

Nine Mile Point 2

2Q/2014 Plant Inspection Findings

Initiating Events

Significance: G Jun 30, 2014

Identified By: Self-Revealing

Item Type: FIN Finding

Failure to Identify Single-Point Vulnerabilities Results in a Manual Reactor Scram

A self-revealing Green Finding (FIN) was identified at Unit 2 against procedure CNG-AM-1.01-2000, "Scoping and Identification of Critical Components," Revision 00200. Specifically, Exelon Generation (Exelon) staff performed an inadequate AP-913 evaluation in 2006. This evaluation failed to identify that reactor recirculation pump switches S101A and S101B were single-point vulnerable components so mitigating strategies to ensure proper operation to minimize plant risk were not developed. As a result, on December 2, 2013, both reactor recirculation pumps failed to properly shift from fast to slow speed resulting in a loss of all recirculation flow through the core and requiring operators to insert a manual reactor scram in accordance with plant procedures. Exelon generated condition report (CR)-2013-009735, performed a root cause analysis, and developed corrective actions which included revising procedure N2-OP-29, "Reactor Recirculation System," Revision 01801, to direct operators to manually start the low frequency motor generator sets, implementing a preventive maintenance activity for these switches, and developing plans to replace the switches during the next refueling outage.

This finding is more than minor because it is associated with the equipment performance attribute of the Initiating Events cornerstone and adversely impacted the associated cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during the shut down as well as power operations. Additionally, the performance deficiency is similar to Example 4b of Inspection Manual Chapter (IMC), Appendix E, "Examples of Minor Violations," in that the error resulted in a plant trip. Specifically, the failure to identify switches S101A and S101B as single-point vulnerabilities and develop appropriate mitigating strategies resulted in the failure of the switches and a manual reactor scram on December 2, 2013. In accordance with IMC 0609.04, "Initial Characterization of Findings," and Exhibit 1 of IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," the inspectors determined that this finding is of very low safety significance (Green); the performance deficiency 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). The inspectors did not assign a cross-cutting aspect to this finding because the performance deficiency was determined to have occurred in 2006, and the guidance in the current revision of CNG-AM-1.01-2000, Appendix A, was sufficient for Exelon's root cause team to determine the switches should have been screened in. Therefore, this finding is not indicative of current licensee performance and no cross-cutting issue was assigned.

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

Significance: G Mar 31, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

Invalid Low Reactor Water Level results in Unit 2 Automatic Reactor Scram

Inspectors documented a self-revealing Green NCV of Technical Specification (TS) 5.4, "Procedures," for CENG's failure to ensure proper communication of a change in work scope prior to implementation. Specifically, on March 10,

2014, valve label replacements at Unit 2 commenced in a trip sensitive area while the plant was on-line, although the work was previously scheduled to be conducted when the reactor was shut down. This change in work scope was not properly reviewed and communicated to the supporting work group prior to implementation. As a result, a reactor scram occurred when an instrumentation and control (I&C) technician inadvertently contacted an instrument rack located in a trip sensitive area while performing a valve label replacement. CENG generated condition report (CR)-2014-001963 to document the Unit 2 reactor scram due to the technician contacting the instrument line while cutting the valve label. Immediate corrective actions included developing site communications to enhance awareness of trip sensitive equipment and to provide additional flagging barriers to ensure trip sensitive components are not inadvertently contacted.

This finding is more than minor because it is associated with the human performance attribute of the Initiating Events Cornerstone and affected the cornerstone objective of limiting the likelihood of those events that upset plant stability and challenge critical safety functions during power operations. Specifically, CENG staff did not properly ensure that the scope change was properly reviewed and communicated to the supporting work group prior to implementation. This resulted in work being performed while Unit 2 was online and a subsequent automatic reactor scram when an instrument rack was inadvertently contacted. In accordance with IMC 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 that this finding is of very low safety significance (Green) because while the performance deficiency caused a reactor scram, it did not result in the loss of mitigation equipment relied upon to transition the plant from the onset of the trip to a stable shutdown condition. The finding has a cross-cutting aspect in the area of Human Performance, Conservative Bias, because CENG failed to use proper decision making-practices that emphasize prudent choices over those that are simply allowable.

Inspection Report# : [2014002](#) (pdf)

Significance:  Aug 23, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Identify and Correct a Condition Adverse To Quality Associated With HPCS Medium Voltage Power Supply Cables

The inspectors identified an NCV of 10 CFR 50, Appendix B Criterion XVI, "Corrective Actions," because between November 5, 2012, and July 22, 2013, NMPNS did not promptly identify and correct a failed automatic de-watering system for the buried high pressure core spray (HPCS) medium voltage power supply cable duct bank. As a result, on July 22, 2013, NMPNS unexpectedly discovered significant water level in the two manholes that contained the buried HPCS cable duct bank. NMPNS subsequently determined that multiple level switches for the de-watering system had failed. In response, NMPNS pumped down the affected manholes, replaced the failed level switches and initiated weekly manual

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Enclosure

pump downs of the manholes until final corrective actions could be completed. NMPNS entered this performance deficiency into the NMPNS CAP under CR-2013-006992.

