross-cutting aspect in the Resources component of the Human Performance cross-cutting area per IMC 0310 (H.2(c)), because the licensee did not provide complete, accurate and up-to-date procedures. Specifically, the procedure to test the residual heat removal waterleg pump did not address the potential to drain the suppression pool to the Auxiliary Building sump.
Inspection Report# : 2011003 *(pdf)*

Mitigating Systems

Significance: G Dec 31, 2011
Identified By: NRC
Item Type: NCV NonCited Violation
FAILURE TO ESTABLISH A PROCEDURE TO PERFORM MAINTENANCE ON SAFETY-RELATED EQUIPMENT
The inspectors identified a finding of very low safety significance and associated NCV of TS 5.4.1.a for failure to implement a maintenance procedure for safety-related equipment required by Regulatory Guide 1.33, “Quality Assurance Program Requirements (Operation).” Specifically, the licensee performed an internal inspection on the 'B'

train of the annulus exhaust gas treatment system (AEGTS) rendering the train inoperable. The inspectors determined that the licensee performed an activity that affected quality without a proper procedure in place. The licensee entered the issue into their corrective action program as condition report (CR) 2011-05530.

This performance deficiency was determined to be more than minor because it impacted 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. The finding screened as very low safety significance (Green) by answering 'no' to questions in the Mitigating Systems column of IMC 0609, Attachment 4, Table 4a, since the remaining train of AEGTS was operable and did not result in a loss of function for the impacted components, and the inoperable train was not inoperable for longer than allowed by TS. This finding was associated with a cross-cutting aspect in the Decision Making component of the Human Performance cross cutting area because the licensee did not use conservative assumptions to ensure the proposed action was safe. Specifically, the licensee did not evaluate the impact of performing the internal inspection on the operability of the system and utilized an operator to take action if the system was called upon to perform its design function.

Inspection Report# : 2011005 *(pdf)*

Significance:  Dec 31, 2011
Identified By: NRC
Item Type: NCV NonCited Violation
DIESEL GENERATOR ROOM'S FIRE PROTECTION SYSTEM CONCERN
The inspectors identified a finding of very low safety significance and associated NCV of License Condition 2.C.6 for the failure to install heat detectors in the emergency diesel generator (EDG) rooms in accordance with their listed approval. Specifically, the detectors were installed at a height of 24 feet, which was in excess of approved ceiling height without appropriate reduction of spacing for ceiling height. The licensee entered the issue into their corrective action program as CR 2011-06242 and planned to evaluate modifications to address the issue.

The finding was determined to be more than minor because the failure to install heat detectors in accordance with their listed approval was associated with the Mitigating Systems Cornerstone attribute of protection against external factors (fire) and adversely affected the cornerstone objective of ensuring the reliability and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the high installation height for the detectors without appropriate reduced detector spacing would result in requiring a larger fire and a delay in carbon dioxide system actuation. This finding was of very low safety significance using IMC 0609, Appendix F, "Fire Protection Significance Determination Process," because a fire involving an EDG would only affect the EDG involved in the fire due to the substantive fire barriers between the EDG rooms. The evaluated conditions were not significant risk contributors. The inspectors did not identify a cross-cutting aspect associated with the finding because the finding was not representative of current performance.

Inspection Report# : 2011005 *(pdf)*

Significance:  Dec 02, 2011
Identified By: NRC
Item Type: NCV NonCited Violation
Inadequate Control Circuit Voltage Calculation for Safety-Related Motor Starter Contactors
The inspectors identified a finding of very low safety significance and associated Non-Cited Violation (NCV) of 10 CFR Part 50, Appendix B, Criterion III, "Design Control", for failure to adequately evaluate the capability of motor control starter contactors to operate during design basis degraded voltage conditions. Specifically, the licensee did not analyze all circuit elements of resistance and failed to incorporate the latest results of calculated plant bus voltages.

