UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
2100 RENAISSANCE BLVD., SUITE 100
KING OF PRUSSIA, PA 19406-2713

May 12, 2016

Mr. Bryan C. Hanson
Senior Vice President, Exelon Generation Company, LLC
President and Chief Nuclear Officer, Exelon Nuclear
4300 Winfield Road
Warrenville, IL 60555

SUBJECT: NINE MILE POINT NUCLEAR STATION - INTEGRATED INSPECTION REPORT 05000220/2016001 AND 05000410/2016001

Dear Mr. Hanson:

On March 31, 2016, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Nine Mile Point Nuclear Station, LLC (NMPNS), Units 1 and 2. The enclosed inspection report documents the inspection results, which were discussed on April 19, 2016, with Mr. Peter Orphanos, NMPNS Site Vice President and other members of the NMPNS staff.

NRC inspectors examined activities conducted under your licenses as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your licenses. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

The inspectors documented three findings of very low safety significance (Green). Each of these findings involved violations of NRC requirements. Additionally, NRC inspectors documented two licensee-identified violations which were determined to be Severity Level IV in this report. The NRC is treating these violations as non-cited violations (NCVs) consistent with Section 2.3.2.a of the NRC Enforcement Policy.

If you contest the NCVs in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region I; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspectors at NMPNS. In addition, if you disagree with the cross-cutting aspect assigned to any finding, or a finding not associated with a regulatory requirement in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the Regional Administrator, Region I, and the NRC Resident Inspectors at NMPNS.

In accordance with Title 10 of the *Code of Federal Regulations* 2.390 of the NRCs "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC's Public Document Room or from the Publicly Available Records component of the NRC's Agencywide Documents Access Management System (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

/RA/

Anthony Dimitriadis, Chief
Reactor Projects Branch 1
Division of Reactor Projects

Docket Nos. 50-220 and 50-410
License Nos. DPR-63 and NPF-69

Enclosure:
Inspection Report 05000220/2016001 and
05000410/2016001
w/Attachment: Supplementary Information

cc w/encl: Distribution via ListServ

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U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket Nos.	50-220 and 50-410
License Nos.	DPR-63 and NPF-69
Report Nos.	05000220/2016001 and 05000410/2016001
Licensee:	Exelon Generation Company, LLC (Exelon)
Facility:	Nine Mile Point Nuclear Station, LLC (NMPNS) Units 1 and 2
Location:	Oswego, New York
Date:	January 1, 2016, through March 31, 2016
Inspectors:	K. Kolaczyk, Senior Resident Inspector E. Miller, Resident Inspector G. Stock, Resident Inspector S. Pindale, Senior Reactor Inspector A. Rosebrook, Senior Project Engineer
Approved by:	Anthony Dimitriadis, Chief Reactor Projects Branch 1 Division of Reactor Projects

TABLE OF CONTENTS

SUMMARY 3

1. REACTOR SAFETY 7

1R01 Adverse Weather Protection 7
1R04 Equipment Alignment 8
1R05 Fire Protection 9
1R06 Flood Protection Measures 10
1R11 Licensed Operator Requalification Program & Licensed Operator Performance 11
1R12 Maintenance Effectiveness 12
1R13 Maintenance Risk Assessments and Emergent Work Control 12
1R15 Operability Determinations and Functionality Assessments 19
1R19 Post-Maintenance Testing 19
1R20 Refueling and Other Outage Activities 20
1R22 Surveillance Testing 20
1EP6 Drill Evaluation 21

4. OTHER ACTIVITIES 22

4OA1 Performance Indicator Verification 22
4OA2 Problem Identification and Resolution 22
4OA3 Follow-Up of Events and Notices of Enforcement Discretion 32
4OA6 Meetings, Including Exit 34
4OA7 Licensee-Identified Violations 34

ATTACHMENT: SUPPLEMENTARY INFORMATION 35

SUPPLEMENTARY INFORMATION A-1

KEY POINTS OF CONTACT A-1

LIST OF ITEMS OPENED, CLOSED, DISCUSSED, AND UPDATED A-2

LIST OF DOCUMENTS REVIEWED A-2

LIST OF ACRONYMS A-12

SUMMARY

IR 05000220/2016001 and 05000410/2016001; 01/01/2016 – 03/31/2016; Nine Mile Point Nuclear Station, Units 1 and 2; Maintenance Risk Assessments and Emergent Work Control; Problem Identification and Resolution.

