

## Nine Mile Point 2 3Q/2013 Plant Inspection Findings

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### Initiating Events

**Significance:** G Sep 30, 2011

Identified By: Self-Revealing

Item Type: FIN Finding

#### **Inadequate Actions to Prevent Vibration Induced Failure on a Socket Weld for a Vent Line on the 'A' FWP Minimum Flow Line**

A Green self revealing finding was identified for inadequate implementation of corrective actions regarding vibration induced failures of socket welds. This finding resulted in an August 11, 2011, Nine Mile Unit 2 scram due to a failed socket weld on the vent line for the 'A' feedwater pump (FWP) minimum flow line. NMPNS did not properly consider the impact of high vibration levels on a vent line attached to the 'A' FWP mini-flow recirculation line. NMPNS corrective actions included upgrading the socket weld to the requirements outlined in industry operating experience (OE).

The inspectors determined that the finding was of very low safety significance (Green) through performance of a Phase 1 SDP in accordance with IMC 0609.04, Table 4a, "Characterization Worksheet for Initiating Events, Mitigating Systems (MS) and Barrier Integrity Cornerstones." Specifically, the finding did not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions will not be available. This finding has a cross-cutting aspect in the area of problem identification and resolution in that NMPNS did not implement and institutionalize OE through changes to station processes, procedures, equipment and training programs. Specifically in 1998 and again in 2010, NMPNS did not institutionalize external and internal OE to reduce the probability of a socket weld failure.

Inspection Report# : [2011004](#) (*pdf*)

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### Mitigating Systems

**Significance:** G Jun 30, 2013

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

#### **Failure to Follow Containment Isolation System Surveillance Procedure Resulting in Isolation of the Reactor Coolant Isolation Cooling Isolation**

A self-revealing non-cited violation of Technical Specification 5.4.1, "Procedures," was identified at Unit 2 when a Constellation Energy Nuclear Group (CENG) instrumentation and control (I&C) technician did not properly implement procedure N2-ISP-LDS-Q010, "Reactor Building General Area Temperature Instrument Channel Functional Test," Revision 00102. As a result, a residual heat removal (RHR)/reactor core isolation cooling (RCIC) isolation bypass switch was inadvertently left in the NORMAL position during surveillance testing resulting in an unplanned RCIC isolation. CENG entered this issue into their corrective action program as condition report CR-2013-002461. Other corrective actions included performing a human performance stand down that reinforced use of human performance tools and the need to identify and mark critical steps during pre-job briefs, retraining the I&C technicians

involved in the event on proper use of human performance error prevention techniques, and improving bypass switch verification steps for procedure N2-ISP-LDS-Q010 and other similar lead detection system surveillances procedures.

This finding is more than minor because it is associated with the human 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 (i.e., core damage). Specifically, the inadvertent isolation rendered the RCIC system inoperable and unable to perform its function for approximately 6 hours. Additionally, this finding is similar to example 4.b of Inspection Manual Chapter (IMC) 0612, Appendix E, “Examples of Minor issues,” and is more than minor due to the procedural error leading to a plant transient, i.e. an unplanned RCIC isolation. This finding was evaluated in accordance with IMC 0609.04, “Initial Characterization of Findings,” and Exhibit 2 of IMC 0609, Appendix A, “The Significance Determination Process for Findings At-Power,” issued June 19, 2012. Unit 2 is a boiling-water reactor (BWR)-5, and as a result, RCIC is treated as having a separate high-pressure injection safety function. A detailed analysis was conducted using SAPHIRE version 8.0.8.0 and Unit 2 SPAR model 8.17. Using an exposure period of 6 hours and conservatively assuming no recovery of the failed equipment, this finding had a change in core damage frequency of low E-8. The dominant accident sequence was a grid-related loss of offsite power with a failure of Division III power and the failure to recover offsite power and the emergency diesel generators in 30 minutes. Since the change in core damage frequency was less than 1E-7, contributions from large early release and external event did not need to be considered. Therefore, this finding was of very low safety significance (Green). This finding has a cross-cutting aspect in the area of Human Performance, Work Practices, because the I&C technicians did not effectively employ self-checking and place-keeping when implementing the test procedure which directly contributed to the resulting procedural error [H.4(a)].

