

## Ginna

### 4Q/2013 Plant Inspection Findings

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#### Initiating Events

**Significance:** G Sep 30, 2013

Identified By: Self-Revealing

Item Type: FIN Finding

#### **Inadequate Guidance for Workers to Implement a Modification to the Main Generator Digital Protection Relays**

A self-revealing Green finding was identified for inadequate guidance as required by Constellation Energy Nuclear Group, LLC (CENG) procedure CNG-PR-1.01-1005, "Control of Constellation Nuclear Generation Technical Procedure Format and Content," Revision 00500, for workers to implement a modification to the main generator protection digital relays. During the 2012 refueling outage (RFO), the protection relays' outputs were incorrectly configured to trip due to inadequate guidance given to the workers. This resulted in a main generator trip signal that led to a main turbine trip and a subsequent reactor trip during positive reactive capability testing on July 24, 2013.

This finding is more than minor because it is associated with the human performance attribute of the Initiating Events cornerstone and adversely impacted 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. Specifically, Ginna procedures PRI-06-02-KVRELAY and PRI-26-02-GEN, which were used to perform the maintenance and modification on the generator protective relays during the 2012 RFO, were not sufficient to ensure the relays were set correctly prior to the system being placed in service. This resulted in a plant trip when the set points for the incorrectly set generator trip relays were achieved during generator voltage testing. The inspectors evaluated the finding using Inspection Manual Chapter (IMC) Attachment 0609.04, "Initial Characterization of Findings." This attachment directed the inspectors to evaluate the finding using IMC 0609, Appendix A, "Significance Determination Process for Findings At-Power." The inspectors determined this finding did not cause both 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 (e.g. loss of condenser, loss of feedwater). Therefore, the inspectors determined the finding to be of very low safety significance (Green). This finding has a cross-cutting aspect in the area of Human Performance, Work Control, because CENG personnel did not appropriately coordinate work activities by incorporating actions to address the impact of changes to the work scope or activity on the plant and human performance. Specifically, CENG personnel did not follow defined processes, such as the scope change process, to address the impact of changes to the work scope when implementing procedure changes to a modification to configure main generator digital protection relays [H.3.(b)].

Inspection Report# : [2013004](#) (*pdf*)

**Significance:** G Mar 31, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Failure to Identify, Account For, and Properly Evaluate Non-Fire Retardant Treated Combustibles in the Screen House**

The inspectors identified an non-cited violation of Ginna Operating License Condition 2.C.(3), "Fire Protection," for failure to implement and maintain in effect all fire protection features described in licensee submittals referenced in and as approved or modified by the NRC's Safety Evaluation Report, dated February 1979 and subsequent

supplements. Specifically, CENG did not identify, account for, or evaluate 250 pounds of non-fire retardant treated plywood that has likely been installed in the screen house building (fire zone SH-2) since original construction and 434 pounds of other combustible material in the screen house. Immediate corrective actions included entering this issue into the corrective action program (CR-2013-001507 and CR-2013-001714). Additional planned corrective actions include revising the combustible loading analysis and replacing the installed plywood with a non-combustible material.

The inspectors determined that the failure to treat all wood with fire retardant and maintain its combustible loading analysis accurate and up-to-date was more than minor, because it was associated with the protection against external factors attribute of the Initiating Events cornerstone and 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. Specifically, CENG did not identify non-fire retardant treated wood and accurately account for the amount of combustibles present in the screen house and was required to recalculate the area's combustible loading to assure the assumptions made in CENG's exemption request from the technical requirements of Section III.G.3 of Title 10 of the Code of Federal Regulations 50, Appendix R, were still met. Additionally, this issue is similar to example 3I described in Inspection Manual Chapter (IMC) 0612, Appendix E, "Examples of Minor Issues." The inspectors evaluated the finding using IMC Attachment 0609.04, "Initial Characterization of Findings," and IMC 0609 Appendix F, "Fire Protection Significance Determination Process," because the finding involved a failure to adequately implement fire prevention and administrative controls. A low degradation rating was assigned to this finding because the combustible loading of the screen house remained within its current 'LOW' range, and the fire protection program element was expected to display nearly the same level of effectiveness as it would have without the degradation. Therefore, the inspectors determined this finding is of very low safety significance (Green). In accordance with IMC 0612, this finding does not have a cross-cutting aspect because the performance deficiency likely occurred during original plant construction and is not reflective of present plant performance.