This report covered a 3-month period of inspection by resident inspectors and announced inspections performed by regional inspectors. The inspectors identified three non-cited violations (NCVs), all of which were of very low safety significance (Green). The significance of most findings is indicated by their color (i.e., greater than Green, or Green, White, Yellow, Red) and determined using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process," dated April 29, 2015. Cross-cutting aspects are determined using IMC 0310, "Aspects Within the Cross-Cutting Areas," dated December 4, 2014. All violations of U.S. Nuclear Regulatory Commission (NRC) requirements are dispositioned in accordance with the NRC's Enforcement Policy, dated February 4, 2015. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 5.

Cornerstone: Mitigating Systems

- Green. The inspectors identified a non-cited violation (NCV) of Title 10 of the *Code of Federal Regulations* (10 CFR) 50.65(a)(4), "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," when Exelon did not assess and manage the increase in risk for online maintenance activities. Specifically on February 12, 2016, Exelon did not assess and manage risk during Unit 2 planned testing associated with the 'A' residual heat removal (RHR) system heat exchanger (HX). The inspectors identified that although the testing would render the 'A' RHR minimum flow valve 2RHS*MOV4A unavailable, this was not considered as part of the planned maintenance window, which resulted in an increase in risk during the unavailability of 2RHS*MOV4A. When properly calculated, plant risk should have been indicated as Yellow for the day and not Green. Exelon generated issue report (IR) 02625546 to document the inspector's concern regarding the status of the availability associated with the 'A' RHR minimum flow valve during test setup for the 'A' RHR HX. Exelon corrective actions included evaluating the risk management activities to be implemented when the minimum flow valves are subject to maintenance or testing activities to ensure future work is properly screened.

  This finding is more than minor because it is associated with the configuration control attribute of the Mitigating Systems cornerstone and adversely affected the associated cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, Exelon's failure to plan for the unavailability of the 'A' RHR minimum flow valve resulted in Unit 2 being placed in an unplanned elevated risk category (i.e., Yellow) without ensuring adequate compensatory measures were established and briefed to ensure maximum availability, reliability, and capability of the system. This issue is similar to Example 7.f of IMC 0612, Appendix E, "Examples of Minor Issues," because the overall elevated plant risk placed the plant into a higher licensee-established risk category. The inspectors evaluated the finding using Phase 1, "Initial Screening and Characterization" worksheet

in Attachment 4 and IMC 0609, "Significance Determination Process." For findings within the Initiating Events, Mitigating Systems, and Barrier Integrity cornerstones, Attachment 4, Table 3, Paragraph 5.C, directs that if the finding affects the licensee's assessment and management of risk associated with performing maintenance activities under all plant operating or shutdown conditions in accordance with Baseline Inspection Procedure 71111.13, "Maintenance Risk Assessment and Emergent Work Control," the inspectors shall use IMC 0609, Appendix K, "Maintenance Risk Assessment and Risk Management Significance Determination Process," to determine the significance of the finding. The inspectors used Flowchart 1, "Assessment of Risk Deficit," to analyze the finding and calculated incremental core damage probability using Equipment Out Of Service (EOOS), Exelon's risk assessment tool. The inspectors determined that had this condition existed for the full duration of the Technical Specification (TS) limiting condition for operation (LCO), the incremental conditional core damage probability would have been 3.46E-9. Because the incremental core damage probability deficit was less than 1E-6 and the incremental large early release probability was less than 1E-7, this finding was determined to be of very low safety significance (Green). This finding has a cross-cutting aspect in the area of Human Performance, Work Management, because Exelon did not properly implement a process of planning, controlling, and executing the work activity such that nuclear safety was the overriding priority. Specifically, Exelon did not ensure risk was properly assessed during the planning process in accordance with WC-AA-101-1006, "On-Line Risk Management and Assessment," Revision 001, prior to testing the 'A' RHR HX, which caused unavailability of the 'A' RHR minimum flow valve during certain periods of the test. [H.5] (Section 1R13)

