

Harris 1

1Q/2013 Plant Inspection Findings

Initiating Events

Mitigating Systems

Significance:  Oct 31, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

Technical Specification Inoperability of MSIVs Due to Failure to Conduct Diagnostic Testing

•Green. The inspectors identified a non-cited violation of Technical Specification (TS) 3.7.1.5, Main Steam Line Isolation Valves, due to one or more MSIVs being inoperable for a time greater than the allowed outage time and a plant shutdown was not completed in accordance with the action statement of TS 3.7.1.5. MSIV diagnostic testing in accordance with EGR-NGGC-0205, Air Operated Valve (AOV) Reliability Program, had not been conducted by the licensee. This contributed to the licensee not identifying long-term corrosion/oxidation of the valve piston rings that resulted in the “B” and “C” MSIV failure to initially close during stroke time testing on April 21, 2012. The licensee conducted repairs of all three MSIVs and restored them to an operable condition prior to entering Mode 4 following the completion of an ongoing refueling outage. The licensee entered this condition into their corrective action program (CAP) as Nuclear Condition Report (NCR) 531773.

The failure to properly classify the MSIVs as risk significant and implement MSIV diagnostic testing in accordance with the AOV program procedure EGR-NGGC-0205 was a performance deficiency (PD). The PD is more than minor because it is associated with the equipment performance attribute of the Mitigating Systems cornerstone and affected the cornerstone objectives of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The finding is also associated with the containment isolation barrier performance attribute of the Barrier Integrity cornerstone and affected the cornerstone objective of providing reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. Specifically, the failure to conduct periodic diagnostic testing that would have identified long-term internal valve degradation due to unexpected corrosion/oxidation of the valve piston rings in all three MSIVs resulted in two MSIVs failing to initially close during TS stroke time testing on April 21, 2012, and excessive internal friction in all three MSIVs such that they may not have been capable of performing their safety-related closure function during certain design basis events. Using IMC 0609, Appendix A, “The Significance Determination Process for Findings At-Power,” the inspectors determined there was an actual loss of safety function greater than the TS allowed outage time associated with the finding which required a more detailed risk evaluation. A detailed risk evaluation was performed by a regional senior reactor analyst. The result of the analysis of the risk of the PD was a delta core damage frequency (CDF) of $<1E-6$ /year and a delta Large Early Release Fraction (LERF) of $<1E-7$ /year, a GREEN finding. No cross-cutting aspect was assigned to this finding because licensee decisions made in regard to classifying the MSIVs in the AOV program were made more than three years ago and therefore, not reflective of current plant performance.

Inspection Report# : [2012009](#) (*pdf*)

Significance:  Sep 30, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Adequately Perform Containment Visual Inspection when Containment Integrity is Required

The inspectors identified a Green NCV of 10 CFR Part 50, Appendix B, Criterion XVI, Corrective Action, when the licensee failed to adequately correct a previously identified issue associated with the performance of OST-1081, “Containment Visual Inspection when Containment Integrity is Required.” Specifically, on June 3, 2012 during an independent containment closeout inspection by the NRC resident inspectors, cables were identified as not having been analyzed for the impact on the operation of the containment sumps. The licensee did not identify or reconcile the unanalyzed cables in containment during the performance of OST-1081. The licensee removed a large portion of the cabling and then completed an operability evaluation, while in mode 3, on June 6, 2012 for the cables that remained. The evaluation concluded that the containment sump was fully operable, but with reduced margin because of the cables. The cables were further analyzed and recorded in Engineering Change 87249, with a similar conclusion. The issue was placed into the corrective action program (CAP) as action request (AR) #566201.

The licensee’s failure to adequately identify and take prompt corrective actions to evaluate temporary cables in containment during OST-1081, which had not been previously analyzed was identified as a performance deficiency. The performance deficiency was more than minor because it was associated with the equipment performance attribute of the Mitigating Systems Cornerstone and it adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, it could potentially cause one or more Residual Heat Removal (RHR), Containment Spray (CT) pumps, and associated Emergency Core Cooling Systems (ECCS) trains to be inoperable in the event that the containment sump became clogged and lost the required Net Positive Suction Head (NPSH) to the pump, during certain accidents. Using IMC 0609, Significance Determination Process, this finding was determined to be of very low safety significance because it was not a design or qualification deficiency, did not represent an actual loss of function of at least a single train for greater than the Allowed Out-of-service Time (AOT) or two separate safety systems out-of-service for greater than the AOT, did not result in a loss of safety function of one or more non-Technical Specification (TS) trains of equipment designated as risk significant for greater than 24 hours, and did not involve the loss or degradation of equipment or function specifically designed to mitigate a seismic, flooding, or severe weather initiating event (e.g., seismic snubbers, flooding barriers, tornado doors). The finding had a cross-cutting aspect of Evaluation of Identified Problems, as described in the Corrective Action component of the Problem Identification and Resolution cross-cutting area, because the licensee did not implement adequate corrective actions to prevent recurrence of unanalyzed material left in containment following the performance of OST-1081 (P.1(c)).

