

Duane Arnold 4Q/2014 Plant Inspection Findings

Initiating Events

Significance: G Dec 31, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

LIQUID PENETRANT TESTING PROCEDURES WERE NOT QUALIFIED FOR THEIR FULL APPLICABILITY RANGE.

A finding of very low safety significance (Green) and an associated non-cited violation of Title 10 of the Code of Federal Regulation, Part 50, Appendix B, Criterion IX, "Control of Special Processes," was identified by the inspectors for the failure to properly qualify nondestructive testing procedures in accordance with applicable codes. Specifically, liquid penetrant testing procedures were not qualified for their full applicability temperature ranges in accordance with American Society for Mechanical Engineers (ASME) Code, Section V, "Nondestructive Examination." The licensee entered this issue into the Corrective Action Program as condition report 01950601 and 01999596. As an immediate corrective action, the licensee reviewed completed liquid penetrant examination records and did not find an example where the procedures were implemented at the unqualified temperature range.

The performance deficiency was determined to be more than minor because, if left uncorrected, it had the potential to lead to a more significant safety concern. Specifically, since the liquid penetrant testing procedures were not qualified for their full applicability temperature ranges, liquid penetrant examinations were not assured to detect flaws in the unqualified temperature ranges. As a consequence, the potential would exist for a rejectable flaw to go undetected affecting the operability of the affected system. This finding affected the Initiating Event, Mitigating System, and Barrier Integrity cornerstones. The finding screened as of very low safety significance (Green) because it did not result in the loss of operability or functionality. The inspectors did not identify a cross-cutting aspect associated with this finding because the inadequate qualifications were performed more than three years ago and was not confirmed to reflect current performance.

Inspection Report# : [2014005](#) (*pdf*)

Significance: G Aug 15, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Verify Design Adequacy of Loss of Voltage Relay Setting.

The inspectors identified a finding having very low safety significance and an associated NCV of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for the licensee's failure to ensure the Loss of Voltage Relay trip settings were properly established. Specifically, the licensee failed to consider trip setting coordination requirements with the essential bus and essential load feeders' over-current relay trip setpoints for postulated fault induced voltage dip events. This finding was entered into the licensee's Corrective Action Program and the licensees' preliminary verification determined the Loss of Voltage Relay settings were still operable but non-conforming.

The inspectors determined 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. Specifically, the isolation of postulated faulted loads by under-voltage relay actuation in lieu of overcurrent relay actuation would have increased the likelihood of events that upset plant stability and affected the availability and reliability of the preferred alternating

current power supply. The inspectors determined the finding was of very low safety significance (Green) because it did not cause a reactor trip and the loss of mitigation equipment relied upon to transition the plant from the onset of the trip to a stable shutdown condition. The inspectors did not identify a cross-cutting aspect associated with this finding because the finding was not representative of the licensee's current performance.

Inspection Report# : [2014008](#) (pdf)

Significance:  Aug 15, 2014

Identified By: NRC

Item Type: FIN Finding

Failure to Verify Startup Transformer Neutral Grounding Resistor Design Assumption.

The inspectors identified a finding having very low safety significance (Green) in that, the licensee did not adequately ensure the operation of the Startup Transformer Neutral Grounding Resistors was within the design assumptions used in the calculation of the essential 4160V system ground overcurrent relay trip settings. The licensee entered this finding into their Corrective Action Program and included the requirement for measurement of the neutral grounding resistor in their next Startup Transformer preventive maintenance work order, scheduled for September 2014.

The inspectors determined 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. Specifically, had the neutral resistors developed either a short or an open circuit, the 4160V essential emergency loads would have been subject to un-analyzed operating condition and selective breaker tripping could not be assured. This would have increased the likelihood of events that upset plant stability and affected the availability and reliability of the preferred AC power supply. The inspectors determined the finding was of very low safety significance (Green) because it did not cause a reactor trip and the loss of mitigation equipment relied upon to transition the plant from the onset of the trip to a stable shutdown condition. The inspectors did not identify a cross-cutting aspect associated with this finding because the finding was not representative of the licensee's current performance.

Inspection Report# : [2014008](#) (pdf)

Significance:  Jun 30, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO ESTABLISH FIRE PATROLS AS COMPENSATORY ACTIONS IN ACCORDANCE WITH THE FIRE PROTECTION PROGRAM.

The inspectors identified a finding of very low safety significance (Green) and associated non-cited violation of Duane Arnold Energy Center (DAEC) Renewed Operating License Condition 2.C.(3), for the failure to implement compensatory measures for non-functional fire suppression deluge systems. Specifically, the licensee did not establish hourly fire patrols within 1 hour of discovering the non-functional status of deluges 3 and 4 in accordance with Technical Requirements Manual (TRM) Limiting Condition for Operation (TLCO) 3.11.4, "Fire Suppression Deluge and Sprinkler Systems," Condition A.2. The licensee documented the issue in the corrective action program (CAP) as condition reports (CRs) 01959153, 01964875, 01964878, 01968702, 01968720 and 01971501; and implemented fire patrols until the deluge systems were satisfactorily tested per TRM requirements.

The performance deficiency was determined to be more than minor and a finding in accordance with IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Screening," because it impacted the Reactor Safety - Initiating Events Cornerstone of Protection Against External Factors to limit the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. The inspectors also determined that if left uncorrected, the performance deficiency would have the potential to lead to a more significant safety concern. The inspectors applied IMC 0609, Attachment 4, "Initial Characterization of Findings," to this finding.