Inspection Report# : [2013002](#) (*pdf*)

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## Mitigating Systems

**Significance:** **W** Dec 31, 2013

Identified By: NRC

Item Type: AV Apparent Violation

### **Failure to Identify and Correct Non-Hydrostatically Sealed Penetrations into Battery Room 'B'**

The inspectors identified a finding associated with an apparent violation of Title 10 of the Code of Federal Regulations (10 CFR) 50, Appendix B, Criterion XVI, "Corrective Action," for Constellation Energy Nuclear Group, LLC (CENG) staff's failure to assure that conditions adverse to quality were promptly identified and corrected. Specifically, CENG failed to identify the need to hydrostatically seal two cable penetrations between manhole 1 and battery room 'B' after the site's design basis flood height was changed during the NRC Systematic Evaluation Program in 1983; promptly correct the significant adverse condition in May 2013 when the condition was identified and take timely action in early September 2013 when CENG was presented with evidence challenging it's May 2013 evaluation related to manhole 1 and the improperly sealed penetrations. As a result, various Deer Creek flooding scenarios could have resulted in flooding of both battery rooms. Immediate corrective actions included placing this issue in the corrective action program as condition reports (CR)-2013-003407, CR-2013-005262, and CR-2013-005643; and hydrostatically sealing the penetrations on October 4, 2013.

This finding is more than minor because it is associated with the protection against external factors attribute of the Mitigating Systems cornerstone and affected the cornerstone objective to ensure the availability, reliability, and

capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). Specifically, propagating flood water could damage mitigating equipment needed to prevent core damage with a flood below the design basis level of 273.8 feet because of the unsealed penetrations in manhole 1. In accordance with Inspection Manual Chapter (IMC) 0609.04, "Initial Characterization of Findings," and Exhibit 2 of IMC 0609, Appendix A, "The Significance Determination Process (SDP) For Findings At-Power," the inspectors utilized Section B, "External Event Mitigation Systems (Seismic/Fire/Flood/Severe Weather Protection Degraded)," of Appendix A and determined the finding involved the loss or degradation of equipment or function specifically designed to mitigate a flooding initiating event, which requires the inspector to go to Exhibit 4, "External Events Screening Questions." The inspectors determined that a detailed risk evaluation was needed because the loss of equipment and function would degrade two or more trains of a multi-train system or function, and the loss of equipment and function would degrade one or more trains of a system that supports a risk-significant system or function. The staff determined that, currently, there is not an existing SDP risk tool that is suitable to assess the significance of this finding with high confidence, mainly because of the uncertainties associated with extreme flood frequency extrapolations based on limited available historical data. Therefore, the risk evaluation was performed using IMC 0609, Appendix M, "Significance Determination Process Using Qualitative Criteria." The change in core damage frequency estimates ranged from Green, a finding of very low safety significance, to Yellow, a finding of substantial safety significance. A significance and enforcement review panel held on January 28, 2014, made a preliminary determination that the finding was of low to moderate safety significance (White) based on quantitative and qualitative evaluations. This finding has a cross-cutting aspect in the area of Problem Identification and Resolution, Corrective Action Program, because CENG personnel did not thoroughly evaluate problems such that the resolutions addressed causes. Such evaluations should include properly classifying, prioritizing, and evaluating operability and reportability of conditions adverse to quality. Specifically, CENG personnel had an opportunity to thoroughly evaluate and assess impacts to the plant such that resolutions addressed causes, when two unsealed penetrations into battery room 'B' were identified in May 2013; CENG's evaluation associated with CR-2013-003407 was not thorough and did not consider all flow paths for flooding through manhole 1. Additionally, the condition adverse to quality was not properly evaluated for operability. CENG personnel had an additional opportunity to thoroughly evaluate and assess impacts to the plant such that resolutions addressed causes and properly evaluate for operability when inspectors presented evidence of degraded manhole 1 conditions, e.g., clogged manhole drains, to CENG management on September 5, 2013 [P.1(c)].