Inspection Report# : [2012004](#) (pdf)

Significance:  Sep 30, 2012

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

“B” Startup Transformer Lockout due to Loss of Oil Filled Cable Pressure

A self-revealing Green NCV of Technical Specification (TS) 6.8.1, Procedures, was identified for the licensee’s failure to develop an adequate procedure for maintenance on an oil filled cable. Specifically, the licensee failed to provide adequate instructions to prevent causing additional damage to the cable which resulted in the lockout of the “B” Startup Transformer (SUT) on June 25, 2012. This also resulted in unavailability of the preferred power source for the “B” safety related equipment for over two days. As corrective actions, the licensee repaired the cable, restored oil pressure and returned the “B” SUT to its normal standby configuration. Additionally, the licensee performed an investigation which concluded that the cable had been damaged at the site of a previous repair when it was handled during maintenance. The issue was placed into the CAP as AR #545920.

The licensee’s failure to develop an adequate procedure to ensure proper handling of the cable and prevent inadvertently causing damage 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 it affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, it resulted in the lockout of the “B” SUT and unavailability

of the preferred power source for the “B” safety related equipment for over two days. Using IMC 0609, Significance Determination Process, this finding was determined to be of very low safety significance because it was not a design or qualification deficiency, did not represent an actual loss of function of at least a single train for greater than the TS AOT or two separate safety systems out-of-service for greater than the AOT, did not result in a loss of safety function of one or more non-TS trains of equipment designated as risk significant for greater than 24 hours, and did not involve the loss or degradation of equipment or function specifically designed to mitigate a seismic, flooding, or severe weather initiating event (e.g., seismic snubbers, flooding barriers, tornado doors). The finding had a cross-cutting aspect of complete, accurate, and up-to-date procedures, as described in the Resources component of the Human Performance cross-cutting area, because the licensee did not develop adequate procedures to prevent further damage while performing maintenance on the SUT cables (H.2(c)).

Inspection Report# : [2012004](#) (*pdf*)

Significance: G Jun 30, 2012

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Inadequate Preventive Maintenance Results in Inoperability of the “A” Emergency Service Water System

A self-revealing Green NCV of Technical Specification (TS) 6.8.1, Procedures, was identified for the licensee’s failure to implement an adequate preventive maintenance procedure to identify a condition which led to the inoperability of the “A” Emergency Service Water (ESW) system. Specifically, the licensee failed to perform an adequate inspection of the grease in the lower gear box of the “A” ESW strainer motor, resulting in the strainer failing to function and the inoperability of the “A” ESW system. The licensee entered this issue into their CAP as AR #521946. As corrective action, the licensee revised PM-M0014 to include inspection of all similar gear boxes throughout the plant.

The failure to implement an adequate preventive maintenance procedure to identify a condition which led to inoperability of the “A” ESW system was a performance deficiency. The performance deficiency was more than minor because it is associated with the procedure quality attribute of the Mitigating Systems cornerstone, and it affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). Specifically, it resulted in the unplanned inoperability of the “A” ESW train. Using IMC 0609, “Significance Determination Process,” Phase 1 screening worksheet of the SDP, this finding was determined to be of very low safety significance because it was not a design or qualification deficiency confirmed to result in a loss of operability or functionality, did not represent a loss of system safety function, did not result in a loss of safety system function for a single train for greater than TS allowed outage time, did not result in a loss of safety function of one or more non-TS trains of equipment designated as risk significant for greater than 24 hours, and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. Due to the historic nature of the development of this preventive maintenance procedure and the fact that this procedure was not performed on either train of ESW within the past two years, this finding has no cross-cutting aspect.