- Green. A self-revealing Green non-cited violation (NCV) of Technical Specification (TS) 6.4.1, "Procedures," was identified when a Unit 1 Exelon operator did not maintain proper configuration control of a plant system during a system tagout for planned maintenance. Specifically, on January 25, 2016, a Unit 1 non-licensed operator manipulated a reactor building closed-loop cooling (RBCLC) system drain valve out of sequence while performing a tagout for the #13 shutdown cooling (SDC) HX for planned maintenance. This resulted in unintentional draining of the operating RBCLC system, annunciation of multiple alarms in the main control room, and operators entering abnormal operating procedures to recover the RBCLC system. As part of corrective actions, proper configuration was promptly restored and the operator involved in the event was given a remediation plan for requalification and placed on an operations excellence plan.

  This finding is more than minor because it is associated with the configuration control attribute of the Mitigating Systems cornerstone and adversely affected the associated cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences; and if left uncorrected, the event had potential to lead to a more significant safety concern. Specifically, the failure to quickly isolate the drain down of the RBCLC system would have required a manual reactor scram, a manual trip of all five reactor recirculation pumps (RRPs), a manual isolation of the reactor water cleanup system, a loss of cooling to the spent fuel pool (SFP) cooling system, instrument air compressors, and the control room emergency ventilation system. The inspectors evaluated the finding using IMC 0609.04, "Initial Characterization of Findings," and Exhibit 1 of IMC 0609, Appendix A, "The Significance Determination Process for Findings At-Power." The inspectors determined that this

finding was of very low safety significance (Green) because the performance deficiency did not result in the loss of a support system, RBCLC, or affect mitigation equipment. This finding has a cross-cutting aspect in the area of Human Performance, Procedure Adherence, because the non-licensed operator failed to follow Exelon's procedures and the instructions he received at the pre job brief stop when manipulating the drain valve. Specifically, the non-licensed operator rationalized, without being the designated performer of the tagout, that it was acceptable to perform a valve manipulation out of sequence with the tagout plan. [H.8] (Section 4OA2)

Cornerstone: Barrier Integrity

- Green. The inspectors identified a Green non-cited (NCV) of Title 10 of the *Code of Federal Regulations* (10 CFR) 50.65(a)(4), "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," for Exelon's failure to take risk management actions (RMAs) as required by procedure OP-AA-108-117, "Protected Equipment Program," Revision 004, during a Unit 2, Division III, emergency switchgear electrical maintenance window on January 27, 2016. Specifically contrary to procedure OP-AA-108-117, during planned maintenance, Exelon failed to post the unit coolers in the 'A' and 'B' RHR pump and HX rooms, the 'C' RHR pump room, and their associated breakers as protected equipment although their inoperability would have resulted in both trains of the standby gas treatment system (SBGT) being inoperable which would require entry into Technical Specification (TS) Limiting Condition for Operation (LCO) 3.0.3 and a short term shutdown action statement. Upon identification, Exelon generated IR 02617915 to document this issue. Corrective actions included creating an action item to evaluate Attachment 3 of N2-OP-52 and to determine the relevance of the TS LCO 3.0.3 entry requirement.