The performance deficiency was determined to be more than minor because it was associated with the Mitigating System Cornerstone attribute of equipment performance and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The finding screened as of very low safety significance (Green) because the finding involved a design or qualification deficiency that did not result in a loss of operability. Specifically, the licensee performed an

operability evaluation taking into account all resistances in the circuit, the latest load flow analysis and test data and concluded there was sufficient voltage available. This finding has a cross-cutting aspect in the area of Resources for failure to ensure complete, accurate, and up-to-date design documentation, procedures, work packages and correct labeling of components.
Inspection Report# : 2011008 *(pdf)*

Significance: G Dec 02, 2011
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Test Safety-Related Contactors at Degraded Voltage Conditions
The inspectors identified a finding of very low safety significance and associated Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion III, “Design Control,” for failure to test safety-related motor starter contactors at design basis conditions. Specifically, the licensee failed to demonstrate the ability of ESW Pump ‘A’ discharge valve 1P45F0130A motor starter contactor to operate at minimum pickup voltage during design basis degraded voltage conditions. This finding was entered into the licensee’s corrective action program.

The performance deficiency was determined to be more than minor because if left uncorrected it would have the potential to lead to a more significant safety concern. The finding screened as of very low safety significance (Green) because the finding involved a design or qualification deficiency that did not result in a loss of operability. Specifically, after further evaluation, the licensee’s engineering staff concluded the issue did not impact current operability because periodic testing for other type of contactors provided validation the valve motor contactor would operate when required for the postulated degraded voltage conditions. This finding has a cross-cutting aspect in the area of Problem Identification and Resolution Corrective Action Program for failure to take appropriate corrective actions to address safety issues and adverse trends in a timely manner, commensurate with their safety significance and complexity.
Inspection Report# : 2011008 *(pdf)*

Significance: G Sep 30, 2011
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
FAILURE TO CORRECTLY ASSESS RISK DURING 'A' ESW PUMP MAINTENANCE ACTIVITIES
A self-revealed finding of very low safety significance and associated Non-Cited Violation (NCV) of 10 CFR 50.65 (a)(4) was apparent in the licensee's failure to accurately assess plant risk during maintenance activities. The inspectors determined that the licensee failed to correctly identify the plant risk condition during maintenance on the 'A' emergency service water (ESW) pump when the pump packing gland follower was replaced following a packing replacement. Specifically, there was a 45 minute period of time that the licensee’s declared plant risk was in a GREEN status before the pump was retested and found to be unreliable for long term operations and the plant risk was returned to YELLOW status. The licensee entered the issue associated with their failure to correctly assess the plant risk condition into their corrective action program (CAP).

The performance deficiency was determined to be more than minor because the finding was similar to IMC 0612 Appendix E, Example 7.e, and resulted in actual plant risk being in a higher licensee-established risk category than declared. The finding was of very low safety significance because the risk deficit, or incremental core damage probability deficit (ICDPD) was < 1E-6. This finding had a cross-cutting aspect in the area of Human Performance, Decision-Making because the licensee did not use conservative assumptions in decision making nor adopt a requirement to demonstrate that the proposed action is safe in order to proceed. Specifically, the licensee chose to minimize system unavailability time and as a result did not perform the post-maintenance test to verify that the 'A' ESW pump was available prior to lowering declared plant risk. (H.1(b)) (Section 1R13)
Inspection Report# : 2011004 *(pdf)*

Significance: G Jul 08, 2011
Identified By: NRC
Item Type: NCV NonCited Violation
Emergency Service Water System Piping did not meet ASME Code Requirements (Section 4OA5)

A finding of very low safety significance and an associated non-cited violation of Title 10 of the Code of Federal Regulations (CFR) Part 50, Appendix B, Criterion III, “Design Control,” was identified by the inspectors for failure to perform an adequate evaluation for Emergency Service Water (ESW) system piping. Specifically, the inspectors identified that the licensee had not evaluated all design and licensing basis loads and load combinations in accordance with Seismic Category I and American Society of Mechanical Engineers (ASME) code requirements. The licensee documented the corrective actions in CR10-86678 and CR11-88800.