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

**Significance:**  Jun 30, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Inadequate Procedural Implementation for Battery Cell Replacement**

The inspectors identified a non-cited violation at Unit 2 of Title 10 of the Code of Federal Regulations (10 CFR) Part 50, Appendix B, Criterion V, “Instructions, Procedures, and Drawings,” because Constellation Energy Nuclear Group (CENG) did not assure that the replacement of cells in battery 2C were prescribed and performed by appropriate procedures which resulted in degraded accuracy of test results and potential degradation of safety-related battery cells. In response to this issue, CENG generated condition report CR-2013-005235 and initiated actions to evaluate replacing the new cells.

This finding is more than minor because it was 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. 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 for Findings At-Power,” issued June 19, 2012, the inspectors determined this finding is of very low safety significance (Green) because the performance deficiency was not a design or qualification deficiency, did not involve an actual loss of safety function, did not represent actual loss of a safety function of a single train for greater than its technical specification allowed outage time, and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. This finding has a cross-cutting aspect in the area of Human Performance, Decision-Making component, because CENG did not use conservative assumptions in decision making. Specifically, CENG did not monitor the cells in storage, question the adequacy of the discharged cells, charge the cells prior to installation, or fully evaluate the implications of the test and recharge results [H.1(b)].

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

**Significance:** G Jun 30, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

**Inadequate Design Control for Battery Sizing Calculation**

The inspectors identified a non-cited violation at Unit 2 of Title 10 of the Code of Federal Regulations (10 CFR) Part 50, Appendix B, Criterion III, "Design Control," because Constellation Energy Nuclear Group (CENG) did not verify the adequacy of the design with respect to battery 2C. Specifically, by failing to size the battery to the most limiting time period, the sizing calculation significantly overstated the available design margin. CENG's corrective actions included generating condition report CR-2013-005117 and evaluating the condition for operability.

This finding is more than minor because it 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. 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 for Findings At-Power," issued June 19, 2012, the inspectors determined this finding is of very low safety significance (Green) because the performance deficiency was not a design or qualification deficiency, did not involve an actual loss of safety function, did not represent actual loss of a safety function of a single train for greater than its technical specification allowed outage time, and did not screen as potentially risk-significant due to a seismic, flooding, or severe weather initiating event. The inspectors did not assign a cross-cutting aspect because the finding was not indicative of current performance.

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

**Significance:** G Mar 31, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

**Inadequate Maintenance Rule Monitoring of the Leak Detection System Performance**

The inspectors identified an non-cited violation of Title 10 of the Code of Federal Regulations 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," under section (a)(1) of the rule for failing to properly monitor the leak detection system (LDS) to assure that the Riley temperature modules at Unit 2 were capable of fulfilling their intended functions. Specifically, CENG did not correctly account for maintenance-related functional failures and plant level events during a 2-year assessment period resulting in a failure to transition the LDS into an (a)(1) status at Unit 2. CENG entered this issue into their corrective action program as condition report (CR)-2013-002015 and assessed the LDS for transition into (a)(1) status.

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, the failures of the Riley temperature modules caused safety system isolations to occur which impacted the availability of these systems. This finding was evaluated in accordance with Inspection Manual Chapter 0609.04, "Initial Characterization of Findings," and Exhibit 1 of IMC 0609, Appendix A, "The Significance Determination Process for Findings At-Power," issued June 19, 2012. The inspectors determined this finding was of very low safety significance (Green) because this finding did not represent an actual loss of system safety function, did not represent an actual loss of function of at least a single train for greater 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 significant in accordance with CENG's maintenance rule program for greater than 24 hours. This finding has a cross-cutting aspect in the area of Problem Identification and Resolution, Corrective Action Program, because CENG failed to thoroughly evaluate the failures of the Riley temperature modules to identify concerns with reliability in accordance with the maintenance rule (a)(1) [P.1(c)].

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

**Significance:**  Mar 30, 2010

Identified By: NRC

Item Type: FIN Finding

### **Inadequate Maintenance Procedure Results in Loss of Loads for Non-Vital UPS**

A self-revealing finding of very low safety significance was identified for inadequate coordination during concurrent execution of a maintenance procedure and an operating procedure, which resulted in a loss of power to the loads supplied by Unit 2 uninterruptible power supply (UPS) 2VBB-UPS1A. The loss of operational capabilities, and alarm and display functions, complicated normal plant operations and impacted an "anticipated transient without scram" (ATWS) mitigation strategy. As immediate corrective action, maintenance on UPS1A was stopped pending causal evaluation of the event. The issue was entered into the corrective action program (CAP) as condition report (CR) 2009-8928.