  The inspectors determined the performance deficiency to be more than minor because it was associated with the structure, system, and component (SSC) and barrier performance attribute of the Barrier Integrity cornerstone and adversely affected the associated cornerstone objective to provide reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. Specifically, contrary to OP-AA-108-117, Exelon personnel failed to include the unit coolers for the Unit 2 RHR pump and HX rooms and their associated breakers, whose unavailability would have resulted in the inoperability of both trains of SBGT and necessitated entry into LCO 3.0.3. Additionally, Examples 7.e, 7.f, and 7.g from IMC 0612, Appendix E, "Examples of Minor Issues," provided similar scenarios to this issue. Example 7.e details that a performance deficiency is more than minor if a failure to include accurate TS requirements in a risk assessment and if done properly, would have required RMAs, or additional RMAs under applicable plant procedures. The inspectors evaluated the finding using Phase 1, "Initial Screening and Characterization" worksheet in Attachment 4 to IMC 0609, "Significance Determination Process." For findings within the Initiating Events, Mitigating Systems, and Barrier Integrity cornerstones, Attachment 4, Table 3, Paragraph 5.C, directs that if the finding affects the licensee's assessment and management of risk associated with performing maintenance activities under all plant operating or shutdown conditions in accordance with Baseline Inspection Procedure 71111.13, "Maintenance Risk Assessment and Emergent Work Control," the inspectors shall use IMC 0609, Appendix K, "Maintenance Risk Assessment and Risk Management Significance Determination Process," to determine

the significance of the finding. The inspectors used Flowchart 2, "Assessment of RMA's," to analyze the finding and calculated incremental core damage probability using EOOS, Exelon's risk assessment tool, and found the result to be less than 1E-6. The inspectors determined that had this condition existed for the full duration of the TS LCO, the incremental core damage probability would have been 6.8E-7. Because the incremental core damage probability deficit was less than 1E-6 and the incremental large early release probability was less than 1E-7, this finding was determined to be of very low safety significance (Green). This finding has a cross-cutting aspect in the area of Human Performance, Procedure Adherence, because Exelon failed to follow processes, procedures and work instructions. Specifically, Exelon failed to follow procedure OP-AA-108-117, which led to the failure to protect the unit coolers for the RHR pump rooms, HX rooms, and associated breakers which could have led to a TS LCO 3.0.3 entry. [H.8] (Section 1R13)

Other Findings

Two violations of very low safety significance that were identified by Exelon were reviewed by the inspectors. Corrective actions taken or planned by Exelon have been entered into Exelon's corrective action program (CAP). These violations and corrective action tracking numbers are listed in Section 4OA7 of this report.

REPORT DETAILS

Summary of Plant Status

Unit 1 began the inspection period at 100 percent power. On March 5, 2016, operators reduced reactor power to 50 percent to perform main steam isolation valve (MSIV) partial stroke testing, control rod scram insertion timing testing, hydraulic control unit isolated stall flow and stroke time testing, and main turbine stop valve testing. Operators restored power to 100 percent the following day. On March 9, 10, and 11, operators reduced power to 85 percent for cycling RRPs on and off to facilitate maintenance on the RRPs. For each down power, operators restored reactor power to 100 percent early the following morning. Unit 1 remained at or near 100 percent for the remainder of the inspection period.

Unit 2 began the inspection period at 100 percent power. On January 9, 2016, operators reduced reactor power to 75 percent to perform a rod pattern adjustment and to perform troubleshooting of a packing leak associated with reactor water cleanup valve 2WCS*V210. Operators restored reactor power to 100 percent the same day. On January 30, operators reduced reactor power to 75 percent to perform a rod pattern adjustment. Operators restored reactor power to 100 percent the same day. On February 19, operators reduced reactor power to 80 percent to perform a rod pattern adjustment, control rod maintenance, and turbine valve testing. Operators restored reactor power to 100 percent on February 21. On March 10, following an unplanned isolation of feedwater heater 2FWS-E6C, operators reduced reactor power to 98 percent. Operators restored reactor power to 100 percent the following day. On March 12, operators reduced reactor power to 75 percent to perform a rod pattern adjustment and control rod friction testing. Operators restored reactor power to 100 percent the same day. Unit 2 remained at or near 100 percent for the remainder of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01 – 1 sample)

Readiness for Impending Adverse Weather Conditions

a. Inspection Scope

The inspectors reviewed Exelon's preparations for the onset of high winds and rain during the week of February 1, 2016. The inspectors reviewed the implementation of adverse weather preparation procedures before the onset of and during this adverse weather condition. The inspectors walked down Unit 1 and Unit 2 switchyards; Scriba switchyard; Unit 1 emergency diesel generators (EDGs) 102 and 103; and Unit 2, Divisions I, II, and III EDGs. The inspectors verified that operator actions defined in Exelon's adverse weather procedures maintained the readiness of essential systems. The inspectors discussed readiness and staff availability for adverse weather response with operations and work control personnel. Documents reviewed for each section of this inspection report are listed in the Attachment.

b. Findings

No findings were identified.