The inspectors determined that the performance deficiency affected the Mitigating Systems Cornerstone. The inspectors compared this performance deficiency to the minor questions of IMC 0612, Appendix B, “Issue Screening,” dated December 24, 2009, and the inspectors determined that this finding was more than minor because, if left uncorrected, the failure to perform an adequate evaluation of the ESW system piping would have the potential to become a more significant safety concern. Absent NRC intervention, the licensee would not have performed the evaluation of the Vertical Cask Transporter (VCT) load in combination with seismic load as well as other design basis loads which would have placed the piping in a potential overstress condition leading to a permanent deformation of the piping where the system would not be able to perform its safety function and it would become a more significant safety concern. Specifically, compliance with Seismic Category I and ASME code requirements was to ensure structural integrity of the ESW piping during a design basis event. The inspectors determined the finding could be evaluated using the SDP in accordance with IMC 0609, “Significance Determination Process,” Attachment 0609.04, “Phase 1 -- Initial Screening and Characterization of Findings,” Table 4a for the Mitigating Systems Cornerstone. The inspectors answered “yes” to the question of is the finding a design qualification deficiency confirmed not to result in loss of operability or functionality in the Mitigating Systems column based on the licensee revising design calculations and initiated modifications where necessary to demonstrate compliance and concluded that the finding was of very low safety-significance (Green). The inspectors identified a Human Performance, Work Practices (H.4.c) cross-cutting aspect associated with this finding. The licensee did not ensure supervisory and management oversight of work activities, including contractors, such that nuclear safety was supported. Specifically, the licensee failed to have effective oversight of design calculation and documentation for demonstrating ASME code compliance of the ESW system piping. [H.4(c)] (Section 4OA5)
Inspection Report# : 2011009 *(pdf)*

Significance: G Jun 30, 2011
Identified By: NRC
Item Type: NCV NonCited Violation
FAILURE TO ESTABLISH A PROCEDURE TO OPERATE SAFETY-RELATED EQUIPMENT
The inspectors identified a finding of very low safety significance and associated NCV of Technical Specification 5.4.1.a, for failure to establish a procedure to remove power from the shutdown cooling isolation valves while shutdown cooling was in operation during a plant refueling outage. The inspectors determined that the licensee performed an activity that affected quality without a proper procedure in place. The licensee entered the issue into their corrective action program.

This performance deficiency was determined to be more than minor because it impacted 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 (i.e., core damage). This finding is of very low safety significance because the risk significance was evaluated to have a delta core damage frequency of less than E-6/yr and a delta large early release frequency of less than E-7/yr. This finding was associated with a cross-cutting aspect in the Work Practices component of the Human Performance cross-cutting area per IMC 0310 (H.4(b)) because the licensee did not effectively communicate expectations regarding procedural compliance and personnel following procedures. Specifically, the operators did not question operating safety-related plant equipment without appropriate procedural guidance.

Inspection Report# : 2011003 *(pdf)*

Significance: G Jun 30, 2011
Identified By: NRC
Item Type: FIN Finding
FAILURE TO FOLLOW TECHNICAL SPECIFICATION BASES

The inspectors identified a finding of very low safety significance for failure to follow Technical Specification Limiting Condition for Operations 3.0.2 bases. The inspectors determined that the licensee rendered safety-related plant equipment inoperable and entered TS 3.6.1.3 Condition A for operational convenience. The licensee entered the issue into their corrective action program.

This performance deficiency was determined to be more than minor because it impacted the Configuration 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 (i.e., core damage). This finding is of very low safety significance because it does not increase the likelihood that a loss of decay heat removal, reactor coolant system inventory, or offsite power will occur and does not degrade the ability to terminate a leak path, recover decay heat removal once it is lost, or establish an alternate core cooling path if decay heat removal cannot be re established. This finding was associated with a cross-cutting aspect in the Decision Making component of the Human Performance cross-cutting area per IMC 0310 (H.1(b)) because the licensee did not use conservative assumptions to ensure the proposed action was safe. Specifically, the licensee chose to disable automatic protective features of a plant system while performing “high-risk” activities.
Inspection Report# : 2011003 *(pdf)*

Barrier Integrity

Significance: G Dec 31, 2011
Identified By: NRC
Item Type: NCV NonCited Violation
FAILURE TO PERFORM ADEQUATE EVALUATION OF CRANE SUPPORT STRUCTURE ELEMENTS
A finding of very low safety significance and an associated NCV of Title 10 of the Code of Federal Regulations (CFR) Part 50, Appendix B, Criterion III, “Design Control,” was identified by the inspectors for failure to provide adequate design control measures for crane support structure elements which included bridge crane rail, bridge crane rail clips, bridge crane rail clip studs, leveling plate and leveling plate anchors. Specifically, for evaluation of these structural elements, the licensee failed to demonstrate Seismic Category I compliance in accordance with their design and licensing basis and failed to evaluate the structural elements for resulting reaction forces from the Fuel Handling Building crane. The licensee documented these issues in CRs 11-88791; 11-90252; 10 86582; and 11-04124.