Inspection Report# : [2012003](#) (*pdf*)

Barrier Integrity

Significance: G Jun 30, 2012

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to Follow Fuel Handling Procedure

A self-revealing Green NCV of TS 6.8.1, Procedures, was identified for the licensee's failure to follow procedure, FHP-014, Fuel and Insert Shuffle Sequence, during core offload resulting in inadvertently placing a spent fuel assembly in the wrong location in the spent fuel pool. Specifically, it resulted in spent fuel assembly HW40 being stored in a location for which it had not been analyzed for 22 days, until it was discovered on May 22, 2012. The licensee entered this issue into their CAP as AR #538457. As corrective action, the licensee verified that all other fuel assemblies moved during offload were located in their correct locations and performed a Human Performance Review Board.

The failure to follow procedure FHP-014 during core offload resulting in inadvertently placing a spent fuel assembly in the wrong location in the spent fuel pool was a performance deficiency. The performance deficiency was more than minor because it was associated with the human performance attribute of the Barrier Integrity cornerstone, and it affected the cornerstone objective of providing reasonable assurance that physical design barriers (fuel cladding, reactor coolant system, and containment) protect the public from radionuclide releases caused by accidents or events. Specifically, it resulted in spent fuel assembly HW40 being stored in a location for which it had not been analyzed for 22 days. IMC 0609, "Significance Determination Process," Phase 1 screening worksheet of the SDP, instructed the inspector to process this finding using IMC 0609, Appendix G, "Shutdown Operations Significance Determination Process." Checklist 4 from IMC 0609, Appendix G, Attachment 1 was determined to be the most appropriate because the water level was greater than 23 feet and the time to boil was greater than two hours in the Spent Fuel Pool. Using Checklist 4, the inspector determined that the finding did not require a quantitative assessment because the licensee met the Technical Specifications for the spent fuel pool, specifically water level and boron concentration. Therefore, this finding was determined to be of very low safety significance (Green). The finding has a cross-cutting aspect of Human Error Prevention, as described in the Work Practices component of the Human Performance cross-cutting area because the designated human error prevention technique of concurrent verification failed to prevent this error (H.4 (a)).

Inspection Report# : [2012003](#) (*pdf*)

Emergency Preparedness

Significance: **W** Jun 30, 2012

Identified By: NRC

Item Type: VIO Violation

Failure to Maintain an Adequate EOF to Support Emergency Response

White: The inspectors identified multiple examples of a Violation (Vio) of 10 CFR 50.54(q) for the lack of facility oversight and control, coupled with component failures and removal of the Emergency Operations Facility (EOF) ventilation system from service (without adequate compensatory measures) which rendered the EOF non-functional on several occasions. Specifically, the licensee failed to ensure that adequate emergency response facilities and equipment were available as required by the Harris Nuclear Plant Emergency Plan, Section 3.1, revision 57, and 10 CFR 50.47(b)(8). The licensee restored the EOF ventilation system to a functional status on November 9, 2011, and entered this issue into their corrective action program (CAP) as Nuclear Condition Report (NCR) 504860.

The lack of facility oversight and control, coupled with component failures and removal of the EOF ventilation system from service, which rendered the EOF non-functional on several occasions, was a performance deficiency. The finding was more than minor because it affected the Emergency Preparedness Cornerstone objective of ensuring that the licensee was capable of implementing adequate measures to protect the health and safety of the public in the event of a radiological emergency. Specifically, the Emergency Response Organization (ERO) Performance attribute was affected during the times when the EOF was not functional and it did not meet 10 CFR 50.47(b)(8) Planning Standard

program elements. The finding was assessed for significance in accordance with NRC Manual Chapter 0609, Appendix B Emergency Preparedness Significance Determination Process. Attachment 2 of Appendix B, Failure to Comply Significance Logic is as follows: Failure to comply; Loss of Risk Significant Planning Standard Function (RSPS), NO; RSPS Degraded Function, NO; Loss of Planning Standard Function, YES; results in a White finding. The NRC concluded that the significance of the finding is low to moderate safety significance (White). The licensee restored the EOF ventilation system to a functional status on November 9, 2011, and entered this issue into their CAP as NCR 504860.