Inspection Report# : [2013005](#) (*pdf*)

**Significance:** G Dec 31, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

**Programmatic Failure to Scope SSCs within the Maintenance Rule Monitoring Program**

The inspectors identified a non-cited violation of Title 10 of the Code of Federal Regulations 50.65(b) because CENG did not include safety-related and non-safety-related structures, systems, and components (SSCs) within the scope of the maintenance rule monitoring program. Specifically, CENG failed to appropriately include an estimated 90 safety-related and non-safety-related SSCs within the scope of the maintenance rule monitoring program which could have resulted in a failure to detect SSC degradation and to provide reasonable assurance that these SSCs are capable of fulfilling their intended functions. Immediate corrective actions included placing these issues into the corrective action program as condition reports (CR)-2013-002083, CR-2013-004444, CR-2013-004993, CR-2013-006139, CR-2013-006628, and CR-2013-006674.

The finding is more than minor because if left uncorrected, the finding could become a more significant safety concern. Specifically, the failure to monitor SSC performance and condition could have resulted in a failure to detect SSC degradation and to provide reasonable assurance that these SSCs are capable of fulfilling their intended functions. The failure to adequately scope an estimated 90 or more components could have resulted in the failure to detect degradation within multiple systems and to provide reasonable assurance that these SSCs are capable of fulfilling their intended functions. Additionally, this issue is similar to Example 3j described in Inspection Manual

Chapter (IMC) 0612, Appendix E, “Examples of Minor Issues,” which states that issues are not minor if significant programmatic deficiencies were identified with the issue that could lead to worse errors if uncorrected. The inspectors evaluated the finding using IMC 0612, Attachment 0609.04, “Initial Characterization of Findings.” The attachment instructs inspectors to utilize IMC 0609, Appendix A, “The Significance Determination Process (SDP) for Findings At-Power.” Using Exhibit 2, “Mitigating Systems Screening Questions,” of IMC 0609, Appendix A, the inspectors determined that the finding did not represent an actual loss of function of one or more non-technical specification trains of equipment. Therefore, the inspectors determined the finding was of very low safety significance (Green). This finding has a cross-cutting aspect in the area of Problem Identification and Resolution, Corrective Action Program, because CENG did not thoroughly evaluate problems such that the resolutions addressed causes and extent of conditions. Specifically, CENG had multiple opportunities following the inspectors identification of maintenance rule scoping issues on March 27, 2013, and prior to November 7, 2013, to thoroughly evaluate recent maintenance rule scoping problems such that the resolutions addressed causes and extent of conditions [P.1(c)].

Inspection Report# : [2013005](#) (pdf)

**Significance:**  Dec 31, 2013

Identified By: Self-Revealing

Item Type: FIN Finding

**Failure to Modify or Establish a PM for the TDAFW DC Lube Oil Pump Switch**

A self-revealing Green finding was identified for failure to modify or establish a preventive maintenance (PM) schedule for the turbine-driven auxiliary feedwater (TDAFW) direct current (DC) lube oil pump control switch. On November 18, 2013, plant personnel found the main control room switch for the TDAFW DC lube oil pump failed due to switch contact oxidation. This resulted in the DC oil pump failing to automatically start when demanded during a surveillance test and the continued inoperability of the TDAFW pump. As immediate corrective actions for the November 18 TDAFW DC lube oil switch failure, CENG initiated condition report CR-2013-006727, replaced the switch, verified continuity of the other two switches which were not modified in 1980, and established a compensatory action to verify continuity of the other two switches following manipulation of the switch until they are replaced. Additionally, an appropriate PM will be established for the three switches unless they are modified such that the main control board green light indicates continuity of the circuit.