The inspectors answered “Yes” to question E.2(2), “Does the finding involve fixed fire protection systems or the ability to contain a fire within Table 3 – SDP Appendix Router,” and transitioned to IMC 0609, Appendix F, “Fire Protection Significance Determination Process.” The inspectors processed the finding in accordance with Fire Protection SDP Phase 1 Screening in IMC 0609, Appendix F, Attachment 1 and answered “Yes” to Step 1.3, Task 1.3.1 question, “Is the reactor able to reach and maintain safe shutdown (either hot or cold) condition?” Therefore, the finding screened as very low safety significance (Green).

The inspectors determined that the performance characteristic of the finding that was the most significant causal factor of the performance deficiency was associated with the cross-cutting aspect of Consistent Process in the Human Performance area and involving individuals using a consistent, systematic approach to make decisions.
Inspection Report# : [2014003](#) (*pdf*)

Mitigating Systems

Significance:  Dec 31, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

THE CONSTRUCTION CODE USED DURING A REPLACEMENT ACTIVITY WAS NOT RECONCILED WITH THE OWNER'S REQUIREMENTS.

A finding of very low safety significance (Green) and an associated non-cited violation of Title 10 of the Code of Federal Regulations, Section 50.55a, “Codes and Standards,” was identified by the inspectors for the failure to reconcile the construction code and owner’s requirements when replacing rod hangers associated with the high pressure coolant injection (HPCI) system. The licensee subsequently performed a code reconciliation and concluded the applicable construction code requirements were met. The licensee captured this issue in its Corrective Action Program as condition report 01999594.

The performance deficiency was determined to be more than minor because it was associated with the Mitigating Systems cornerstone attribute of equipment performance and affected the cornerstone objective of ensuring the availability, reliability, and capability of HPCI to respond to initiating events to prevent undesirable consequences. Specifically, the failure to reconcile the construction code and owner’s requirements when replacing HPCI support rod hangers reduced confidence in the system’s capability to meet its mitigating function consistent with its design basis. The finding screened as of very low safety significance (Green) because it did not result in the loss of operability or functionality. This finding had a cross-cutting aspect of procedure adherence in the area of Human Performance because the licensee failed to follow American Society for Mechanical Engineers Section XI, Administrative Manual for Repair, Replacement, and Modification.

Inspection Report# : [2014005](#) (*pdf*)

Significance:  Dec 31, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO ACCOMPLISH PROCEDURE FOR LEAKING PIPE SNUBBER.

A finding of very low safety significance and an associated non-cited violation of Title 10 of the Code of Federal Regulations, Part 50, Appendix B, Criterion V, “Instructions, Procedures, and Drawings,” was identified by the inspectors for the licensee’s failure to accomplish procedure EN-AA-203-1001, “Operability Determinations/Functionality Assessments.” Specifically, on May 8, 2014, the licensee failed to properly evaluate functionality of a leaking pipe snubber associated with the “A” core spray subsystem, the

resultant operability impact on the Technical Specification affected systems, and the extent of condition. The licensee entered the inspectors' concerns into the Corrective Action Program as condition report 02003867 and 02010686. Corrective actions included coaching/training of licensed operators during requalification training and management review committee members, and changes to applicable snubber program procedures.

The performance deficiency was determined to be more than minor because it impacted the Mitigating System cornerstone attribute of equipment performance, and adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Because the finding did not involve the total loss of any safety function, the finding screened as very low safety significance (Green). This finding was associated with the cross-cutting aspect of consistent process in the area of Human Performance, because the licensee's inconsistent application of the systematic operability/functionality determination process to evaluate the leaking snubber led to prolonged exposure of the extent of cause that affected several safety-related systems.

Inspection Report# : [2014005](#) (*pdf*)

Significance:  Dec 31, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO EVALUATE SEVERAL SAFETY RELATED RELAYS INSTALLED BEYOND THEIR DESIGN LIFE.

A finding of very low safety significance and an associated non-cited violation of Title 10 of the Code of Federal Regulations, Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was identified by the inspectors for the licensee's failure to accomplish procedure EN-AA-203-1001, "Operability Determinations/Functionality Assessments," when new degraded or non-conforming conditions adverse to quality were identified. Specifically, the licensee failed to evaluate operability and the acceptability for continued operation when an extent of condition review identified several safety-related time delay relays installed beyond the vendor recommended design life. The licensee documented the inspector's concerns in condition report 02015742. The affected relays were immediately declared operable but non-conforming, and a prompt operability determination and apparent cause evaluation to determine corrective actions were in progress at the end of the inspection period.

The performance deficiency was determined to be more than minor because, if left uncorrected, failing to properly assess the operability of degraded or non-conforming conditions and evaluating the necessity for compensatory measures would have the potential to lead to a more significant safety concern. Because the finding was a qualification deficiency confirmed not to result in loss of operability, the finding screened as very low safety significance (Green). This finding was associated with the cross-cutting aspect of identification in the area of Problem Identification & Resolution because the licensee did not identify or capture the extent of the relay aging condition within the corrective action program to ensure that new conditions adverse to quality were properly screened for significance and potential operability impacts.

Inspection Report# : [2014005](#) (*pdf*)

Significance:  Dec 31, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO TEST OR EVALUATE THE SEISMIC CRITICAL CHARACTERISTIC FOR A COMMERCIAL GRADE CIRCUIT BREAKER.

