Clinton
1Q/2015 Plant Inspection Findings

Initiating Events

Significance: G Dec 31, 2014
Identified By: NRC
Item Type: NCV Non-Cited Violation
STATION PROCEDURES FAILED TO PROVIDE CONTROLS FOR MATERIAL NEAR TRANSFORMERS
The inspectors identified a non-cited violation associated with a failure to provide controls for material near the station transformers. Specifically, station procedure CPS 4302.01, "Tornado/High Winds", Revision 21b does not include guidelines or examples of the types of materials to control as potential missiles in high velicity winds or tornadoes, and does not include triggers to perform walkdowns when high winds are predicted, prior to off-normal entry, to control material adjacent to the offsite power transformers that could result in the loss of offsite power. The licensee entered this issue into the corrective action program as action request (AR) 2388608.

The failure to provide guidelines or examples of the types of materials to control as potential missiles in high velicity winds or tornadoes and provide triggers to perform walkdowns when high winds are predicted was a performance deficiency. The performance deficiency was more than minor because it was associated with the equipment 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 and is therefore a finding. Using Manual Chapter 0609, Attachment 4 "Initial Characterization of Findings," and Appendix A "The Significance Determination Process for Findings at Power", issued June 19, 2012, the finding was screened against the initiating events cornerstone and determined to be of very low safety significance (Green) because the finding did not involve the complete or partial loss of a support system that contributes to the likelihood of, or caused, an initiating event and did not affected mitigation equipment.

The inspectors determined this finding affected the cross-cutting area of problem identification and resolution in the aspect of operating experience where the organization systematically and effectively collects, evaluates, and implements relevant internal and external operating experience in a timely manner. Specifically, the licensee opearting experience program failed to ensure evaluation and implementation of interal operating experience in a timely manner after previous identification in the corrective action progrma. (IMC 0310 P.5)
Inspection Report# : 2014005 *(pdf)*

Significance: G Sep 30, 2014
Identified By: NRC
Item Type: NCV Non-Cited Violation
FAILURE TO UPDATE THE FINAL SAFETY ANALYSIS REPORT (FSAR) - SD STRUCTURAL INTEGRITY FUNCTION
The inspectors identified a Severity Level IV Non-Cited Violation of title 10 Code of Federal Regulations (CFR) 50.71(e), 'Periodic Update of the Final Safety Analysis Report' and an associated Green finding for the licensee's failure to update the Final Safety Analysis Report with a description of the basis for the steam dryer structural integrity submitted to the NRC in support of an extended power uprate license amendment. Specifically, the licensee did not update Section 3.9.5.1.1.9. "Steam Dryers," of the FSAR to include analysis and inspections of the steam dryer

each refueling outage that provided the basis for steam dryer structural integrity. Consequently, the licensee had not completed an inspection of the steam dryer during the most recent refueling outage. The licensee entered this issue into the corrective action program as issue report IR 02223135 and initiated actions to evaluate the Final Safety Analysis Report for revision to include description of the structural integrity function of the steam dryer.

The inspectors determined that the licensee's failure to update the Final Safety Analysis Report with the basis for steam dryer structural integrity submitted to the NRC was a performance deficiency. the performance deficiency was determined to be more than minor in accordance with Inspection Manual Chapter 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Screening," dated September 7, 2012, because, if left uncorrected, the performance deficiency would have the potential to lead a more significant safety concern and is therefore a finding. Failure to update the Final Safety Analysis Report with the basis for steam dryer structural integrity could result in a failure to maintain the structural integrity of the steam dryer. Specifically, insuffient steam dryer inspections could result in failure to detect structurally significant cracking and result in a steam dryer failure which generates debris that adversely affect the function of safety-related compoments (e.g. MSIVs). Additionally, the failure to update the Final Safety Analysis Report with the basis for steam dryer structural integrity was more than minor because it was associated with the Initiating Events Cornerstone attribute of Equipment Performance and adversely affected the Cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions. Violations of 10 CFR 50.71(e) are dispositioned using the traditional enforcement process because they are considered to be violations that potentially impede or impact the regulatory process. This violation was also associated with a finding that has been evaluated by the significance determination process (SDP) and communicated with SDP color reflective of the safety impact of the deficient licensee performance. The SDP, however, does not specifically consider regulatory process impact. Thus, although related to a common regulatory concern, it is necessary to address the violation and finding using different processes to correctly reflect both the regulatory importance of the violation and the safety significance of the associated finding.

Using Manual Chapter 0609, Attachment 4 "Initial characterization of Findings," and Appendix A "The Significance Determination Process for findings at Power" the finding was screened against the initiating events cornerstone and determined to be of very low safety significance (Green) because the finding did not cause a reactor trip and the loss of mitigating equipment relied upon to transition from the onset of the trip to a stable. The performance deficiency associated with this finding did not reflect current licensee performance; therefore, no cross cutting aspect was identified with this finding.