This finding is more than minor because it is associated with the equipment performance attribute of the Mitigating Systems cornerstone and affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, due to the failure of the main control board switch for the TDAFW DC lube oil pump, the pump failed to start during testing resulting in the continued inoperability of the TDAFW pump. The inspectors evaluated the finding using Attachment 0609.4, "Initial Characterization of Findings," worksheet to Inspection Manual Chapter (IMC) 0609, “Significance Determination Process.” The attachment instructs the inspectors to utilize IMC 0609, Appendix A, “Significance Determination Process for Findings At-Power.” The inspectors determined this finding was not a deficiency affecting the design or qualification of a mitigating structure, system, and component, did not represent a loss of system and/or function, and did not represent an actual loss of function of at least a single train. Therefore, the inspectors determined the finding to be of very low safety significance (Green). In accordance with IMC 0612, the finding does not have a cross-cutting aspect because the performance deficiency occurred in 1980 and is not reflective of present plant performance.

Inspection Report# : [2013005](#) (pdf)

**Significance:**  Sep 30, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

### **Failure to Implement Scaffolding Procedure Requirements**

The inspectors identified a Green non-cited violation of Title 10 of the Code of Federal Regulations 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," because Constellation Energy Nuclear Group, LLC (CENG) personnel did not accomplish activities affecting quality in accordance with documented procedures. Specifically, CENG personnel did not adequately implement scaffolding control procedural requirements to ensure that scaffolding did not block or restrict full operation of surrounding equipment or maintain 1-inch minimum clearances for safety-related equipment, which resulted in 13 deficiencies associated with scaffolding erection in the last year. CENG staff implemented immediate corrective actions by adjusting the scaffolding, removing the scaffolding, and/or evaluating the scaffolding. Additionally, these issues were documented in CENG's corrective action program.

The finding was more than minor because it was associated with the external factors and equipment performance attributes of the Mitigating Systems cornerstone and affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, CENG personnel did not follow procedural guidance when erecting scaffolding on 13 occasions during a 1-year period which resulted in a fire protection suppression system being declared non-functional and the potential to affect other safety-related and fire protection equipment. Additionally, this issue is similar to example 4a described in Inspection Manual Chapter (IMC) 0612, Appendix E, "Examples of Minor Issues," which states that this type of issue is not minor if a licensee routinely fails on similar issues. The inspectors evaluated the finding using IMC 0609, Attachment 0609.04, "Initial Characterization of Findings." The attachment instructs the inspectors to utilize IMC 0609, Appendix F, "Fire Protection Significance Determination Process," when the finding involves fixed fire protection systems; the most significant scaffolding issue impacted the S14 fixed fire protection system which was declared non-functional. A low degradation rating was assigned to this finding because the S14 system was determined to be functional after a detailed analysis was performed, and S14 was still expected to display nearly the same level of effectiveness and reliability as it would have had the degradation not been present. Therefore, the inspectors determined the finding was of very low safety significance (Green). The finding has a cross-cutting aspect in the area of Problem Identification and Resolution, Corrective Action Program, because CENG personnel did not thoroughly evaluate problems such that the resolutions addressed causes. Specifically, CENG personnel had multiple opportunities following the inspectors' identification of scaffolding issues on October 25, 2012, and prior to August 15 and September 10, 2013, to thoroughly evaluate recent scaffolding problems such that the resolutions addressed causes [P.1(c)].