The inspectors identified a finding of very low safety significance and an associated non-cited violation of Title 10 of the Code of Federal Regulations, Part 50, Appendix B, Criterion III, "Design Control," for the licensee's failure to verify commercial grade circuit breakers were suitable for use in safety-related applications. Specifically, the licensee failed to verify, either through seismic testing or justification, that the circuit breakers being dedicated on purchase

order 02309726 would be able to perform their intended safety function during a seismic event. The licensee entered this finding into their Corrective Action Program as condition report 01986727 and 01987616. An extent of condition review was performed and concluded that these circuit breakers were not yet installed at Duane Arnold and a seismic test would be performed on these types of breakers prior to installation.

The performance deficiency was determined to be more than minor because, if left uncorrected, the performance deficiency would have the potential to lead to a more significant safety concern. Because the finding did not represent an actual loss of function (circuit breakers were not currently installed), the finding screened as very low safety significance (Green). The inspectors did not identify a cross-cutting aspect associated with this finding because the finding was not representative of licensee's current performance.

Inspection Report# : [2014005](#) (*pdf*)

Significance: G Sep 30, 2014

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

HYDRAULIC CONTROL UNIT CONFIGURATION CONTROL ERROR.

A finding of very low safety significance and associated non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was self-revealed for the licensee's failure to accomplish procedure OP-AA-101-1000, "Clearance and Tagging," Revision 10. Specifically, on July 21, 2014, the licensee failed to ensure that clearance isolation 5500-1T221(34-19) for hydraulic control unit (HCU) 34-19 was appropriate for the requested work scope and that all applicable Technical Specification actions were entered. After receiving a high temperature alarm associated with HCU 34-19, the licensee incorrectly concluded that the alarm was expected. During a walk down by an operator on the subsequent shift, it was determined that HCU 34-19 was improperly tagged out as revealed by the temperature alarm, and that control rod 34-19 should have been declared inoperable instead of slow. The licensee entered the issue into the corrective action program (CAP) as condition report (CR) 01979472, and invoked corrective actions to brief all licensed operators on the event, updated procedures to clearly define clearance reviewer responsibilities, and made changes to the HCU operating instructions to recognize applicable Technical Specification (TS) Required Actions.

The inspectors determined that the issue of concern represented a performance deficiency because it was the result of the licensee's failure to meet a procedural requirement, and the cause was reasonably within the licensee's ability to foresee and correct and should have been prevented. The licensee failed to properly accomplish procedure OP-AA-101-1000, "Clearance and Tagging," Revision 10, to ensure that a clearance isolation for HCU 34-19 was appropriate for the requested work scope and that all applicable TS actions were entered. The performance deficiency was determined to be more than minor and a finding because it impacted the Mitigating Systems Cornerstone Attribute of Configuration Control, and adversely affected the Cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The inspectors applied IMC 0609, Attachment 4, "Initial Characterization of Findings," to this finding. The inspectors answered "No" to all questions within Table 3 – SDP Appendix Router, and transitioned to IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power." Because the inspectors answered "No" to questions 1-3 of Section C – Reactivity Control Systems of Exhibit 2 – Mitigating Systems Screening Questions, the finding screened as very low safety significance (Green). The inspectors determined that the performance characteristic of the finding that was the most significant causal factor of the performance deficiency was associated with the cross-cutting aspect of Human Performance, Work Management, and involving the organization implementing a process of planning, controlling, and executing work activities such that nuclear safety is the overriding priority. Specifically, the clearance preparer, reviewer and approver for the clearance isolation of HCU 34-19 failed to properly implement the clearance and tagging process to ensure the proper isolation was made and the applicable TS actions were entered.

Inspection Report# : [2014004](#) (*pdf*)

Significance: G Sep 03, 2014

Identified By: NRC

Item Type: VIO Violation

FAILURE TO REMOVE WATER FROM CONDUITS CONTAINING SAFETY-RELATED CABLES.

The inspectors identified a finding of very low safety significance and an associated cited violation of Title 10, Code of Federal Regulations (CFR), Part 50, Appendix B, Criterion XVI, "Corrective Action," where the licensee failed to correct a condition adverse to quality following the discovery of water in several safety-related electrical conduits. Specifically, the licensee identified water in 23 embedded conduits containing cables for safety-related equipment. However, the licensee failed to take corrective action to remove water from nine of the conduits. This violation is being cited because the licensee had failed to restore compliance, or demonstrate objective evidence of plans to restore compliance in a reasonable period following documentation of four associated Non-Cited Violations (NCVs) issued from January 30, 2013 to December 5, 2013.

The performance deficiency was determined to be more than minor, because the finding was associated with the Mitigating Systems cornerstone's attribute of design control for ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, by not removing water from the conduits, cables were continuously exposed to water which is an adverse environment for which they were not qualified, designed or evaluated for, and will lead to cable degradation and could potentially cause cable failure. Cable failure would prevent the systems from carrying out their intended safety-related functions. The finding had a cross-cutting aspect in the area of Human Performance because the licensee did not operate and maintain equipment within design margins. Margins were not carefully guarded or changed only through a systematic and rigorous process. Special attention was not placed on maintaining defense-in-depth, and safety-related equipment. Specifically, the corrective actions developed by the licensee were insufficient to restore safety-related cables to their design environment to ensure that cables did not remain submerged.

Inspection Report# : [2014010](#) (*pdf*)

Significance: G Aug 15, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Include Minimum Required System Voltage as an Acceptance Criterion in the 125 Vdc Station Battery Surveillances Test Procedures.