Additionally, in accordance with Section 6.1.d.3 of the NRC Enforcement Policy, this violation was categorized as Severity Level IV because the licensee's failure to update the FSAR as required by 10 CFR 50.71(e) had not yet resulted in any unacceptable change to the facility or procedures.
Inspection Report# : 2014004 *(pdf)*

Significance: G Sep 30, 2014
Identified By: NRC
Item Type: NCV Non-Cited Violation
MODIFICATION TO STEAM DRYER TIE BARS 28 AND 30 WITHOUT A 10 CFR 50.59 SAFETY EVALUATION
The inspectors identified a Severity Level IV non-cited violation of 10 CFR 50.59(d)(1), "Changes, Test, and Experiments" for the licensee's failure to perform a written evaluation, which provided the bases for the determination that a change did not require a license amendment. Specifically, the licensee made a change pursuant to 10 CFR 50.59 (c) with the installation of 1/2 inch holes adjacent to welds attaching tie bars 28 and 30 to the steam dryer vane assembly and did not provide a written evaluation to provide a basis for the determination that this change would not result in a more than minimal increase in the likelihood of occurrence of a malfunction of an system structure or component important to safety (e.g. MSIVs). The licensee entered this finding into the corrective action program as issue report IR 02223135 and identified an action to secure a detailed assessment of these degraded tie bar locations

from the steam dryer vendor. The licensee also consulted with the steam dryer vendor and made a qualitative assessment that the additional unflawed and unaltered portion of the fillet welds present at the end of the tie bar 28 and 30 locations provided a reasonable basis to conclude that these tie bars would not fail and affect the operability of safety-related components.

The inspectors determined that the failure to provide a written evaluation, which provided the basis for the determination that a change did not require a license amendment, was a performance deficiency. Specifically, the licensee failed to provide a basis for not applying for a license amendment associated with increased likelihood of a SD failure that impacts safety-related equipment due to reduced structural support available at tie bars 28 and 30. The performance deficiency was determined to be more than minor in accordance with IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Screening," dated September 7, 2012, because it was associated with the Initiating Events cornerstone attribute of equipment performance and adversely affected the cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. In addition, the associated violation was determined to be more than minor because the inspectors could not reasonable determine if the changes to the SD at tie bars 28 and 30 would have required NRC prior approval.

Violations of 10 CFR 50.59 are dispositioned using the traditional enforcement process instead of the SDP because they are considered to be violations that potentially impede or impact the regulatory process. However, if possible, the underlying technical issue is evaluated under the SDP to determine the severity of the violation. In this case, the inspectors used Manual Chapter 0609, Attachment 4 "Initial characterization of Findings," and Appendix A "The Significance Determination Process for findings a Power" the finding was screened against the initiating events cornerstone and determined to be of very low safety significance (Green) because the finding did not cause a reactor trip and the loss of mitigating equipment relied upon to transition from the onset of the trip to a stable. The performance deficiency associated with this finding did not reflect current licensee performance; therefore, no cross cutting aspect was identified with this finding.

In accordance with Section 6.1.d.2 of the NRC Enforcement Policy, this violation was categorized as Severity Level IV because the resulting changes were evaluated by the SDP as having very low safety significance.
Inspection Report# : 2014004 *(pdf)*

Significance: G Jul 11, 2014
Identified By: NRC
Item Type: FIN Finding
FAILURE TO IDENTIFY A LEVEL 1 TEST CRITERION FAILURE
The inspectors documented a self-revealing Green finding associated with the failure to follow procedures when performing power ascension testing on the digital feedwater (DFW) system. Specifically, contrary to procedure CPS 2894.01, "Digital FWLC [feedwater level control system] Modifications Test - Power Ascension," Section 9.1, the licensee did not declare a Level 1 criterion failure when unacceptable oscillations were noted during a transition in the power ascension test. This resulted in the licensee declaring the test successful and returning the system to service without taking the appropriate corrective actions to address the oscillations. This contributed to the subsequent scram caused by reactor water level oscillations.

The failure to follow procedures when performing power ascension testing on the digital feedwater system was a performance deficiency. The performance deficiency was more than minor because it was associated with the design control 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 and is therefore a finding. Using IMC 0609, Attachment 4 "Initial Characterization of Findings," and Appendix A "The Significance Determination Process for Findings at Power," issued June 19, 2012, the finding was determined to be of very low safety significance (Green) because it did not cause a reactor trip with a coincident loss

of mitigating equipment. The inspectors determined this finding affected the conservative bias aspect of the of human performance cross-cutting area described as being present when the organization uses decision making practices that emphasize prudent choices over those that are simply allowable. Specifically, the licensee used non-conservative assumptions when determining whether the condition identified during the power ascension test was allowable (H.14). This finding does not involve enforcement action because no violation of regulatory requirements was identified.
Inspection Report# : 2014008 *(pdf)*

Significance: G Jun 30, 2014
Identified By: NRC
Item Type: FIN Finding
ELECTRO HYDRAULIC CONTROL SYSTEM LEAK RESULTS IN MANUAL SCRAM
The inspectors documented a self-revealing, Green finding associated with a failure to provide adequate work instructions to perform repairs to the shutoff valve for 1TGCV4 main turbine control valve. Specifically, contrary to station procedure MA-AA-716-010, "Maintenance Planning," Revision 21, the work instructions generated to install the shutoff valve failed to reference the appropriate cap screw size, lubricate the cap screws and install lock washers on the cap screws used to attach the shut off valve to the control valve. This allowed the cap screws to loosen and ultimately fail due to fatigue resulting in a leak of electro hydraulic control fluid of sufficient rate to require a manual scram of Unit 1 on April 26, 2013. The valve was replaced and successfully tested and the unit was restarted. The licensee documented this issue in the corrective action program (CAP) as Issue Report (IR) 01506929.