The performance deficiency was determined to be more than minor because if left uncorrected the performance deficiency could lead to a more significant safety concern if independent spent fuel storage installation (ISFSI) loading was conducted. The inspectors determined the finding could be evaluated using the SDP in accordance with IMC 0609, “Significance Determination Process,” Attachment 0609.04, “Phase 1 - Initial Screening and Characterization of Findings,” Table 4a for the Barrier Integrity cornerstone. Based on answering “No” to all the questions in the Barrier Integrity Cornerstone column of Table 4a, the finding was determined to be of very low safety significance (Green).

The inspectors identified a Human Performance, Work Practices (H.4.c) cross-cutting aspect associated with this finding, in that the licensee did not ensure effective supervisory and management oversight of work activities, including contractors, such that nuclear safety was supported. Specifically, the licensee failed to have adequate oversight of design calculations and documentation for establishing structural adequacy of the rail, rail clips, rail clip bolts, leveling plate and leveling plate anchors.
Inspection Report# : 2011005 *(pdf)*

Emergency Preparedness

Occupational Radiation Safety

Significance: G Sep 30, 2011
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
FAILURE TO VERIFY RADIOLOGICAL CONDITIONS PRIOR TO ENTERING HIGH RADIATION AREAS
The inspectors reviewed a self-revealed finding of very low safety significance and an associated NCV of Technical Specification 5.7.1 for the failure of workers to comply with established radiological protective measures as specified for entry into and work within high radiation areas. The issue has been entered into the licensee's corrective action program as condition reports (CR) 11-93976 and CR 11-94374. Corrective actions were implemented to address personal accountability and evaluate the need for procedure improvements.

The inspectors reviewed the guidance in IMC 0612 Appendix E, "Examples of Minor Issues," and determined that the issue was more than minor because the performance deficiency was similar to Example 6(h) in the guidance document. Using IMC 0609 Attachment C for the Occupational Radiation Safety SDP, the inspectors determined that the finding was of very low safety significance because the finding did not involve: (1) As-Low-As-Is-Reasonably-Achievable (ALARA) planning and controls; (2) a radiological overexposure; (3) a substantial potential for an overexposure; and there was no compromised ability to assess dose. The primary cause of this finding was related to the cross-cutting aspect of problem identification and resolution in the component of the corrective action program in that the licensee failed to take the appropriate corrective actions to address safety issues in a timely manner, commensurate with their safety significance and complexity. Specifically, the licensee had previously identified issues with the effectiveness of radiological briefs for access to high radiation areas on four recent occasions. (P.1(d)) (Section 2RS1)
Inspection Report# : 2011004 *(pdf)*

Significance: G Sep 30, 2011
Identified By: NRC
Item Type: NCV NonCited Violation
FAILURE TO ACCURATELY ASSESS OCCUPATIONAL DOSE
The inspectors identified a finding of very low safety significance and an associated NCV of 10 CFR 20.1201(c) for the failure to accurately assess occupational dose specific to effective dose equivalent (EDE) determinations. The issue has been entered into the licensee's CAP as CR 11-02336. Corrective actions included a review of applicable guidance and revisions to applicable procedures.

The inspectors reviewed the guidance in IMC 0612 and determined that the finding was more than minor because it was associated with the program and process attribute of occupational radiation safety cornerstone and affected the cornerstone objective of ensuring adequate protection of worker health and safety from exposure to radiation, in that inaccurate radiation monitoring affects the licensee's ability to control and limit radiation exposures. Using IMC 0609 Attachment C for the Occupational Radiation Safety SDP, the inspectors determined that the finding was of very low safety-significance because the finding did not involve: (1) ALARA planning and controls; (2) a radiological overexposure; (3) a substantial potential for an overexposure; and there was no compromised ability to assess dose. The primary cause of this finding was related to the cross-cutting aspect of human performance in the component of resources. Specifically, licensee did not provide complete and accurate procedures to the radiation safety staff. (H.2 (c)) (Section 2RS4)
Inspection Report# : 2011004 *(pdf)*

Significance: SL-IV Sep 30, 2011
Identified By: NRC
Item Type: NCV NonCited Violation
FAILURE TO PROVIDE COMPLETE AND ACCURATE INFORMATION
The inspectors identified a NCV of 10 CFR 50.9(a), "Completeness and Accuracy of Information," that occurred when the licensee failed to report an Occupational Radiation Safety Performance Indicator (PI) occurrence to reflect an individual entering on April 22, 2011, a locked high radiation area in the drywell under vessel area without the appropriate radiological controls in place. The issue was entered into the licensee's CAP as CR 11-00473. Corrective actions included the licensee submitting corrected occupational radiation safety PI data to the NRC.