The inspectors identified a finding of very low safety significance (Green) and associated NCV of 10 CFR Part 50, Appendix B, Criterion XI, "Test Control," for the licensee's failure to have adequate acceptance criteria in the station battery surveillance procedures. Specifically, the licensee failed to incorporate the 125 volt direct current (Vdc) system minimum voltage design value shown in the station battery sizing calculations as acceptance criteria for the minimum battery terminal voltage in the service discharge test surveillance procedures. The licensee entered this finding into their Correction Action Program, verified the battery voltage did not go below the minimum required system voltage value, and initiated an action item to revise surveillance procedures to include minimum battery terminal voltages.

The performance deficiency was determined to be more than minor because if left uncorrected, it would have the potential to lead to more significant safety concern. Specifically, the current alarm value of 107 Vdc specified in the procedure would not alert operators if the battery voltage dropped below its design limit. Since the finding did not represent an actual loss of safety function, the inspectors screened the finding as having very low safety significance (Green). The inspectors did not identify a cross-cutting aspect associated with this finding because the finding was not representative of the licensee's current performance.

Inspection Report# : [2014008](#) (*pdf*)

Significance:  Aug 15, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to fully Incorporate the Sequential Loading Relay Functions into the UFSAR.

The inspectors identified a Severity Level IV NCV of Title 10 CFR 50.71(e), "Maintenance of Record, Making of Reports," and an associated finding of very low safety significance (Green) for the licensee's failure to maintain up-to-date the Updated Final Safety Analysis Report (UFSAR). Specifically, the licensee failed to incorporate the function of the sequential loading relays to prevent loading of core spray and residual heat removal pumps below 3500 volts and to start of the SBDGs as a result of the actuation of these relays into the UFSAR. The licensee entered this finding into their Correction Action Program as AR 01984560 to adequately describe the function of these relays in the UFSAR.

The performance deficiency was determined to be more than minor because it impacted the Mitigating Systems Cornerstone attribute of Design Control to ensure the reliability and availability of the standby diesel generator. Specifically, the licensee modified the circuits associated with the starting of the diesels from the sequential loading relays and assessed the applicability of a 10 CFR 50.59 safety evaluation based on incomplete information in the UFSAR. The inspectors determined this lack of information did not result in an unacceptable change to the facility. Since the finding did not represent an actual loss of safety function, the inspectors screened the finding as having very low safety significance (Green). The violation was determined to be a Severity Level IV violation in accordance with Section 6.1.d.3 of the NRC Enforcement Policy. The inspectors did not identify a cross-cutting aspect associated with this finding because the finding was not representative of the licensee's current performance.

Inspection Report# : [2014008](#) (pdf)

Significance:  Aug 15, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Procedure for Flow Balancing ESW System.

The inspectors identified a finding of very low safety significance and associated NCV of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the licensee's failure to provide adequate procedures for flow balancing of the ESW System. Specifically, the ESW flow balance procedure did not include acceptance criteria to limit or evaluate minimum throttle valve seat to disc clearance, and subsequent potential for clogging if the clearance was set less than the screen mesh size (1/16 inch) of the upstream ESW strainer. At least one throttle valve in the system (V13-48 for High Pressure Coolant Injection room cooler Train B) was determined to had been set below this screen mesh size. The licensee performed a prompt operability determination for this room cooler and concluded with reasonable assurance that the throttle valve currently had a clearance dimension of at least 1/16 inch. The licensee entered the issue into their Corrective Action Program to correct the flow balance procedure as necessary. Additionally, during the next scheduled flow balancing of the ESW system in September 2014 the licensee will confirm that this valve is open at least 1.2 turns (minimum required for a seat clearance of 1/16 inch).

The inspectors determined the performance deficiency was more than minor because, if left uncorrected, it would have the potential to lead to a more significant safety concern. Specifically, material small enough to pass the strainers could choke flow downstream of V13-48 or other throttle valves, thus preventing one or more ESW cooled components from performing their safety-related function. The inspectors assessed this finding for significance in accordance with NRC Manual Chapter 0609, Appendix A, Attachment 1, Significance Determination Process (SDP) for Reactor Inspection Findings for At-Power Situations, and determined that it was of very low safety significance (Green), in that no actual loss of safety system function was identified due to existing system conditions. The inspectors did not identify a cross-cutting aspect associated with this finding because the finding was not representative of the licensee's current performance.

Inspection Report# : [2014008](#) (pdf)

Significance: G Jul 11, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequately Performed Drawing Revision Related to CAPR

The inspectors identified a finding of very low safety significance and an associated non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for the failure to assure that a safety-related drawing for the High Pressure Coolant Injection (HPCI) system was accurate. Specifically, a corrective action to prevent recurrence for the RCIC system failure required that the HPCI system drawing be changed to accurately reflect the system configuration. The licensee changed the drawing, but not so that it accurately reflected the system configuration. The licensee initiated Condition Report (CR) 1977172 to document the inaccuracy of the HPCI drawing and track completion of a document change request to revise the drawing to show the proper relationship between the HPCI governor speed control and the turbine speed indicator in the control room. Additionally, the licensee directed Design Engineering to perform an apparent cause evaluation to determine why the drawings did not accurately reflect the relationship between speed sensor and speed indicator, and why the HPCI drawing was not revised to clarify the interrelationships as was done on the RCIC drawing.