The performance deficiency was more than minor because it was associated with the procedure quality 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 and is therefore a finding. Using Manual Chapter 0609, Attachment 4 "Initial Characterization of Findings," and Appendix A "The Significance Determination Process for Findings at Power", issued June 19, 2012, the finding was screened against the initiating events cornerstone and determined to be of very low safety significance (Green) because the finding did not cause a reactor trip with a coincident loss of mitigating equipment relied upon to transition the plant from the onset of the trip to a stable shutdown condition. The inspectors determined that no cross cutting aspect will be assigned to this performance deficiency since it occurred in 2008 and is not indicative of current plant performance.

Inspection Report# : 2014003 *(pdf)*

Significance: G Jun 30, 2014
Identified By: NRC
Item Type: FIN Finding
FAILURE TO IMPLEMENT ENGINEERING CHANGE RESULTS IN MANUAL REACTOR SCRAM
The inspectors documented a self-revealing, Green finding associated with a failure to implement engineering change (EC) 380150 "Upgrade Feed Water Level Control and Turbine Speed." Specifically, contrary to station procedure CC-AA-256, "Process for Managing Plant Modifications Involving Microprocessor Technology," Revision 2, the licensee failed to identify, evaluate and mitigate software component critical parameters in the engineering change that installed the digital feed water system. This resulted in nonlinear reactor water level oscillations when transferring from the motor driven feed pump to the turbine driven feed pump that required the reactor operator to manually scram the reactor prior to reaching the level 8 automatic scram set point. The licensee documented this issue in the corrective action program as IR 1596987.

The performance deficiency was more than minor because it was associated with the design control 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 and is

therefore a finding. Using Manual Chapter 0609, Attachment 4 “Initial Characterization of Findings,” and Appendix A “The Significance Determination Process for Findings at Power”, issued June 19, 2012, the finding was screened against the initiating events cornerstone and determined to be of very low safety significance (Green) because the finding did not cause a reactor trip with a coincident loss of mitigating equipment relied upon to transition the plant from the onset of the trip to a stable shutdown condition. The inspectors determined this finding affected the cross cutting area of human performance in the aspect of documentation where the organization creates and maintains complete, accurate and up-to date documentation. Specifically, the contractors failed to create complete documentation to be use by the licensee when evaluating the critical parameters.

Inspection Report# : 2014003 *(pdf)*

Mitigating Systems

Significance: G Mar 31, 2015
Identified By: NRC
Item Type: FIN Finding
FAILURE TO PERFORM ADEQUATE CHANNEL CALIBRATION ON SEISMIC INSTRUMENTATION
The inspectors identified a Green Finding associated with the licensee's failure to perform an adequate channel calibration to determine the functionality of the stations seismic monitoring equipmen used for evaluaing earthquakes. Specifically, station procedure CPS 9437.21, "Trix Time-History Accelerometer Channel Calibration," Revision 39c, did not include steps to ensure that battery backup power was provided to operate the equipment on a loss of the normal power source as part of the operability requirements. The licensee documented the issue in the corrective action program as action request (AR) 02454630. As a corrective action the licensee planned to correct procedure CPS 9437.21 to verify proper battery operation.

The licensee's failure to perform an adequate channel calibration to determine the functionality of the stations seismic monitoring equipment used for evaluating earthquakes was a performance deficiency. Specifically, station procedures did not include steps to ensure that battery backup power was provided to operate the equipment on a loss of the normal power source. The performance deficiency was more than minor because it adversely impacted the protection against external factors attribute of the Mitigating Systems cornerstone objective to ensure the availability, reliability and capability of systems that respond to initiating events to prevent undesirable consequences. Using Manual chapter 0609, Attachment 4 "Initial Characterization of Findings," and Appendix A "The Significance Determination Process for Findings at Power," issued June 19, 2012, the inspectors answered "yes" to the Mitigating Systems cornerstone question, "Does the finding involve the ... degradation of equipment ... specificallty designed to mitigate a seismic ... initiating event ..." Therefore, the inspectors addressed the questions in Exhibit 4, "External Event Screening Questions." The inspectors answered "no" to the two questions in Exhibit 4. Specifically, 1) if completely failed the seismic monitor would not cause an initiating event or degrade multi-trains or risk-significant systems; and 2) the finding does not involve the total loss of any safety function. The inspectors determined this finding affected the cross-cutting area of human performance in the aspect of conservative bias where individuals use decision making-practices that emphasize prudent choices over those that are simply allowable and a proposed action is determined to be a safe in order to proceed, rather than unsafe in order to stop. Specifically, the licensee documented the issue of the voltage being high out of specification and instead of performing additional corrective actions to determine if leaving the voltage out of specification was appropriate marked the step as not applicable and proceeded with the rest of the procedure. (Section 1R15)
Inspection Report# : 2015001 *(pdf)*

Significance: G Mar 31, 2015
Identified By: NRC
Item Type: NCV Non-Cited Violation
UNQUALIFIED SAFETY-RELATED CABLES USED IN A SUBMERGED ENVIRONMENT
The inspectors identified a finding and an associated non-citied violation of 10 CFR 50 Appendix B, Criterion III, "Design Control," for the failure to maintain safety-related cables for the SX system in an environment for which they were designed. Specifically, the licensee failed to maintain SX safety-related cables in an environment for which they were designed when the cables were allowed to be submerged in water inside cable vaults. The licensee documented this issue in their corrective action program (CAP) as action request (AR) 02474543. Corrective actions included draining the cable vaults so that the cables were no longer submerged.