Violations of 10 CFR 50.9 that potentially impede or impact the regulatory process are dispositioned using traditional enforcement. The inspectors concluded that the licensee had reasonable opportunity to foresee and correct the inaccurate information prior to the initial information being submitted to the NRC. This violation is characterized as a Severity Level (SL) IV violation because it is similar to Example 6.9.d.11 of the NRC Enforcement Policy, and is consistent with Section 2.2.1.c, in that the violation impacted the regulatory process. The violation was not repetitive or willful. The significance of the performance deficiency associated with the under vessel entry was previously reviewed by the inspectors and dispositioned in IR 05000440/2011013. As such, no ROP finding and no cross-cutting aspect was assigned in this report. (Section 4OA1)

The associated performance deficiency is tracked as item 2011-013-02.
Inspection Report# : 2011004 *(pdf)*

Significance: G May 25, 2011
Identified By: NRC
Item Type: NCV NonCited Violation
Insufficient detail in work instructions when retracting a Source Range Monitor. (Section 4OA5.6)
The NRC identified a finding of very low safety significance and a non-cited violation (NCV) of regulatory requirements contained in TS 5.4. “Procedures.” Specifically, the licensee had insufficient detail in its instructions to workers, to ensure that the SRM-C cable take-up cartridge was installed correctly. Additionally, the workers failed to follow procedure in removing a nominal nine feet of excess SRM detector cable. The licensee entered this issue into its corrective action program (CAP) as CR 11-93247.

The inspectors reviewed the guidance in IMC 0612, Appendix E, “Examples of Minor Issues,” and did not identify any examples similar to the performance deficiency. However, in accordance with IMC 0612, the inspectors determined that the performance deficiency was more than minor because if left uncorrected the performance deficiency had the potential to lead to a more significant safety concern. Therefore, the performance deficiency was a finding. The finding did not involve ALARA, did not involve an overexposure or a substantial potential for an overexposure, and did not compromise the licensee’s ability to access dose. Consequently, the inspectors concluded that the finding was of very low safety significance (Green). The finding was also a non-cited violation (NCV) of regulatory requirements contained in Technical Specification 5.4. “Procedures.” The finding had a cross-cutting aspect in the area of human performance related to the cross-cutting component of work practices, in that, work instructions lacked sufficient detail to ensure appropriate radiological controls were in place and the licensee did not ensure that personnel followed procedures (H.4. b). (Section 4OA5.6)
Inspection Report# : 2011013 *(pdf)*

Significance: W May 25, 2011
Identified By: NRC
Item Type: VIO Violation
The Licensee Failed to Appropriately Identify and Assess the Radiological Hazards when retracting a Source Range Monitor. (Section 4OA5.7)
The NRC identified a finding and three apparent violations of NRC requirements associated with the removal of a source range monitor from the reactor vessel. Specifically, the inspectors identified an apparent violation of Title 10 of the Code of Federal Regulations (CFR) part 20.1501 “Surveys and Monitoring,” because licensee failed to appropriately evaluate and assess the radiological hazards associated with retracting a source range monitor from the reactor vessel. The inspectors also identified examples of apparent violations of Technical Specifications requirements 5.4. “Procedures” and 5.7. “High Radiation Area” associated with this finding. Following this event, the licensee instituted several corrective actions including procuring a new shielded retrieval and transport cask, retracting the source range monitor (SRM) detector and cable into the cask from the carousel instead of the sub-pile room floor, and implementing changes to plant procedures and the plant planning process to more effectively control this work. Additionally, a root cause evaluation was initiated under condition report (CR) 11-932471.

The inspectors reviewed the guidance in NRC Inspection Manual Chapter (IMC) 0612, Appendix E, “Examples of Minor Issues,” and did not identify any examples similar to the performance deficiency. However, in accordance with IMC 0612, the inspectors determined that the performance deficiency was more than minor because it could be viewed as a precursor to a significant event. Therefore, the performance deficiency was a finding. The finding did not

involve “as low as reasonably achievable” (ALARA) planning or work controls and there was no overexposure. However, the inspectors determined that a substantial potential for an overexposure did exist, in that, it was fortuitous that the resulting exposure did not exceed the limits of 10 CFR Part 20. The event did not occur in a very high radiation area, nor was the licensee’s ability to access dose compromised. Consequently, the inspectors concluded that the finding was preliminarily determined to be of White safety significance. The finding had a cross-cutting aspect in the area of human performance related to the cross-cutting component of decision making, in that, the licensee did not use conservative assumptions when developing the work package and authorizing the work for the removal of SRM-C (H.1.b). (Section 4OA5.7)