The performance deficiency was determined to be more than minor because in accordance with IMC 0612, Appendix B, if left uncorrected it would have the potential to lead to a more significant safety concern. Specifically, the HPCI drawing change was part of a corrective action to prevent recurrence of a significant condition adverse to quality. The inspectors screened the finding using IMC 0609, "Significance Determination Process," Attachment 0609.04, "Initial Characterization of Findings," dated June 19, 2012, and Appendix A, "The Significance Determination Process for Findings At-Power," dated June 19, 2012, Exhibit 2, "Mitigating Systems Screening Questions." The inspectors determined the finding was related to a design deficiency that did not result in a loss of a safety system or function, and is therefore a finding of very low safety significance. The inspectors determined that the finding had a cross cutting aspect in the area of problem identification and resolution, specifically evaluation, because licensee personnel failed to thoroughly evaluate issues to ensure that the resolutions address causes and extent of conditions commensurate with their safety significance. (P.2)

Inspection Report# : [2014009](#) (pdf)

Significance: G Jul 11, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

Incomplete Corrective Actions To Prevent Recurrence

The inspectors identified a finding of very low significance and an associated non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," involving multiple examples where the licensee failed to ensure that activities affecting quality were prescribed by documented procedures of a type appropriate to the circumstances. Specifically, in the first example, Duane Arnold Energy Center (DAEC) maintenance personnel failed to implement part of a corrective action to prevent recurrence (CAPR) to ensure alignment was measured and recorded for the standby diesel generator (SBDG) lube oil (LO) heat exchangers (HXs) following the March 8, 2013 'A' SBDG lube oil heat exchanger gasket failure. In the second example, inspectors identified that procedures lacked adequate acceptance criteria to ensure acceptability of potential flange alignment issues. As a third example, inspectors identified an actual failure to ensure adequate gasket placement due to inadequate

acceptance criteria on the 'A' SBDG scavenging air heat exchanger. The corrective actions for deficient flange inspection procedure GENERA-F010-01 included revising procedures to incorporate a requirement to measure and record vertical and horizontal alignment between the lube oil and jacket water channel heads. In addition, the licensee planned to incorporate acceptance criteria on which to base in-field determinations. The immediate corrective actions for the scavenging air cooler gasket included performing an immediate operability determination (IOD) and prompt operability determination (POD) for the protruded gasket region. In addition, the licensee planned to change procedure GENERA-F010-01 to include actions to verify gasket position after torquing the flange bolts.

The inspectors determined that this finding was more than minor in accordance with IMC 0612, Appendix B, because it affected the Mitigating Systems Cornerstone objective to ensure availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The inspectors evaluated the finding using IMC 0609, "Significance Determination Process," Attachment 0609.04, "Initial Characterization of Findings," dated June 19, 2012, and Appendix A, "The Significance Determination Process for Findings At-Power," dated June 19, 2012, Exhibit 2, "Mitigating Systems Screening Questions." The inspectors determined the finding was of very low safety significance (Green) because the finding was not a deficiency affecting the design or qualification of a mitigating structure, system or component and did not result in a loss of operability or functionality. In addition, the finding did not represent a loss of system or function, did not represent an actual loss of function of a least a single train for longer than its technical specification allowed outage time, and did not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significance. The finding had a cross cutting aspect in the area of problem identification and resolution, specifically evaluation, because licensee personnel failed to thoroughly evaluate issues to ensure that the resolutions address causes and extent of conditions commensurate with their safety significance. (P.2)

Inspection Report# : [2014009](#) (*pdf*)

Significance:  Jul 11, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Establish EFR Attributes to Assess the Effectiveness of Corrective Actions

The inspectors identified a finding of very low safety significance (Green) and an associated non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the failure to ensure the effectiveness review (EFR) attributes for a significant condition adverse to quality would appropriately evaluate whether the corrective actions were effective in eliminating or reducing their recurrence rate. The licensee initiated CRs 1977427 and 1976943 to document the poor or missing EFRs and began revising the EFRs to be more supportive of determining if the corrective actions were effective.

The inspectors determined that the licensee's failure to establish EFR criteria that would have identified whether the corrective actions to prevent recurrence (CAPRs) had effectively resolved the conditions was a performance deficiency warranting further review. The inspectors determined that this finding was more than minor in accordance with IMC 0612, Appendix B, because it affected the Mitigating Systems Cornerstone objective to ensure availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The inspectors evaluated the finding using IMC 0609, "Significance Determination Process," Attachment 0609.04, "Initial Characterization of Findings," dated June 19, 2012, and Appendix A, "The Significance Determination Process for Findings At-Power," dated June 19, 2012, Exhibit 2, "Mitigating Systems Screening Questions." The inspectors determined the finding was of very low safety significance (Green) because the finding was not a deficiency affecting the design or qualification of a mitigating structure, system or component and did not result in a loss of operability or functionality. In addition, the finding did not represent a loss of system or function, did not represent an actual loss of function of a least a single train for longer than its technical specification allowed outage time, and did not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significance. The finding had adherence, because licensee personnel failed to

follow procedures associated with developing and reviewing corrective actions commensurate with their safety significance. (H.8)

Inspection Report# : [2014009](#) (*pdf*)

Significance:  Jun 30, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO PRESCRIBE WORK ORDER PLANNING PROCEDURE APPROPRIATE TO THE CIRCUMSTANCES.

The inspectors identified a finding of very low safety significance (Green) and associated non-cited violation of 10 CFR 50, Appendix B, Criterion V, “Instructions, Procedures, and Drawings,” for the failure to prescribe a procedure appropriate to the circumstances for work order planning as related to the failure of under-voltage relay 127-SB2. Specifically, procedure MA-AA-203-1001, “Work Order Planning,” Section 4.2, Step 2, inappropriately allowed the selection of model work orders without verification of the acceptance criteria, requirements for as-found/as-left data, set points, and other related information. The issue was entered into the licensee’s CAP for resolution as CRs 01972812 and 01972807; and the licensee took actions to add a verification step to procedure MA-AA-203-1001, Section 4.2, Step 2, to verify the procedure being referenced contained the relevant information to the work task being accomplished.