The licensee's failure to maintain safety-related cables for the SX system in an environment for which they were designed was a performance deficiency. The performance deficiency was determined to be more than minor because the finding was associated with the Mitigating Systems 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. Specifically, the licnesee failed to maintain SX safety-related cables in an environment for which they were designed when the cables were allowed to be submerged in water inside cable vaults. Using IMC 0609, "Significance Determination Process," Attachment 0609.04, "Initial Characterization of Findings," issued on June 19, 2012. Specifically, the inspectors used IMC 0609 Appendix A "SDP for Findings At-Power," issued June 19, 2012, Exhibit 2, "Mitigating Systems Screening Questions" to screen the finding. The finding screened as of very low safety significance (Green) because the inspectors answered yes to the question "does the SSC maintain its operability or functionality." Specifically, the SX system submerged cables did not cause the SX system to be inoperable or nonfunctional. The inspectors determined this finding affected the cross-cutting area of problem identification and resolution in the aspect of resolution, where the organization takes effective corrective actions to address issues in a timely manner commensurate with their safety significance. Specifically, the licensee failed to implement effective corrective actions to address an adverse trend of water in cable vaults which led to (SX) safety-related cables being submerged in water.
Inspection Report# : 2015001 *(pdf)*

Significance: W Mar 31, 2015
Identified By: NRC
Item Type: AV Apparent Violation
FAILURE OF THE DIVISION 3 SHUTDOWN SERVICE WATER PUMP DUE TO AN INADEQUATE BUSHING DESIGN
A self-revealed finding, preliminarily determined to be of low to moderate safety significance (White) and an associated AV of 10 CFR 50 Appendix B, Criterion III, Design Control, was identified for the failure to verify the suitability of the replacement pump design for the Division 3 Shutdown Service Water system. Spceifically, the design of the suction bell bushing for the replacement pump was inadequate to pass sufficient cooling water flow to the pump internals without being affected by mud and silt from the lake water. This finding was self-revealed on September 16, 2014, during a surveillance test to ensure operability of the Division 3 shutdown cooling water pump after the pump failed to start due to a damaged bushing rendering the pump inoperable. This finding does not represent an immediate safety concern because the licensee replaced the pump in September of 2014 with a pump of similar design and provided adequate documentation that assures the pump will remain operable until a different design for the bushing that failed can be installed by June of 2016.

The inspectors determined that the licensee's failure to verify the suitability of the design for the Division 3 Shutdown Service Water pump was a performance deficiency warranting a significance evaluation. The inspectors determined that the finding was more than minor in accordance with IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Screening," dated September 7, 2012, because it was associated with the Mitigating Systems Cornerstone

attributes of design control and equipment performance and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. A Significance and Enforcement Review Panel (SERP), using IMC 0609, Appendix A, "Significance Determination Process For Findings At-Power," dated June 19, 2012, preliminarily determined the finding to be of low to moderate safety significance (White). The performance deficiency associated with this finding did not reflect current licensee performance; therefore, no cross cutting aspect was identified with this finding.
Inspection Report# : 2015001 *(pdf)*

Significance: G Mar 20, 2015
Identified By: NRC
Item Type: NCV Non-Cited Violation
Inadequate 50.59 Evaluation for Switchgear in Seismically Unanalyzed Conditions (Section 1R17.1b.)
Severity Level IV Green. The inspectors identified a finding of very-low safety significance, and an associated Non-Cited Violation of Title 10, Code of Federal Regulations Part 50, Section 59, “Changes, Tests and Experiments,” (effective January 1, 1997) for a procedure change dated May 2, 1997, where the licensee allowed safety-related switchgear to operate for a limited period of time during plant operation in equipment configurations that were seismically unanalyzed. Specifically, for Safety Evaluation Log 97 060, “CPS [Clinton Power Station] Procedure No. 1014.11,” Revision 0, the licensee failed to include a written safety evaluation which provided the bases that concluded for all switchgear configurations that a seismically unanalyzed condition does not involve an unreviewed safety question, and the possibility for a malfunction of a different type than any evaluated previously in the Safety Analysis Report may be created. The licensee entered the issue into their Corrective Action Program as Action Request 02471583, “NRC Mod 50.59 Inspection Safety Eval 97 060 for CPS 1014.11,” dated March 20, 2015.

The performance deficiency was determined to be more than minor because the finding was associated with the Mitigating Systems cornerstone attribute of protection against external factors and 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, switchgear in a seismically unanalyzed condition when relied upon to perform a safety function did not ensure the availability, reliability, or capability of the associated Mitigating Systems to respond to an initiating event such as an earthquake. The inspectors determined that the underlying technical issue was of very-low safety significance (Green) using a detailed risk evaluation. The inspectors did not identify a cross-cutting aspect associated with the finding because the finding was not representative of current performance.
Inspection Report# : 2015008 *(pdf)*

Significance: G Dec 31, 2014
Identified By: NRC
Item Type: NCV Non-Cited Violation
FAILURE TO TRANSLATE SEISMIC DESIGN REQUIREMENTS INTO APPLICABLE PROCEDURES
The inspectors identified a green non-cited violation of 10 CFR 50, Appendix B, Criterion III, Design Control, for the failure to adequately translate seismic requirements from a design calculation into applicable procedures. Specifically the licensee failed to incorporate the seismic requirements for the Division III 4.16 KV switchgear as described in calculation IP-Q-0391 “Seismic Qualification of 480V ABB Unit Sub Switchgears, Div I & II Westinghouse Switchgears and Div III GE 4.16KV Switchgears”, into procedure CPS 1014.11 “6900/4160/480V Switchgear/Circuit Breaker Operability Program”, resulting in the licensee incorrectly declaring Division III switchgear operable when in a seismically unanalyzed condition. The licensee entered this issue into their corrective action program as AR 2386676.