Final SDP Issued on August 28, 2011 (ml112371689) - with revised violation text as follows:

A. Title 10 of the Code of Federal Regulations (10 CFR) Part 20 Subpart F – Surveys and Monitoring Section 20.1501 requires, in part, that licensees make surveys that may be necessary to comply with the regulations in Part 20 and are reasonable under the circumstances to evaluate the magnitude and extent of radiation levels and the potential radiological hazards. Pursuant to 10 CFR 20.1003, survey means an evaluation of the radiological conditions and potential hazards incident to the production, use, transfer, release, disposal or presence of radioactive material or other sources of radiation.

Contrary to the above, as of April 21, 2011, the licensee failed to make surveys to evaluate the potential radiological hazards incident to work activity to assure compliance with 10 CFR 20.1201, which limits the occupational dose to individual adults. Specifically, the licensee did not perform an evaluation of the potential radiological hazards associated with the work activity prior to authorizing removal of an irradiated
in-core source range monitor (SRM).

B. Technical Specification 5.7.1.b states, in part, that entry into high and locked high radiation areas be made after the dose rate levels in the area have been established and personnel are made aware of them.

Contrary to the above, on April 21, 2011, the licensee permitted entry into a high radiation area without establishing the dose rate levels in the area and without personnel being made aware of the dose rates. Specifically, the licensee did not perform a complete radiological characterization of the SRM (a radiological source of unknown magnitude), which was being pulled toward the work area and toward the workers’ escape path. Consequently, the licensee did not inform the workers of the potential dose rate levels associated with their entry into the high radiation area.

C. Technical Specification 5.4.1 requires that written procedures be established, implemented, and maintained covering the activities in Regulatory Guide 1.33, Revision 2, Appendix A, dated February 1978.

Regulatory Guide 1.33, Revision 2, Appendix A Section 7 addresses, in part, procedures for control of radioactivity for limiting personnel exposure. Section 7.e(1) addresses procedures for access control to radiation areas including a radiation work permits system and Section 7.e(9) addresses procedures for implementation of an as low as is reasonably achievable (ALARA) program.

The licensee established Procedure HPI-C0015, Revision 00, “Radiological Controls for Highly Radioactive and Irradiated Components or Materials,” to control highly radioactive objects and materials removed from the reactor vessel.

The licensee established Procedure NOP-OP-4107, Revision 05, “Radiation Work Permit,” in part, for implementation of an ALARA program. Step 4.3.2.3 of this procedure states, in part, that ALARA plans are developed with sufficient detail on what requirements, considerations and actions are to be ALARA for the work activity.

Contrary to the above, as of April 21, 2011, the licensee:

a. Failed to establish a procedure that addressed access control to all radiation areas. Specifically, Procedure HPI-C0015 only addressed work activities on the refueling floor and did not address access control to the undervessel radiation area or control of highly radioactive objects and materials removed from the reactor vessel through the undervessel area.

b. Failed to implement Procedure NOP-OP-4107, in that the ALARA plan for work on the SRM lacked sufficient detail about the requirements, consideration, and actions to ensure that the work activity was performed in an ALARA manner. Specifically, the ALARA plan did not ensure that the work activity to retract the irradiated SRM-C contained steps to ensure that the ambient radiation field in the work area in the carousel and sub-pile room areas was being controlled and that the worker actions were in accordance with ALARA considerations.

A. Title 10 of the Code of Federal Regulations (10 CFR) Part 20 Subpart F – Surveys and Monitoring Section 20.1501 requires, in part, that licensees make surveys that may be necessary to comply with the regulations in Part 20 and are reasonable under the circumstances to evaluate the magnitude and extent of radiation levels and the potential radiological hazards. Pursuant to 10 CFR 20.1003, survey means an evaluation of the radiological conditions and potential hazards incident to the production, use, transfer, release, disposal or presence of radioactive material or other sources of radiation.

Contrary to the above, as of April 21, 2011, the licensee failed to make surveys to evaluate the potential radiological hazards incident to work activity to assure compliance with 10 CFR 20.1201, which limits the occupational dose to individual adults. Specifically, the licensee did not perform an evaluation of the potential radiological hazards associated with the work activity prior to authorizing removal of an irradiated
in-core source range monitor (SRM).