1R04 Equipment Alignment

.1 Partial System Walkdowns (71111.04 – 5 samples)

a. Inspection Scope

The inspectors performed partial walkdowns of the following systems:

- Unit 1 emergency cooling system 11 while emergency cooling system 12 was out of service (OOS) for planned maintenance on January 7, 2016
- Unit 1 control rod drive system with potential leak-by to scram discharge volume holding tank on February 8, 2016
- Unit 1 control rod drive 11 system during planned maintenance on control rod drive 12 pump on March 14, 2016
- Unit 1 EDG 102 during unplanned maintenance associated with EDG 103 following EDG 103 failure to start on March 16, 2016
- Unit 1 liquid poison system on March 29, 2016

The inspectors selected these systems based on their risk-significance relative to the reactor safety cornerstones at the time they were inspected. The inspectors reviewed the applicable operating procedures, system diagrams, the Updated Final Safety Analysis Report (UFSAR), TSs, and the impact of ongoing work activities on redundant trains of equipment in order to identify conditions that could have impacted the system's performance of its intended safety functions. The inspectors also performed field walkdowns of accessible portions of the systems to determine if system components and support equipment were aligned correctly and were operable. The inspectors examined the material condition of the components and observed operating parameters of equipment to verify that there were no deficiencies. The inspectors also reviewed whether Exelon staff had properly identified equipment issues and entered them into the CAP for resolution with the appropriate significance characterization.

b. Findings

No findings were identified.

.2 Full System Walkdown (71111.04S – 1 sample)

a. Inspection Scope

On February 22, 2016, the inspectors performed a complete system walkdown of accessible portions of the Unit 2 electrohydraulic control (EHC) system to verify the existing equipment lineup was correct. The inspectors reviewed operating procedures, surveillance tests, drawings, equipment lineup check-off lists, and the UFSAR to verify the system was aligned to perform its required safety functions. The inspectors also

reviewed operability of support systems. The inspectors performed field walkdowns of accessible portions of the systems to verify system components and support equipment were aligned correctly and operable. The inspectors confirmed that systems and components were aligned correctly, free from interference from temporary services or isolation boundaries, environmentally qualified, and protected from external threats. The inspectors also examined the material condition of the components for degradation and observed operating parameters of equipment to verify that there were no deficiencies. Additionally, the inspectors reviewed a sample of related IRs and work orders (WOs) to ensure Exelon appropriately evaluated and resolved any deficiencies.

b. Findings

No findings were identified.

1R05 Fire Protection

.1 Resident Inspector Quarterly Walkdowns (71111.05Q – 6 samples)

a. Inspection Scope

The inspectors conducted tours of the areas listed below to assess the material condition and operational status of fire protection features. The inspectors verified that Exelon controlled combustible materials and ignition sources in accordance with administrative procedures. The inspectors verified that fire protection and suppression equipment was available for use as specified in the area pre-fire plan, and passive fire barriers were maintained in good material condition. The inspectors also verified that station personnel implemented compensatory measures for OOS, degraded, or inoperable fire protection equipment, as applicable, in accordance with procedures.

- Unit 2 cable chase west, elevation 214 feet 0 inches (fire area (FA) 17) on January 5, 2016
- Unit 2 computer battery room, elevation 214 feet 0 inches (FA 38) on January 5, 2016
- Unit 2 24/48 volt battery room east, elevation 214 feet 0 inches (FA 40) on January 5, 2016
- Unit 2 high-pressure coolant injection (HPCI) cable routing area, elevation 244 feet 0 inches (FA 21) on January 5, 2016
- Unit 2, Division I, cable routing area, elevation 244 feet 0 inches (FA 17) on January 5, 2016
- Unit 2, Division II, cable routing area, elevation 237 feet 0 inches (FA 19) on January 5, 2016

b. Findings

No findings were identified.