The inspectors determined that the issue of concern represented a performance deficiency because it was the result of the licensee’s failure to prescribe a procedure appropriate for the circumstances. The performance deficiency was determined to be more than minor and a finding in accordance with IMC 0612, “Power Reactor Inspection Reports,” Appendix B, “Issue Screening,” because if left uncorrected, the performance deficiency would have the potential to lead to a more significant safety concern. The inspectors applied IMC 0609, Attachment 4, “Initial Characterization of Findings,” to this finding. The inspectors answered “No” to all questions within Table 3 – SDP Appendix Router, and transitioned to IMC 0609, Appendix A, “The Significance Determination Process for Findings At-Power.” Per Exhibit 2 – Mitigating Systems Screening Questions, the inspectors determined that because the finding did not represent an actual loss of function (redundant loss of power instrumentation remained operable during the period of the 127-SB2 inoperability), the finding screened as very low safety significance (Green).

The inspectors determined that the performance characteristic of the finding that was the most significant causal factor of the performance deficiency was associated with the cross-cutting aspect of Evaluation in the Problem Identification and Resolution area and involved the organization thoroughly evaluating issues to ensure that resolutions address causes and extent of conditions commensurate with their safety significance.

Inspection Report# : [2014003](#) (*pdf*)

Barrier Integrity

Significance:  Dec 31, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO EVALUATE MAINTENANCE ACTIVITIES FOR PRECONDITIONING.

A finding of very low safety significance and an associated non-cited violation of Technical Specification 5.4.1.a, “Procedures,” was identified by the inspectors for the licensee’s failure to maintain maintenance planning procedures appropriate for the circumstances that could affect performance of safety related equipment. Specifically, procedure MA-AA-203-1001, “Work Order Planning,” did not ensure that maintenance activities performed on secondary

containment components between surveillance testing intervals (2012 and 2014) was properly evaluated for the potential for preconditioning. The licensee entered the inspectors' concerns into the Corrective Action Program as condition report 02008529. Corrective actions included the performance of a condition evaluation to evaluate the work that had been done over the previous cycle for preconditioning and an apparent cause evaluation for the work planning procedural gap with respect to preconditioning and its possible impact on work activities.

The performance deficiency was determined to be more than minor because the finding impacted the Barrier Integrity cornerstone attribute of procedural quality, and adversely affected the cornerstone objective to provide reasonable assurance that physical design barriers (fuel cladding, reactor coolant system, and containment) protect the public from radionuclide releases caused by accidents and events. Furthermore, the finding was determined to be more than minor because if left uncorrected, failing to properly and consistently evaluate the potential for unacceptable preconditioning would have the potential to lead to a more significant safety concern. The inspectors applied IMC 0609, Attachment 4, "Initial Characterization of Findings," issued June 19, 2012, to this finding. The inspectors answered "No" to all questions within Table 3, "Significance Determination Process Appendix Router," and transitioned to IMC 0609, Appendix A, "The Significance Determination Process for Findings At-Power," June 19, 2012. The inspectors answered "No" to questions C.1 and C.2 in Exhibit 3, "Barrier Integrity Screening Questions." Therefore, the finding was screened as very low safety significance (Green). This finding was associated with the cross-cutting aspect of work management in the area of Human Performance because the licensee's work order planning process was not appropriate for the circumstances to evaluate the impact of maintenance activities on Technical Specification equipment and surveillance test results.

Inspection Report# : [2014005](#) (*pdf*)

Significance:  Dec 31, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

INADEQUATE CONTAINMENT ISOLATION VALVE LEAK TIGHTNESS TEST PROCEDURE.

The inspectors identified a finding of very low safety significance and an associated non-cited violation of Title 10 of the Code of Federal Regulation, Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the licensee's failure to establish an adequate procedure for an activity affecting quality for a system penetrating the primary containment pressure boundary. Specifically, Surveillance Test Procedure STP 3.6.1.1-09, "Containment Isolation Valve Leak Tightness Test – Type C Penetrations – TIP [traversing in-core probe] Valves," Revision 4, failed to include leak rate testing instructions for all of the fittings inboard of the outboard TIP valves tested, which constituted part of the primary containment pressure boundary. The licensee entered the issue in their Corrective Action Program as condition report 02003580. As part of their corrective actions, the licensee re-performed a local leakage rate test to verify the fittings were leak tight.

The inspectors determined that the finding was more than minor because it was associated with the Barrier Integrity cornerstone attribute of procedure quality and adversely affected the cornerstone objective to provide reasonable assurance that physical design barriers (fuel cladding, reactor coolant system, and containment) protect the public from radionuclide releases caused by accidents or events. As it related to the finding, procedure STP 3.6.1.1-09 lacked adequate instructions to ensure no leakage of a system penetrating the primary containment pressure boundary. The finding was of very low safety significance (Green) because it did not represent an actual open pathway of reactor containment and did not involve an actual reduction in function of hydrogen igniters in the reactor containment. The finding was associated with the cross-cutting aspect of resources in the area of Human Performance because STP 3.6.1.1-09 did not include testing of the fittings inboard of the outboard TIP valve as required.

Inspection Report# : [2014005](#) (*pdf*)

Significance:  Sep 30, 2014

Identified By: NRC

Item Type: FIN Finding

FAILURE TO PERFORM CAUSAL EVALUATIONS FOR "A" STANDBY FILTER UNIT ISSUES.