Inspection Report# : [2013004](#) (pdf)

**Significance:**  Aug 22, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

### **Required Voltage and Timing Criteria for Load Tap Changer Controls and Motor**

An NRC-identified finding of very low safety significance involving a non-cited violation of Title 10 of the Code of Federal Regulations Part 50, Appendix B, Criterion III, "Design Control," in that Constellation Energy Nuclear Group, LLC (CENG) did not ensure the automatic load tap changer (LTC) controls and motor for the #7 transformer and the circuit 767 voltage regulator associated with the #6 transformer had adequate voltage to operate during design basis events. Specifically, LTC operation is credited to restore vital bus voltage during design basis events under minimum grid voltage conditions. Additionally, appropriate acceptance criteria had not been translated into periodic LTC timing tests to ensure design assumptions were being maintained. Failure of the automatic LTC controls and motor to operate, as credited, due to inadequate voltage or timing would result in the 480V safeguard buses disconnecting from one of its credited sources of power. CENG entered the issue into their corrective action program, performed preliminary voltage calculations, and tested a spare LTC motor at voltage levels below the vendor minimum voltage ratings to ensure the offsite power source would remain operable to the safeguard buses.

The finding was more than minor because it was similar to example 3.j of Inspection Manual Chapter 0612, Appendix E, and was associated with the design control attribute of the Mitigating Systems cornerstone and affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The inspectors determined the finding was of very low safety significance because the issue was a design deficiency that did not result in the loss of preferred source of power to the 480V safeguard buses. This finding had a cross-cutting aspect in the area of problem identification and resolution, Operating Experience, because in 2011 Ginna had previously recognized operating experience information noting that the station may be vulnerable to the issue of evaluating LTC control voltage. However, CENG had not implemented this operating experience into their station processes to ensure they had correctly analyzed the issue. (P.2(b))  
Inspection Report# : [2013007](#) (pdf)

**Significance:** G Jun 30, 2013

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

**Failure to Establish Measures to Assure that a Misaligned Service Water Pump was Promptly Identified and Corrected**

A self-revealing non-cited violation of Title 10 of the Code of Federal Regulations (10 CFR) 50 Appendix B, Criterion XVI, "Corrective Action," was identified for Constellation Energy Nuclear Group (CENG) failing to establish measures to assure that a condition adverse to quality associated with the 'B' service water pump (SWP) was promptly identified and corrected. Specifically, during installation, CENG did not identify that the 'B' SWP sole plate for the discharge head was unlevel and not flat. This resulted in a misaligned pump shaft, and subsequently, on April 5, 2013, the 'B' SWP shaft failed while in service. Immediate corrective actions included replacing the broken shaft, properly aligning the SWP, and entering the issue into CENG's corrective action program as CR-2013-002275.

This finding is more than minor because it is associated with the equipment performance attribute of the Mitigating Systems cornerstone and adversely impacted the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Due to the misalignment, the SWP failed while in service. The inspectors evaluated the finding using Inspection Manual Chapter (IMC) 0609, Attachment 0609.04, "Initial Characterization of Findings," and IMC 0609, Appendix A, "Significance Determination Process for Findings At-Power," Exhibit 2, "Mitigating Systems Screening Questions." The inspectors determined this finding was not a deficiency affecting the design or qualification of a mitigating structure, system, and component; did not represent a loss of system and/or function; and did not represent an actual loss of function of at least a single train. Therefore, the inspectors determined the finding to be of very low safety significance (Green). The inspectors determined that this finding has a cross-cutting aspect in the area of Human Performance, Resources, because CENG did not have complete, accurate, and up-to-date procedures and work packages. Specifically, CENG's pump installation procedure did not contain sufficient guidance to ensure adequate pump reassembly [H.2.(c)].

Inspection Report# : [2013003](#) (pdf)

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## Barrier Integrity

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## Emergency Preparedness

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## Occupational Radiation Safety

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## Public Radiation Safety

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## 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.

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## Miscellaneous

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