.2 Fire Protection – Drill Observation (71111.05A – 1 sample)

a. Inspection Scope

The inspectors observed a fire brigade drill scenario conducted on February 24, 2016, that involved a fire in the Unit 2, Division lll, diesel generator room. The inspectors evaluated the readiness of the plant fire brigade to fight fires. The inspectors verified that Exelon personnel identified deficiencies, openly discussed them in a self-critical manner at the debrief, and took appropriate corrective actions as required. The inspectors evaluated the following specific attributes of the drill:

- Proper wearing of turnout gear and self-contained breathing apparatus
- Proper use and layout of fire hoses
- Employment of appropriate fire-fighting techniques
- Sufficient fire-fighting equipment brought to the scene
- Effectiveness of command and control
- Search for victims and propagation of the fire into other plant areas
- Smoke removal operations
- Utilization of pre-planned drill scenario
- Drill objectives met

The inspectors also evaluated the fire brigade's actions to determine whether these actions were in accordance with Exelon's fire-fighting strategies.

b. Findings

No findings were identified.

1R06 Flood Protection Measures

Internal Flooding Review (71111.06 – 1 sample)

a. Inspection Scope

The inspectors reviewed the UFSAR, the site flooding analysis, and plant procedures to identify internal flooding susceptibilities for the site. The inspectors review focused on the Unit 2, Division II, emergency switchgear with floor plugs removed on February 10, 2016. The inspectors verified the adequacy of equipment seals located below the flood line, floor and water penetration seals, watertight door seals, common drain lines and sumps, sump pumps, level alarms, control circuits, and temporary or removable flood barriers. The inspectors assessed the adequacy of operation actions that Exelon had identified as necessary to cope with flooding in this area and also reviewed the CAP to determine if Exelon was identifying and correcting problems associated with both flood mitigation features and site procedures for responding to flooding.

b. Findings

No findings were identified.

1R11 Licensed Operator Requalification Program and Licensed Operator Performance (71111.11Q – 4 samples)

.1 Quarterly Review of Licensed Operator Requalification Testing and Training (2 samples)

a. Inspection Scope

The inspectors observed:

- Unit 1 licensed operator simulator training scenario which involved restoring a RRP, an inadvertent opening of an electromatic relief valve (ERV), a loss of vacuum, a failure to scram, and an emergency condenser steam line break on January 12, 2016
- Unit 2 licensed operator simulator training scenario which involved routine rotation of service water (SW) pumps, an EHC system failure, a steam leak in the reactor core isolation cooling (RCIC) room, a tornado watch with high wind warning, and a leak of the primary reactor coolant system in containment on January 12, 2016

The inspectors evaluated operator performance during the simulated event and verified completion of risk-significant operator actions, including the use of abnormal and emergency operating procedures. The inspectors assessed the clarity and effectiveness of communications, implementation of actions in response to alarms and degrading plant conditions, and the oversight and direction provided by the unit supervisor. The inspectors verified the accuracy and timeliness of the emergency classifications made by the shift manager and the TS action statements by the unit supervisor. Additionally, the inspectors assessed the ability of the crew and training staff to identify and document crew performance problems.

b. Findings

No findings were identified.

.2 Quarterly Review of Licensed Operator Performance in the Main Control Room (2 samples)

a. Inspection Scope

The inspectors observed:

- Unit 2 control room operations during a rod pattern adjustment and troubleshooting of a packing leak on reactor water cleanup valve 2WCS*V210 on January 9, 2016
- Unit 1 control room operations during a battery cell jumper installation on January 14, 2016, and an EDG 102 surveillance testing on January 25, 2016

The inspectors reviewed HU-AA-101, “Human Performance Tools and Verification Practices,” Revision 009, and verified that procedure use, crew communications, and coordination of plant activities among work groups similarly met established expectations

and standards. Additionally, the inspectors observed test performance to verify that procedure use, crew communications, and coordination of activities between work groups similarly met established expectations and standards.