A finding of very low safety significance with no associated violation was identified by the inspectors for the licensee's failure to accomplish procedure PI-AA-204, "Condition Identification and Screening Process," Revision 24. Specifically, on September 4, 2014, the inspectors identified that an inappropriate significance level (SL) was assigned to CRs 01976835 and 1977206 following the extension of a planned TS Limiting Condition for Operation (LCO) (treated as an unplanned LCO) due to the failure of the "A" standby filter unit (SFU) exhaust isolation AV-7322A to close in a timely manner during surveillance testing. Although the apparent failure mechanism was known and several corrective actions were taken, an apparent cause evaluation (ACE) was not performed (or ACE-nonperformance justified) to review the cause of the mispositioning as well as why adequate post maintenance testing was not performed following charcoal replacement in January of 2014. The licensee entered the issues into the CAP as CR 01989031, and performed ACEs to evaluate why the speed control valve was out of position closed, why an adequate post maintenance test (PMT) was not performed in January of 2014, and why the inappropriate SL was assigned following the unplanned LCO.

The inspectors determined that the issue of concern represented a performance deficiency because it was the result of the licensee's failure to meet a procedural requirement, and the cause was reasonably within the licensee's ability to foresee and correct and should have been prevented. Per PI-AA-204, Attachment 3, CRs 01976835 and 01977206 documented extensions of planned LCO entries and should have been assigned SL 2-level ACEs (or non-performance justifications). The performance deficiency was determined to be more than minor and a finding because if left uncorrected, failing to evaluate the cause of inadequate PMTs following maintenance on safety-related equipment would have the potential to lead to a more significant safety concern. The inspectors applied IMC 0609, Attachment 4, "Initial Characterization of Findings," to this finding. The inspectors answered "No" to all questions within Table 3 – SDP Appendix Router, and transitioned to IMC 0609, Appendix A, "The Significance Determination Process for Findings At-Power." Because the finding only represented a degradation of the radiological barrier function provided for the control room per Exhibit 3 – Barrier Integrity Screening Questions, the finding screened as very low safety significance (Green). The inspectors determined that the performance characteristic of the finding that was the most significant causal factor of the performance deficiency was associated with the cross-cutting aspect of H.13, Consistent Process, and involving individuals using a consistent systematic approach to making decisions. Specifically, the failure to appropriately characterize the unplanned LCO to invoke appropriate causal evaluations demonstrated an inconsistency in licensee decision making within the CAP.

Inspection Report# : [2014004](#) (pdf)

Significance:  Jun 30, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO ACCOMPLISH PROCEDURE FOR REPETITIVE MALFUNCTIONS OF REFUEL FLOOR RADIATION MONITOR.

A finding of very low safety significance and associated non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was identified by the inspectors for the licensee's failure to accomplish procedure EN-AA-203-1001, "Operability Determinations/Functionality Assessments." Specifically, on multiple occasions but as recently as March 20, 2014, the licensee failed to properly evaluate operability following intermittent downward spikes of the 'A' refueling floor exhaust duct – high radiation monitor (RIS-4131A). The improper operability evaluations resulted in not declaring RIS-4131A inoperable when appropriate, improper prioritization of investigation of the cause, and untimely resolution of the degraded conditions. The licensee entered the inspectors' concerns into the CAP as CR 01954560. The licensee invoked a policy to properly assess operability in the interim, completed a prompt operability determination (POD) to evaluate intermittent downward spikes, completed a past operability review (POR), and ultimately identified the cause and implemented repairs to RIS-4131A.

The inspectors determined that the issue of concern represented a performance deficiency because it was the result of the licensee's failure to meet a procedural requirement, and the cause was reasonably within the licensee's ability to foresee and correct and should have been prevented. The performance deficiency was determined to be more than minor and a finding in accordance with IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Screening," because it impacted the Barrier Integrity Cornerstone Attribute of structure, system, and component (SSC) and Barrier Performance, and adversely affected the Cornerstone objective of maintaining containment and radiological barrier functionality. The inspectors applied IMC 0609, Attachment 4, "Initial Characterization of Findings," to this finding. The inspectors answered "No" to all questions within Table 3 – SDP Appendix Router, and transitioned to IMC 0609, Appendix A, "The Significance Determination Process for Findings At-Power." Per Exhibit 3 – Barrier Integrity Screening Questions, the inspectors answered "No" to questions B.1 and B.2, and "Yes" to question C.1, therefore, the finding screened as very low safety significance (Green).

The inspectors determined that the performance characteristic of the finding that was the most significant causal factor of the performance deficiency was associated with the cross-cutting aspect of Human Performance, Consistent Process, and involving individuals using a consistent, systematic approach to make decisions.

Inspection Report# : [2014003](#) (*pdf*)

Emergency Preparedness

Occupational Radiation Safety

Significance:  Dec 31, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO DETERMINE DOSE RATES PRIOR TO ENTRY INTO A HIGH RADIATION AREA.

. A finding of very low safety significance and an associated non-cited violation of Technical Specification 5.7.1.e was identified by the inspectors following entry into the fuel pool heat exchanger room which was a high radiation area (HRA). The inspectors determined that the licensee failed to determine the radiological conditions in the HRA in accordance with the Technical Specifications and plant procedures to ensure the workers were accurately briefed on the current conditions prior to entry. As a result, an individual was permitted entry into areas with greater than expected dose rates. This issue was entered into the licensee's Corrective Action Program as condition report 02000258. The licensee subsequently performed a follow-up survey of the HRA and coached the individual that performed the brief.