The inspectors determined that the failure to adequately incorporate the seismic requirements of the design calculation

into the applicable procedure was a performance deficiency. The finding is more than minor because it is associated with the design control attribute of the Mitigating Systems Cornerstone and adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. In accordance with 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," Exhibit 4, "External Events Screening Questions," dated June 19, 2012, the inspectors answered "Yes" to question 1 of External Events screening questions, because the finding could potentially degrade one train of the emergency power system. Thus the inspectors consulted the regional senior reactor analyst (SRA).

Based on the Detailed Risk Evaluation, the inspectors determined that the finding was of very low safety significance (Green). The inspectors determined that there was no cross-cutting aspect associated with this finding because the cause of the performance deficiency occurred more than fifteen years ago, and was not representative of current licensee performance.

Inspection Report# : 2014005 *(pdf)*

Significance:  Dec 31, 2014
Identified By: Self-Revealing
Item Type: NCV Non-Cited Violation
FAILURE TO PROVIDE PROCEDURE INSTRUCTION RESULTS IN EXCEEDING TECHNICAL SPECIFICATION HEAT UP RATE DURING PLANT START UP
The inspectors are documenting a self-revealing non-cited violation of Technical Specification 5.4., "Procedures," for the licensee's failure to establish instructions in station procedure CPS 9059.01, "Reactor Coolant System Leakage Test," Revision 9b. Specifically, the licensee failed to provide instructions to ensure that the main steam piping between the reactor vessel and the inboard main steam isolation valves were completely drained of water at the completion of testing. The licensee entered this issue into the corrective action program as action request AR 01590671.

The inspectors determined that the licensee's failure to establish instructions to ensure that the main steam piping between the reactor vessel and the inboard main steam isolation valves were completely drained of water prior to starting up the reactor was 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 adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences, and is therefore a finding.

Using Manual Chapter 0609, Attachment 4 "Initial Characterization of Findings," and Appendix A "The Significance Determination Process for Findings at Power" the finding was screened against the mitigating systems cornerstone and determined to be of very low safety significance (Green) because the finding was/did not: 1) a deficiency affecting the design or qualification of a mitigating structure, system or component, 2) represent a loss of system and/or function, 3) represent an actual loss of function of a single train for greater than its technical specification allowed outage time, 4) represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significant for greater than 24 hours and 5) did not involve the loss or degradation of equipment or function specifically designed to mitigate a seismic, flooding or severe weather event. The inspectors determined this finding affected the cross cutting area of human performance in the aspect of work management where the organization implements a process of planning, controlling, and executing work activities such that nuclear safety is the overriding priority. Specifically, the licensee failed to have a plan or provide a control method to ensure the main steam piping was drained prior to commencing reactor start up. (IMC 0301 H.5)

Inspection Report# : 2014005 *(pdf)*

Significance: G Sep 30, 2014
Identified By: NRC
Item Type: NCV Non-Cited Violation
EXCEEDED TECHNICAL SPECIFICATION ALLOWED OUTAGE TIME FOR ELECTRICAL POWER SYSTEMS DUE TO AUXILIARY EQUIPMENT OUT OF SERVICE
The inspectors identified a non-cited violation of Technical Specification 3.8.4, "DC Sources - Operating" and Technical Specification 3.8.9, "Distribution Systems - Operating" for failing to enter the technical specifications and complete the associated actions prior to the completion time when auxiliary equipment required to support electrical power system safety function was out of service. Specifically, the licensee removed the division 1 safety related portion of the switchgear cooling system from service to perform maintenance and failed to enter the applicable technical specifications that the was required to support system safety function. The licensee documented this issue in the corrective action program as Issue Report (IR) 01674754.