This finding has a cross-cutting aspect in the Corrective Action Program component of the Problem Identification and Resolution area because the licensee did not identify the issues completely, accurately, and in a timely manner commensurate with their safety significance. Specifically, the licensee did not properly classify, prioritize, or evaluate for operability and reportability of the non-functional EOF. [P.1(c)]

Inspection Report# : [2012007](#) (*pdf*)

Inspection Report# : [2012010](#) (*pdf*)

Significance: G Jun 30, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Properly Install the Electrical Power Feed Cables for the EOF

Green: The inspectors identified a Green Non-Cited Violation (NCV) of 10 CFR 50.54(q) for the licensee's failure to properly install the electrical power feed cables for the EOF in accordance with the national electrical code (NEC) as required by the Harris Emergency Plan, PLP-201, Revision 57, section 3.5.1.D. Specifically, the licensee failed to ensure that an adequate emergency response facility, EOF was available as required by the Harris Nuclear Plant Emergency Plan, Section 3.5, revision 57, and 10 CFR 50.47(b)(8). This issue was in the licensee's CAP as NCR 381658. Upon completion of the corrective actions, the power feed cables and supports met the requirements of NEC Article 230.51 C.

The licensee's failure to properly install the electrical power feed cables for the EOF in accordance with the NEC as required by the Harris Emergency Plan, PLP-201, Revision 57, section 3.5.1.D was a performance deficiency. The finding was more than minor because it affected the Emergency Preparedness Cornerstone objective of ensuring that the licensee was capable of implementing adequate measures to protect the health and safety of the public in the event of a radiological emergency. Specifically, the Facilities and Equipment attribute was affected during the time when the EOF was degraded due to the power feed cables not being installed in accordance with the NEC, which resulted in not meeting the 10 CFR 50.47(b)(8) Planning Standard program elements. The finding was assessed for significance in accordance with NRC IMC 0609, Appendix B, Emergency Preparedness Significance Determination Process. Attachment 2 of Appendix B, Failure to Comply Significance Logic is as follows: Failure to Comply; Loss of Risk Significant Planning Standard Function (RSPS), NO; RSPS Degraded Function, NO; Loss of Planning Standard Function, NO; results in a Green finding. The inspectors determined that this resulted in a low safety significance finding (Green).

The inspectors did not identify a cross-cutting aspect associated with this finding because the performance deficiency occurred twelve years earlier when the power feed cables were initially installed and does not represent current licensee performance.

Inspection Report# : [2012007](#) (*pdf*)

Occupational Radiation Safety

Public Radiation Safety

Significance:  Jun 30, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Use Appropriate Radioactive Sources to Calibrate Effluent Monitors.

The inspectors identified two examples of a Green Non-Cited Violation (NCV) of TS 6.8.1, Procedures, for the licensee's failure to implement an adequate Quality Assurance (QA) program for effluent monitoring. Specifically, the secondary calibration (transfer) sources used for effluent monitors 21WL-3541 (Waste Monitor Tanks Discharge) and RM21AV-3509-1SA (Plant Vent Stack Monitor) were not verified to be acceptable prior to use. The licensee has entered these issues into their CAP (AR 537505) and is currently evaluating corrective actions and extent of condition.

The licensee's failure to use appropriate secondary calibration sources to adequately calibrate REM-21WL-3541 and RM-21AV-3509-1SA was a performance deficiency. The finding was more than minor because it is associated with the Public Radiation Safety cornerstone attribute of plant equipment/process radiation monitoring and adversely affected the cornerstone objective of ensuring adequate protection of public health and safety from exposure to radioactive materials released into the public domain as a result of routine civilian nuclear reactor operation. The finding was assessed using Inspection Manual Chapter (IMC) 0609, Appendix D, Public Radiation Safety Significance Determination Process (SDP). The failure to use adequate secondary calibration sources does not represent a substantial failure to implement the radioactive effluents program since each batch release from a Waste Monitor Tank is sampled and analyzed prior to discharge and releases through the Plant Vent Stack are sampled and analyzed weekly. In addition, 10 CFR 20 and 10 CFR 50 dose limits to a member of the public were not exceeded. Therefore this finding was determined to be Green. No cross-cutting aspect was assigned for this finding because the performance deficiency does not represent current licensee performance

Inspection Report# : [2012003](#) (*pdf*)

Security

Although the Security Cornerstone is included in the Reactor Oversight Process assessment program, the Commission has decided that specific information related to findings and performance indicators pertaining to the Security Cornerstone will not be publicly available to ensure that security information is not provided to a possible adversary. Other than the fact that a finding or performance indicator is Green or Greater-Than-Green, security related information will not be displayed on the public web page. Therefore, the [cover letters](#) to security inspection reports may be viewed.

Miscellaneous

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