The performance deficiency was more than minor because it impacted the program and process attribute of the Occupational Radiation Safety cornerstone and adversely affected the cornerstone objective of ensuring adequate protection of worker health and safety from exposure to radiation, in that, worker entry into HRAs without knowledge of the radiological conditions placed them at increased risk for unnecessary radiation exposure. The finding was determined to be of very low safety significance (Green) because the performance deficiency was not an as-low-as-reasonably-achievable (ALARA) planning issue; there was neither an overexposure nor a substantial potential for an overexposure; and the licensee's ability to assess dose was not compromised. The finding was associated with the cross-cutting aspect of challenge the unknown in the area of Human Performance because the licensee failed to challenge the adequacy of the January 19, 2014, radiological survey as the fuel pool cooling heat exchanger room

contained equipment that continuously transported radioactive liquid and was subject to changing radiological conditions.

Inspection Report# : [2014005](#) (*pdf*)

Significance:  Dec 31, 2014

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

INEFFECTIVE RADIOLOGICAL ENGINEERING CONTROLS RESULTED IN UNPLANNED AND UNINTENDED RADIOLOGICAL INTAKES TO WORKERS.

A finding of very-low-safety significance and an associated non-cited violation of Title 10 of the Code of Federal Regulation, Section 20.1701 was self-revealed during work activities associated with the failure to implement effective radiological engineering controls during reactor pressure vessel (RPV) disassembly that resulted in personal contaminations and unplanned and unintended radiological intakes to workers. Specifically, on October 5, 2014, several individuals working on the refuel floor were contaminated and several received small intakes of radioactive material while venting the RPV head. The licensee entered the issue into the Corrective Action Program as condition report 01996216. Corrective actions included revising applicable procedures for RPV flood-up with the RPV vented to atmosphere on the refuel floor.

The finding was more than minor because it impacted the program and process attribute of the Occupational Radiation Safety cornerstone and adversely affected the cornerstone objective of ensuring adequate protection of worker health and safety from exposure to radiation. Specifically, the failure to implement effective radiological engineering controls during RPV disassembly resulted in personal contaminations and low dose intakes to several workers. The inspectors also concluded that the radiological hazards had the potential to result in higher exposures to the individuals had the circumstances been slightly altered. The finding was determined to be of very-low- safety significance because it was not an ALARA planning issue; there was neither overexposure nor a substantial potential for an overexposure; and the licensee's ability to assess dose was not compromised. This finding was associated with the cross- cutting aspect of operating experience in the area of Problem Identification and Resolution because the licensee did not systematically implement relevant external operating experience in a timely manner.

Inspection Report# : [2014005](#) (*pdf*)

Public Radiation Safety

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

Significance:  Sep 30, 2014

Identified By: NRC

Item Type: FIN Finding

FAILURE TO PERFORM CRITICAL EQUIPMENT FAILURE EVALUATIONS.

A finding of very low safety significance, with three examples, and no associated violation was identified by the inspectors for the licensee's failure to accomplish procedure ER-AA-204-2005, "Critical Equipment Failure Evaluation," Revision 5. Specifically, on July 11, 2014, the inspector's identified that a critical equipment failure evaluation (CEFE) was not performed following the testing failure of the cable spreading room carbon dioxide fire suppression (CARDOX) system. Although the apparent failure mechanism (solenoid valve (SV)-8521 pilot valve seal failure) was known, and repairs and successful testing was accomplished, a CEFE was not performed to review the adequacy of preventive maintenance bases, operating experience, and effectiveness of prior corrective actions. During a subsequent extent of condition review, two additional instances of failing to perform CEFES were identified associated with an "A" control building chiller pressure switch failure (safety function maintained) and a fuel pool temperature lost indication (compensatory measures invoked). The licensee entered the issue into the CAP as CR 01977645, performed a CEFE to create a preventive maintenance task for periodic replacement of SV-8521 based on prior failures, and briefed the corrective action program coordinators (CAPCOs) on equipment failure evaluation requirements.

The inspectors determined that the issue of concern represented a performance deficiency because it was the result of the licensee's failure to meet procedural requirements, and the cause was reasonably within the licensee's ability to foresee and correct and should have been prevented. Section 4.1.1.A of ER-AA-204-2005, "Critical Equipment Failure Evaluation," Revision 5, stated, in part, that "a CEFE is required if the condition resulted from a FID 2 component failure that would have led to a FID 2 failure." The licensee did not perform a CEFE for the failure of pilot solenoid valve (SV)-8521. The performance deficiency was determined to be more than minor and a finding because if left uncorrected, failing to conduct evaluations of equipment failures to develop appropriate corrective actions would have the potential to lead to a more significant safety concern. The inspectors utilized IMC 0609, "Significance Determination Process," Attachment 0609.04, "Initial Characterization of Findings," and concluded that this finding's significance was best characterized by using Appendix M, of IMC 0609, "Significance Determination Process Using Qualitative Criteria." Based upon the fact that the three finding examples did not rise to a level of greater than very low safety significance, the inspectors determined that this issue was best characterized as having very low safety significance (Green). The inspectors determined that the performance characteristic of the finding that was the most significant causal factor of the performance deficiency was associated with the cross-cutting aspect of Problem Identification and Resolution, Identification, and involving individuals identifying issues completely and accurately in accordance with the corrective action program. Specifically, for each example, condition reports initiated did not clearly identify that an equipment failure occurred which led to an improper screening by the CAPCOs such that CEFES were not performed.

Inspection Report# : [2014004](#) (pdf)

Last modified : February 26, 2015