The failure to enter the technical specifications and complete the associated actions prior to the completion time when auxiliary equipment required to support electrical power system safety function was out of service was 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 adversely affected the cornerstone objective to ensure the availability, reliability and capability of systems that respond to initiating events to prevent undesirable consequences and is therefore a finding. Using Manual Chapter 0609, Appendix A, "The Siginificance Determination Process (SDP) for Findings At-Power," issued June 19, 2012, Exhibit 2 for the Mitigating Systems Cornerstone. The inspectors answered "Yes" to the screening question under the Mitigating Systems Cornerstone "Does the finding represent and actual loss of function of at least a single train for > its Tech Spec Allowed Outage Time OR two separate safety systems out-of-service for > its Tech Spec Allowed Outage Time?,' since the finding represented an actual loss of function of at least a single Train for > its Tech Spec Allowed Outage time. Therefore, a detailed risk evaluation was performed using IMC 0609, Appendix A. The Senior Reactor Analysts (SRAs) evaluated the finding using the Clinton Standardized Plant Analysis Risk (SPAR) model version 8.17, Systems Analysis Programs for Hands-on Integrated Reliability Evaluations (SAPHIRE) version 8.1.0. For switchgear cooling, independent redundant cooling trains are provided for each of the three divisional switchgear areas with one train being non-safety related and the other safety related. In order to characterize the risk significance, the SRAs assumed that during a loss of offsite power (LOOP) event, the non-safety related switchgear cooling train that is normally in operation would become unavailable. The safety-related cooling train, should it be undergoing maintenance, would be unavailable as well. The exposure time for this issue was taken to be 235 hours based on the licensee documentation. Post-processing rules were used to credit an additional 4.0 hours of time to recover offsite power (to allow recovery of the non-safety cooling train) in core damage sequences when the safety-related cooling train for Division 1 equipment was undergoing maintenance during a LOOP. The SRAs also gave credit in the SPAR Model for local operator action to provide alternate switchgear room cooling during a LOOP. The licensee produced Alarm Response Procedure CPS 5050.03, Rev 30c, which directed operators to Procedure CPS 3412.01, "Essential Switchgear Heat Removal (VX)...," Revision 15. These procedures directed operators to locally open doors, set up protable blowers, or lower electrical loads to help cool the room as necessary. The SRAs used the SPAR-H Human Reliability Analysis Method (NUREG/CR-6883) to estimate the human error probability for identifying and executing the local actions. the performance drivers were "time" (extra time) and "stress" (high) for diagnosis. The performance drivers were "stress" (high) and "ergonomics" (poor) for action. The resultant human error probability using these assumptions was 0.022. Using the above information, the ?CDF during the exposure time is 1.7E-08/yr. The dominant sequences were station blackout sequences, with initial success of RCIC and HPCS, but later failure of those systems and decay heat removal and all injection due to failure to vent containment and its subsequent failure. Based on the detailed risk evaluation, this finding is best characterized as a finding of very low safety-significance (Green.) The inspectors determined this finding affected the cross-cutting area of human performance in the aspect of avoid complacency where individuals recognize and plan for mistakes, latent issues, and inherent risk, even while expecting successful outcomes. Specifically, the licensee has removed the division 1 or 2 safety related switchgear cooling system fans or condensing units from service numerous times and failed to consider the components inoperable under technical

specification definition for operable. (IMC 0310 H.12)
Inspection Report# : 2014004 *(pdf)*

Significance: G Sep 30, 2014
Identified By: NRC
Item Type: NCV Non-Cited Violation
PROGRAMMATIC FAILURE TO COMPLETE OPERABILITY AND FUNCTIONALITY DETERMINATIONS
The inspectors identified a non-cited violation of 10 CFR 50 Appendix B, Criterion V, Instructions, Procedures and Drawings, "Procedures," for the failure to accomplish station procedure OP-AA-108-115, "Operability Determinations" Revision 14. Specifically, on multiple occasions operations personnel failed to complete or documented incomplete operability or functionality of safety related or related to safety equipment used at the site. The licensee documented this issue in the corrective action program as Issue Report (IR) 01693256.

The failure to complete or provided incomplete operability or functionality determinations used to determine the operability or functionality of safety related or related to safety equipment used at the site is a performance deficiency. The performance deficiency was determined to be more than minor because if left uncorrected, the performance deficiency has the potential to lead to a more significant safety concern and is therefore a finding. Specifically, if operations personnel continue to fail to complete or provide incomplete operability or functionality determination the station could have safety or safety related equipment inoperable without taking appropriate actions for the equipment being inoperable (e.g. entering appropriate technical specification limited condition for operation). Using Manual Chapter 0609, Attachment 4 "Initial Characterization of Findings," and Appendix A "The Significance Determination Process for Findings at Power" the finding was screened against the mitigatins systems cornerstone and determined to be of very low safety significance (Green) because the finding was/did not: 1) a deficiency affecting the design or qualification of a mitigating structure, system or component, 2) represent a loss of system and/or function, 3) represent an actual loss of function of a single train for greater than its technical specification allowed outage time, 4) represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significant for greater than 24 hours and 5) did not involve the loss or degradation of equipment or function specifically designed to mitigate a seismic, flooding or serve weather event. The inspectors determined this finding affected the cross-cutting area of human performance in the aspect of Training, where the organization provides training and ensures knowledge transfer to maintain a knowledgeable, technically competent workforce and instill nuclear safety values. Specifically, personnel performing the reviews believed existing training provided sufficient knowledge without the use of additional resources material and current training to operators does not covet this activity. (IMC 0319 H.9)
Inspection Report# : 2014004 *(pdf)*