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12Q – 3 samples)

a. Inspection Scope

The inspectors reviewed the samples listed below to assess the effectiveness of maintenance activities on SSC performance and reliability. The inspectors reviewed system health reports, CAP documents, maintenance WOs, and maintenance rule basis documents to ensure that Exelon was identifying and properly evaluating performance problems within the scope of the maintenance rule. For each sample selected, the inspectors verified that the SSC was properly scoped into the maintenance rule in accordance with 10 CFR 50.65 and verified that the (a)(2) performance criteria established by Exelon were reasonable. As applicable, for SSCs classified as (a)(1), the inspectors assessed the adequacy of goals and corrective actions to return these SSCs to (a)(2). Additionally, the inspectors ensured that Exelon was identifying and addressing common cause failures that occurred within and across maintenance rule system boundaries.

- Unit 2 structural evaluation of excavations on January 28, 2016
- Unit 2 reactor building unit coolers on February 23, 2016
- Unit 1 and Unit 2 emergency/essential lighting on March 31, 2016

b. Findings

No findings were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13 – 6 samples)

a. Inspection Scope

The inspectors reviewed station evaluation and management of plant risk for the maintenance and emergent work activities listed below to verify that Exelon performed the appropriate risk assessments prior to removing equipment from service. The inspectors selected these activities based on potential risk significance relative to the reactor safety cornerstones. As applicable for each activity, the inspectors verified that Exelon personnel performed risk assessments as required by 10 CFR 50.65(a)(4) and that the assessments were accurate and complete. When Exelon performed emergent work, the inspectors verified that operations personnel promptly assessed and managed plant risk. The inspectors reviewed the scope of maintenance work and discussed the results of the assessment with the station's probabilistic risk analyst to verify plant conditions were consistent with the risk assessment. The inspectors also reviewed the

TS requirements and inspected portions of redundant safety systems, when applicable, to verify risk analysis assumptions were valid and applicable requirements were met.

- Unit 1 HPCI 11 during HPCI 12 surveillance testing on January 5, 2016
- Unit 2, Divisions I and III, EDGs and switchgear during Division II EDG maintenance window on January 5, 2016
- Unit 1 EDG 103 and power board 103 during containment spray 112 system maintenance window on January 27, 2016
- Unit 2 RHR pumps and HXs during Division III switchgear electrical maintenance on January 27, 2016
- Unit 2 containment purge system during Fukushima flex hardened vent modification on February 9, 2016
- Unit 2 RHR pump minimum flow valve 2RHS*MOV4A during testing on February 12, 2016, 'A' RHR HX testing on March 3, 2016

b.1 Findings

Introduction. The inspectors identified a Green NCV of 10 CFR 50.65(a)(4), "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," for Exelon's failure to take RMAs as required by procedure OP-AA-108-117, "Protected Equipment Program," Revision 004, during a Unit 2, Division III, emergency switchgear electrical maintenance window on January 27, 2016. Specifically, contrary to procedure OP-AA-108-117, during planned maintenance, Exelon failed to post the unit coolers in the 'A' and 'B' RHR pump and HX rooms, the 'C' RHR pump room, and their associated breakers as protected equipment while work activities were taking place in these rooms. Their inoperability would have resulted in both trains of SBGT being inoperable and would have required entry into TS LCO 3.0.3 and a short term shutdown action statement.

Description. On January 27, 2016, Exelon removed the Unit 2, Division III, emergency switchgear from service for electrical maintenance. The emergency switchgear supplies power to the high-pressure core spray (HPCS) pump, the unit coolers, and other supporting instrumentation. Removing the switchgear from service resulted in the inoperability and unavailability of both HPCS pump room unit coolers. The inoperability and unavailability of the two unit coolers in the HPCS pump room placed the unit into a 14-day LCO for the HPCS system and a 7-day LCO for the associated division of SBGT system, which Exelon appropriately entered. The unavailability of the two unit coolers in the HPCS pump room impacts temperature limits associated with the design of the pump, as well as secondary containment drawdown requirements using the SBGT system. Operators installed a protection scheme, as defined by OP-NM-108-117, "Protected Equipment Program at Nine Mile Point," Revision 00200, which included protection of the low-pressure core spray (LPCS) control switch and pump room door, the Division I switchgear room door, and the RCIC control switch and pump room door.