(Also numberd as 2011-014-01, but in reality is 2011-013-02)

The associate Traditional Enforcement Item for submitting an inaccurate PI for the associated event is being tracked as item 2011-004-04.
Inspection Report# : 2011013 *(pdf)*

Public Radiation Safety

Significance: G Dec 31, 2011
Identified By: NRC
Item Type: NCV NonCited Violation
FAILURE TO MAINTAIN THE PLANT UNDERDRAIN SYSTEM WITHIN USAR DESCRIBED CAPABILITIES
The inspectors identified a finding of very low safety significance (Green) and associated NCV of 10 CFR Part 50, Appendix B, Criterion III, “Design Control,” for the licensee’s failure to maintain the plant underdrain system as described in the Updated Safety Analysis Report (USAR) using adequate design control measures. Specifically, the inspectors determined that the plant underdrain system’s condition was unable to support maintaining a design underground water table level of less than 568 feet with the automatic level detection and pumping system as described the USAR. As a result of this inability to maintain the system, a postulated Chapter 15 accident associated with a possible radiation waste tank failure required recalculation to demonstrate radiation safety for the public. The issue was placed in the licensee’s corrective action program as CR 2011-07169, Plant Underdrain Groundwater Level Readings Non-Conservative Acceptance Criteria. The site took immediate actions to upgrade the installed system and is utilizing temporary manually operated pumps to assist the normally installed systems.

The performance deficiency was screened in accordance with IMC 0612, Appendix B, “Issue Screening” and determined to be more than minor. None of the IMC 0612, Appendix E examples described this scenario but the inspectors determined that if left uncorrected the performance deficiency had the potential to lead to a more significant radiological safety concern by creating a liquid effluent release path that was not evaluated for radiological dose impact to the public prior to discharge and thus was more than minor. The finding was reviewed for significance in accordance with IMC 0609, Attachment 0609.04, “Phase 1 – Initial Screening and Characterization of Findings,” and determined that the finding affected the Public Radiation Safety cornerstone, Effluent Release Program. The finding was then reviewed for significance by the inspectors in accordance with IMC 0609, Appendix D, “Public Radiation Safety Significance Determination Process,” and determined to be of very low safety significance. Specifically, the finding did not involve radioactive material control or the radiological environmental monitoring program. The finding was not a failure to implement the radiological effluent release program and public doses values were not

greater than 10 CFR Part 50, Appendix I, criteria or 10 CFR 20.1301(e) criteria. The finding was associated with a cross-cutting aspect in the Corrective Action Program component of the Problem Identification and Resolution cross-cutting area because the licensee did not thoroughly evaluate problems such that the resolutions addressed causes and extent of conditions. Specifically, numerous deficiencies previously identified with the plant underdrain system were not addressed in enough detail to thoroughly evaluate the problem and extent of condition to allow the system to maintain the plant underground water table at USAR described levels.

Inspection Report# : 2011005 *(pdf)*

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 Jan 27, 2012
Identified By: NRC
Item Type: FIN Finding
Overall Finding Perry from Nuclear Plant 2012 Problem Identification and Resolution Inspection
On the basis of the activities selected for review, the team concluded that implementation of the problem and identification process and the corrective action program (CAP) at Perry Nuclear Plant had varying elements of effectiveness. The licensee normally had a low threshold for identifying problems and entering them in the CAP with some instances of condition reports not generated until after identification by the resident inspectors. Items entered into the CAP were screened and prioritized in a timely manner using established criteria and were evaluated commensurate with their safety significance. However, the thoroughness and effectiveness of some evaluations was found deficient by the team and by licensee audits and self-assessments. The issues with the effectiveness of evaluations including the effectiveness of identifying root and contributing causes, contributed to corrective actions not consistently correcting conditions. The team concluded the licensee's overall implementation of actions that correct issues and prevent recurrence of issues was marginally effective. The team noted that the licensee reviewed Operating Experience (OE) for applicability to station activities. Audits and self assessments were determined to be performed at an appropriate level to identify deficiencies. On the basis of interviews conducted during the inspection, workers at the site expressed freedom to enter nuclear safety concerns into the CAP or to report them to supervision.
Inspection Report# : 2012007 *(pdf)*

Last modified : May 29, 2012