Significance: G Sep 30, 2014
Identified By: NRC
Item Type: NCV Non-Cited Violation
FAILURE TO ESTABLISH SURVEILLANCE PRODEDURE FOR REACTOR CORE ISOLATION COOLING PUMP DUE TO UNACCEPTABLE PRECONDITIONING
The inspectors determined that the failure to establish a surveillance procedure to test the RCIC system due to unacceptable preconditioning is a performance deficiency. The performance deficiency was more than minor because it was associated with the procedure quality attribute of the mitigating systems cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability and capability to response to initiating events to prevent undesirable consequences and is therefore a finding. Using Manual Chapter 0609, Attachment 0609.04 "Initial Characterization of Findings," and Appendix A "The Significance Determination Process for Findings at Power" the finding was screened against the mitigating systems cornerstone and determined to be of very low safety significance (Green) because the finding was/did not: 1) a deficiency affecting the design or qualification of a mitigating structure,

system or component, 2) represent a loss of system and/or function, 3) represent an actual loss of function of a single train for greater than its technical specification allowed outage time, 4) represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significant for greater than 24 hours and 5) did not involve the loss or degradation of equipment or function specifically designed to mitigate a seismic, flooding or severe weather event. The inspectors determined this finding affected the cross-cutting area of problem identification and resolution in the aspect of operating experience where the organization systematically and effectively collects, evaluates and implements relevant internal and external operating experience in a timely manner. Specifically, the licensee considered the impact of the operating experience for surveillance testing, but did not consider its impact during normal plant operation. (IMC 0310 P.5)
Inspection Report# : 2014004 *(pdf)*

Significance: G Jun 30, 2014
Identified By: NRC
Item Type: NCV Non-Cited Violation
FOREIGN MATERIAL IN RELAY PREVENTS EMERGENCY DIESEL GENERATOR OUTPUT BREAKER FROM CLOSING
The inspectors documented a self-revealing, Green non-cited violation of Clinton Power Station Technical Specification 5.4.1, “Procedures,” for a failure to prevent foreign material from entering a relay associated with the Division 1 Diesel Generator. Specifically, contrary to station procedure CPS 8501.05, “CV-2 Relay Inspection and Calibration with Doble Test Equipment,” Revision 4, the licensee failed to verify that relay 227-DGIKA, CV-2 AB phase was clean and free of all foreign material. The foreign material prevented the relay from operating and satisfying the permissive logic required to close the Division 1 Diesel Generator output breaker resulting in having to declare the Diesel Generator inoperable. The relay was replaced and successfully tested and the licensee documented this issue in the corrective action program as IR 01600935.

The finding was more than minor because it was associated with the procedure quality attribute of the mitigating systems cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability and capability of systems that respond to initiating events to prevent undesirable consequences and is therefore a finding. Using Manual Chapter 0609, Appendix A, “The Significance Determination Process (SDP) for Findings At-Power,” issued June 19, 2012, Exhibit 2 for the Mitigating Systems Cornerstone, the inspectors answered “Yes” to the screening question under the Mitigating Systems Cornerstone “Does the finding represent an actual loss of function of at least a single Train for > its Tech Spec Allowed Outage Time OR two separate safety systems out-of- service for > its Tech Spec Allowed Outage Time?," since the finding represented an actual loss of function of at least a single Train for > its Tech Spec Allowed Outage Time of 14 days. Therefore, a detailed risk evaluation was performed using IMC 0609, Appendix A. The Senior Reactor Analysts (SRAs) evaluated the finding using the Clinton Standardized Plant Analysis Risk (SPAR) model version 8.17, Systems Analysis Programs for Hands-on Integrated Reliability Evaluations (SAPHIRE) version 8.1.0 and concluded that the risk increase to the plant due to this finding is very low (Green). The inspectors determined this finding affected the cross cutting area of human performance in the aspect of work management where the organization implements a process of planning, controlling and executing work activities such that nuclear safety is the overriding priority. Specifically, the licensee’s implementation of their foreign material exclusion process for this maintenance activity lacked sufficient planning, controls and execution to prevent foreign material from entering a risk significant piece of safety related equipment.

Inspection Report# : 2014003 *(pdf)*

Significance: G Jun 30, 2014
Identified By: NRC
Item Type: NCV Non-Cited Violation
FAILURE TO DEVELOP ADEQUATE PROCEDURES FOR PRE-PLANNING AND PERFORMING

MAINTENANCE AFFECTING SAFETY-RELATED EQUIPMENT
The inspectors documented a self-revealing, Green non-cited violation (NCV) of Clinton Power Station Technical Specification 5.4.1, "Procedures" for a failure to develop adequate procedures for properly pre-planning and performing maintenance affecting the performance of safety-related equipment which resulted in the subsequent failure of the Division 3 Diesel Room Ventilation damper hydramotor on August 15, 2013. Specifically, during pre-scheduled performance testing of the Division 3 (High Pressure Core Spray System) Emergency Diesel Generator Room Ventilation Damper hydramotor, the ventilation supply air intake damper, 1VD01YC, failed to open as a result of Damper Hydramotor 1TZVD003A experiencing an age-related degradation failure. This was due in part to the licensee's failure to properly pre-plan and perform the appropriate preventive maintenance for the hydramotor due to inadequate procedures. Procedure WC-AA-113, "Predefine Database Revisions," Revision 2, did not provide adequate instructions appropriate to the circumstances to properly pre-plan and perform maintenance affecting the performance of safety-related equipment. This resulted in a loss of safety function of the HPCS Diesel Generator and its supported High Pressure Core Spray system because of the low confidence that diesel room temperature would be maintained to support the diesel during an event when it would be required to perform its function. The licensee subsequently replaced the hydramotor, tested the new hydramotor successfully and restored the diesel ventilation system to operable. They documented this issue in the corrective action program as IR 1546973 and IR 1547294.