The inspectors determined that this performance deficiency was more than minor because if left uncorrected the failed automatic dewatering system would have become a more significant safety concern. Specifically, with no preventative maintenance (PM) task to inspect and test the dewatering system and no work order (WO) scheduled to investigate the cause of the MH-1 hi-hi level alarm, the inspectors determined that, based on NMPNS' previous experience of rising level in this manhole and wetting of these cables, it was not likely that NMPNS would identify the failed de-watering system before the HPCS power supply cables were wetted. Wetted cables become a more significant concern because, in accordance with industry and NRC operating experience, the long term reliability of medium voltage cables is negatively affected when wetted. 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, the inspectors determined that the finding was of very low safety significance (Green), because the finding was not a design or qualification deficiency, did not represent a loss of safety system function, and did not screen as potentially risk significant due to external initiating events. The inspectors determined that this finding had a cross-cutting aspect in the area of human performance, resources, because NMPNS did not maintain long term plant safety by maintenance of design margins, minimization of long-standing equipment issues, minimizing PM deferrals, and ensuring maintenance and engineering backlogs which are low enough to support safety. Specifically, an NMPNS planner changed the scope of a PM task to eliminate inspecting MH-1 and MH-3 cable ducts every six months, and as a result, PM activities were not performed in November 2012 and May 2013. This error prevented NMPNS from identifying the condition adverse to quality associated with the HPCS Inspection Report# : [2013007](#) (pdf)

Mitigating Systems

Significance:  Jun 30, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Surveillance Testing of Reactor Core Isolation Cooling during 165 psig Reactor Pressure Test for Surveillance Requirement 3.5.3.4

The inspectors identified a non-cited violation (NCV) of Title 10 of the Code of Federal Regulations Part 50, Appendix B, Criterion XI, "Test Control," due to Exelon Generation (Exelon) staff's procedures for meeting the Unit 2 Technical Specification (TS) Surveillance Requirement (SR) 3.5.3.4 being inadequate since they did not test all required functions over the pressure range they were required since the start of plant operation. Specifically, inspectors identified that reactor core isolation cooling (RCIC) was being started with the flow controller in manual during the 165 pounds per square inch gauge (psig) reactor pressure test as opposed to automatic, which is its normal lineup. As a result, the RCIC system has not been adequately tested to develop flow at low reactor pressures to ensure that the surveillance had been met and that the RCIC system met its design basis.

This finding is more than minor because it affected the equipment performance attribute of the Mitigating Systems cornerstone and its objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. This finding is also similar to Example 3.d in Inspection Manual Chapter (IMC) 0612, “Power Reactor Inspection Reports,” Appendix E, “Examples of Minor Issues.” Specifically, the inadequate testing of the RCIC system with reactor pressure less than or equal to 165 psig has led to uncertainty in the reliability and capability of the system to perform at low reactor pressures.

In accordance with 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 determined that this finding is of very low safety significance (Green) because the deficiency affects only the design or qualification of a mitigating structure, system, or component, and the design or qualification issue is not currently impacting its operability.

The inspectors did not assign a cross-cutting aspect to this finding because the performance deficiency is not indicative of present performance because Exelon's incorrect interpretation for conducting TS SR 3.5.3.4 did not occur within the last 3 years.

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

Significance:  Dec 31, 2013

Identified By: NRC

Item Type: FIN Finding

Failure to Implement Procedural Requirements for Evaluating Control Room Deficiencies as Operator Workarounds

The inspectors identified a Green finding (FIN) for CENG staff's failure to properly classify operator workarounds, operator burdens, or control room deficiencies in accordance with CNG-OP-1.01-2010, "Operator Workaround/Challenge Control," Revision 0. Specifically, the failure to properly classify operator workarounds resulted in an operator error when control room operators did not recognize a meter was degraded, used that meter during the performance of a surveillance test, and overexcited the Division II emergency diesel generator (EDG) on July 30, 2013. CENG staff entered this inspector identified issue into the corrective action program (CAP) as condition report (CR)-2013-009004. Corrective actions included reviewing, classifying, and adding the inspector identified operator burdens to each of the respective Units shift turnover checklist.