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 of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Additionally, the finding was significant because it would have impacted Nine Mile Point Nuclear Station's (NMPNS's) ability to execute emergency operating procedure N2-EOP-C5, "Failure to Scram," in that the reactor manual control system was not available for use in accordance with N2-EOP-6, Attachment 14, "Alternate Control Rod Insertions." The finding was of very low safety significance because it was not a design or qualification deficiency, did not represent a loss of a system/train safety function, and did not screen as potentially risk significant due to external events. The finding had a cross-cutting aspect in the area of human performance, work control, because NMPNS did not address the impact of changes to the work activity on the plant and human performance.

Inspection Report# : [2010002](#) (pdf)

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## **Barrier Integrity**

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## **Emergency Preparedness**

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## **Occupational Radiation Safety**

**Significance:**  Sep 30, 2010

Identified By: Self-Revealing

Item Type: FIN Finding

### **Failure to Maintain Radiation Exposure ALARA During RHR System Modification**

A self-revealing finding of very low safety significance was identified due to Nine Mile Point Nuclear Station (NMPNS) having unplanned, unintended occupational collective dose resulting from deficiencies in "as low as is reasonably achievable" (ALARA) planning

and work control while performing the removal of steam condensing mode piping and components associated with the Unit 2 residual heat removal (RHR) system. Specifically, NMPNS failed to properly plan and coordinate outage work, and failed to perform welding activities correctly. This resulted in expansion of the collective exposure for this work from 8.557 person-rem to 17.968 person-rem. NMPNS entered this issue into their corrective action program (CAP) as condition report (CR) 2010-8443.

The finding was more than minor because it was associated with the program and process attribute of the Occupational Radiation Safety cornerstone and affected the cornerstone objective to ensure the adequate protection of the worker health and safety from exposure to radiation from radioactive material during routine civilian nuclear reactor operation. Additionally, the finding was similar to example 6.i in Appendix E of Inspection Manual Chapter (IMC) 0612, in that it resulted in collective exposure of greater than 5 person-rem and exceeded the outage goal by greater than 50 percent. The finding was evaluated in accordance with IMC 0609, Appendix C, "Occupational Radiation Safety Significance Determination Process," and was determined to be of very low safety significance because NMPNS's current three year rolling average collective dose is 144.781 person-rem, less than 240 person-rem per unit. The finding had a cross-cutting aspect in the area of human performance, work control, in that the outage plan did not adequately incorporate actions to address the impact of work on different job activities.

Inspection Report# : [2010004](#) (*pdf*)

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**Significance:** Sep 30, 2010

Identified By: Self-Revealing

Item Type: FIN Finding

**Failure to Maintain Radiation Exposure ALARA During Refueling Floor Activities**

A self-revealing finding of very low safety significance was identified due to Nine Mile Point Nuclear Station (NMPNS) having unplanned, unintended occupational collective dose resulting from deficiencies in "as low as is reasonably achievable" (ALARA) planning and work control while performing refueling floor activities at Unit 2. Specifically, the failure to have cleaned up a crud burst that had occurred late in the previous refueling outage, the decision to flood up the refueling cavity while refueling water activity remained four times higher than planned, incorrect calculations during reactor vessel (RV) head stud tensioning that resulted in having to remove the RV head insulation package and re-tension the RV head, and the inability to control work crew size on the refueling floor, resulted in expansion of the collective exposure for this work from 19.810 person-rem to 38.222 person-rem. NMPNS entered this issue into their corrective action program (CAP) as condition report (CR) 2010-8444.

The finding was more than minor because it was associated with the program and process attribute of the Occupational Radiation Safety cornerstone and affected the cornerstone objective to ensure the adequate protection of the worker health and safety from exposure to radiation from radioactive material during routine civilian nuclear reactor operation. Additionally, the finding was similar to example 6.i in Appendix E of Inspection Manual Chapter (IMC) 0612, in that it resulted in collective exposure of greater than 5 person-rem and exceeded the outage goal by greater than 50 percent. The finding was evaluated in accordance with IMC 0609, Appendix C, "Occupational Radiation Safety Significance Determination Process," and was determined to be of very low safety significance because NMPNS's current three year rolling average collective dose is 144.781 person-rem, less than 240 person-rem per unit. The finding had a cross-cutting aspect in the area of human

performance, work control, in that the job site conditions which impacted human performance were not adequately incorporated into the outage plan.

Inspection Report# : [2010004](#) (*pdf*)

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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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