The performance deficiency was more than minor because it was associated with the equipment performance attribute of the mitigating systems cornerstone attribute and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences and is therefore a finding. Using Manual Chapter 0609, Appendix A, "The SDP for Findings At-Power," issued June 19, 2012, Exhibit 2 for the Mitigating Systems Cornerstone. The inspectors answered "Yes" to the screening question under the Mitigating Screening Cornerstone "Does the finding represent a loss of system and/or function?" since the finding resulted in a loss of safety function. Therefore, a detailed risk evaluation was performed using IMC 0609, Appendix A. The SRAs evaluated the finding using the Clinton SPAR model version 8.17, SAPHIRE version 8.1.0 and concluded that the risk increase to the plant due to this finding is very low (Green). The inspectors determined that no cross-cutting aspect will be assigned to this performance deficiency since it occurred in 2005 and is not indicative of current plant performance

Inspection Report# : 2014003 *(pdf)*

Barrier Integrity

Significance: G Dec 31, 2014
Identified By: NRC
Item Type: NCV Non-Cited Violation
FAILURE TO UPDATE THE UPDATED SAFETY ANALYSIS REPORT - 1VR08C FUNCTION
The inspectors identified a Severity Level IV non-cited violation of Title 10 Code of Federal Regulations (CFR) 50.71 (e), "Periodic Update of the USAR" and an associated Green finding for the licensee's failure to update the USAR with the correct description of the function of 1VR08C. Specifically the licensee did not update Section 9.4.5.5 of the USAR to include the correct function of 1VR08C as described in a commitment made to the NRC in letter U-600850. Consequently the licensee performed a 50.59 evaluation for abandoning a portion of the system that did not consider the correct function of the component. The licensee entered this issue into their corrective action program as AR 1692665.

The inspectors determined that the failure to update the USAR with the correct function of 1VR08C was a performance deficiency. The performance deficiency was determined to be more than minor in accordance with

Inspection Manual Chapter (IMC) 0612, “Power Reactor Inspection Reports,” Appendix B, “Issue Screening,” dated September 7, 2012, because, if left uncorrected, the performance deficiency would have the potential to lead to a more significant safety concern and is therefore a finding. Specifically, failure to update the USAR with the correct safety related function of VR08C could result in the licensee making operability and functionality determinations based on incorrect assumptions. Additionally, the failure to update the USAR with the correct function of the fan was more than minor because it was associated with the Barrier Integrity Cornerstone attribute of design control, plant modifications and adversely affected the cornerstone objective to provide reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events.

Using IMC 0609, Attachment 4, “Initial Characterization of Findings,” and Appendix A, “The Significance Determination Process for Findings at Power,” the finding was screened against the Barrier Integrity cornerstone and determined to be of very low safety significance (Green) because the finding does not represent an actual open pathway in the physical integrity of reactor containment, containment isolation system, and heat removal components and it did not involve an actual reduction in function of hydrogen igniters in reactor containment. The performance deficiency associated with this finding did not reflect current licensee performance; therefore, no cross cutting aspect was identified with this finding.

Additionally, in accordance with Section 6.1.d.3 of the NRC Enforcement Policy, this violation was categorized as Severity Level IV because the licensee’s failure to update the USAR as required by 10 CFR 50.71(e) had not yet resulted in any unacceptable change to the facility or procedures.

Inspection Report# : 2014005 *(pdf)*

Emergency Preparedness

Significance: G Sep 30, 2014
Identified By: NRC
Item Type: NCV Non-Cited Violation
INCOMPLETE EVACUATION TIME ESTIMATE SUBMITTALS
The inspectors determined that Exelon's failure to submit a complete updated ETE for the Clinton Power Station by December 22, 2012 was a performance deficiency. Specifically, the ETE is an input into the development of protective action strategies prior to an accident and to the protective action recommendation decision making process during an accident. Inadequate ETEs have the potential to reduce the effectiveness of public protective actions implemented by the OROs. The performance deficiency was more than minor because it was associated with the procedure quality attribute of the emergency preparedness cornerstone and adversely affected the cornerstone objective to ensure that the licensee is capable of implementing adequate measures to protect the health and safety of the public in the event of a radiological emergency and is therefore a finding. Using IMC 0609, attachment 0609.04 "Initial Characterization of Findings," and Appendix B, "Emergency Preparedenss (EP) Significance Determination Process (SDP)," the finding was screened by the inspectors and determined to be of very low safety significance (Green) based upon the following. The performance deficiency was associated with planning standard 10 CFR 50.47 (b)(10)," Green Finding column, provides the following exasmples "ETEs and updates to the ETEs were not provided to responsible OROs," and "The current public protective action strategies documented in emergency preparedness implementing procedures (EPIPs) are not consistent with the current ETE." The inspectors concluded that the incomplete updated ETE delayed the NRC's approval of the Clinton Power Station ETE, therefore the ETE was not provided to the site OROs nor was it used to inform the site EPIPs as required by 10 CFR 50.47(b)(10), and Section IV, Paragraph 4 of Appendix E to 10 CFR Part 50. The inspectors determined this finding affected the cross-cutting area of human performance in the aspect of documentation where the organization creates and maintains complete,

accurate and up-to-date documentation. Specifically, the Emergency Preparedness organization did not develop the Clinton Power Station ETE as required by the new regulation introduced by the NRC's EP Rule. (IMC 0310 H.7)
Inspection Report# : 2014004 *(pdf)*

Occupational Radiation Safety

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

Last modified : June 16, 2015