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 failure to properly classify the Unit 2 Division II EDG degraded volt amperes reactive (VAR) meter as an operator burden resulted in an operator using the degraded meter during a surveillance test and inadvertently overexciting the diesel generator for 1.5 hours. 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, the inspectors determined that 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 (TS) 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 Problem Identification and Resolution, Corrective Action Program, in that CENG staff did not ensure control room deficiencies were evaluated properly in accordance with CNG-OP-1.01-2010. Specifically, CENG staff failed to classify the known degraded Unit 2 Division II EDG VARs meter as an operator burden; which resulted in the EDG being overloaded during a surveillance test.

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

Barrier Integrity

Significance:  Jun 30, 2014

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Loss of Spent Fuel Cooling Pump due to Inadequate Procedures

A self-revealing non-cited violation of Technical Specification 5.4.1, "Procedures," was identified at Unit 2 for Exelon Generation's (Exelon's) failure to provide procedures to override valve 2SFC*AOV154, filters inlet isolation valve, prior to loss of offsite power testing. Specifically, procedures N2-OSP-EGS-R004, "Operating Cycle Diesel Generator Simulated Loss of Offsite Power With ECCS Division I & II," Revision 01200, and N2-VLU-01, "Valve Lineup and Valve Operations," Revision 00001, did not contain adequate guidance to differentiate between overriding the valve (open position) and repositioning the valve to its non-failure position (closed position). As a result, on March 28, 2014, while implementing N2-OSP-EGS-R004, the spent fuel cooling pump 'A' tripped off and had to be

restored. Exelon entered the lost of SFP cooling into the corrective action program as condition report (CR)-2014-002507. Corrective actions included coaching the individuals involved and reinforcing Exelon's expectations regarding what information should be discussed during pre-job briefs.

This finding is more than minor because it is associated with the configuration control attribute of the Barrier Integrity cornerstone and affected the cornerstone objective to provide reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. Specifically, if N2-OSP-EGS-R004 and Figure 3, "Operation of Bettis Actuators," of N2-VLU-01 are not revised, there is the potential for plant operators to incorrectly assume that Section 3.0 of N2-VLU-01 Figure 3 is the valve lineup required by N2-OSP-EGS-R004, closing 2SFC*AOV154, and causing a subsequent pump trip where the loss of cooling may have more significant consequence leading to an increase in the temperature of the spent fuel cooling pump. In accordance with Inspection Manual Chapter (IMC) 0609.04, "Initial Characterization of Findings," the inspectors used IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," because the SFP was still isolated from the reactor core at the time of the finding. Using Appendix A, Exhibit 3, "Barrier Integrity Screening Questions," Section D, "Spent Fuel Pool (SFP)," the inspectors determined that this finding is of very low safety significance (Green) because although the performance deficiency adversely affected decay heat removal capabilities from the SFP, the pool temperature did not exceed the maximum analyzed temperature limit specified in the site-specific licensing basis, the performance deficiency did not involve a fuel handling error, did not affect the SFP neutron absorber, and did not result in a loss of SFP water inventory. This finding has a cross-cutting aspect in the area of Human Performance, Challenge the Unknown, because Exelon did not ensure that individuals stopped in the face of uncertain conditions. Specifically, after recognizing that N2-VLU-01 Figure 3 contained multiple sections that were not clearly labeled, plant operators did not stop and consult the senior reactor operator but continued on with an erroneous assumption as to which section to use (H.11).

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

Emergency Preparedness

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*)

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*)

Public Radiation Safety

Security

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

Miscellaneous

Significance: N/A Aug 23, 2013

Identified By: NRC

Item Type: FIN Finding

PI&R Report Summary

Problem Identification and Resolution

The inspectors concluded that NMPNS was generally effective in identifying, evaluating, and resolving problems. NMPNS personnel identified problems, entered them into the corrective action program (CAP) at a low threshold, and prioritized issues commensurate with their safety significance. In most cases, NMPNS appropriately screened issues for operability and reportability and performed causal analyses that appropriately considered extent of condition, generic issues, and previous occurrences. The inspectors also determined that NMPNS typically implemented corrective actions to address the problems identified in the CAP in a timely manner. However, the inspectors identified one violation of NRC requirements in the area of corrective action implementation.

The inspectors concluded that, in general, NMPNS adequately identified, reviewed, and applied relevant industry operating experience to NMPNS operations. In addition, based on those items selected for review, the inspectors determined that NMPNS's self-assessments and audits were thorough.

Based on the interviews the inspectors conducted over the course of the inspection, observations of plant activities, and reviews of individual CAP and employee concerns program (ECP) issues, the inspectors did not identify any indications that site personnel were unwilling to raise safety issues nor did they identify any conditions that could have had a negative impact on the site's safety conscious work environment.

Inspection Report# : [2013007](#) (*pdf*)

Last modified : August 29, 2014