Entry into the 7-day LCO associated with SBGT was required by Attachment 3, Action 7.b of N2-OP-52, "Reactor Building Ventilation," Revision 01500. Attachment 3, Action 7.b states, "with both unit coolers in HPCS pump room inoperable, declare a train of SBGT inoperable and in addition declare HPCS inoperable." This requirement was

derived by engineering calculation ES-276, “Secondary Containment Drawdown Analysis – 1 Hour,” which determined that the loss of the two HPCS pump room unit coolers renders the associated division of SBGT incapable of performing its secondary containment drawdown function and, therefore, causing the system to become inoperable. The inspectors reviewed this requirement and other related requirements found in Attachment 3 of N2-OP-52. The inspectors found that in addition to the requirement stated above, Attachment 3, Action 7.c indicates if additional unit coolers become inoperable at the same time, there were more stringent requirements to apply. Specifically, in addition to the two HPCS pump room unit coolers, if both RHR pump room or any HX room unit coolers, LPCS pump room unit cooler, RCIC pump room unit coolers, or both of the unit coolers in a particular area were unavailable, Exelon is required to declare both trains of SBGT inoperable. The inoperability of two trains of SBGT requires entry into TS 3.6.4.3.D, and subsequently, entry into LCO 3.0.3. The inspectors confirmed during a walkdown on January 27 that the unit coolers for both LPCS and RCIC were already protected. However, the unit coolers in the ‘A’ and ‘B’ RHR pump and HX rooms, the ‘C’ RHR pump room, and their associated breakers had not been not protected. The inspectors also noted that work activities were taking place in these rooms increasing the probability that the equipment could have been adversely impacted during the performance of these activities..

Exelon fleet procedure for the protected equipment program is OP-AA-108-117, “Protected Equipment Program,” Revision 004. Section 4.2.1 of OP-AA-108-117 states “when SSCs are planned to or become unavailable, then protect redundant equipment if plant configuration is such that redundant equipment unavailability or manipulation would cause,” among other requirements, “an entry into Tech Spec 3.0.3.” The protection strategy that operators implemented for the January 27 work was based upon the NMPNS site-specific protected equipment procedure OP-NM-108-117. Attachment 2 of the procedure includes tables for Unit 2 that define what equipment should be protected when a specific component or system is OOS, however it failed to include a list of the required protected equipment for a Division III emergency switchgear outage. During the planning of outage windows, operations personnel are tasked with developing a list of protected equipment in accordance with the requirements of OP-AA-108-117, however, in this instance, the attachment to OP-NM-108-117 was incorrectly used. The inspectors determined that Exelon failed to meet the requirements of OP-AA-108-117, Section 4.2.1, when they failed to protect the additional unit coolers and their associated breakers as a part of their protection strategy for the Division III maintenance. Exelon generated IR 02617915 to document this issue. Corrective actions included taking the required RMAs for the equipment, creating an action item to evaluate Attachment 3 of N2-OP-52, and determine the relevance of the TS LCO 3.0.3 entry requirement.

Analysis. The inspectors determined that Exelon’s failure to implement OP-AA-108-117 was a performance deficiency that was reasonably within Exelon’s ability to foresee and correct and should have been prevented. The inspectors determined the performance deficiency to be more than minor because it was associated with the SSC and barrier performance attribute of the Barrier Integrity cornerstone 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. Specifically, Exelon personnel failed to take RMAs to protect the unit coolers for the

Unit 2 RHR pump and HX rooms and their associated breakers in accordance with OP-AA-108-117, whose unavailability would have resulted in both trains of SBGT being inoperable and the secondary containment drawdown requirements unable to be met, which would necessitate entry into LCO 3.0.3. Examples 7.e, 7.f, and 7.g from IMC 0612, Appendix E, "Examples of Minor Issues," provided similar scenarios to this issue. Example 7.e details that a performance deficiency is more than minor if a failure to include accurate TS requirements in a risk assessment would require under plant procedures, RMAs, or additional RMAs when calculated properly.

The inspectors evaluated the finding using Phase 1, "Initial Screening and Characterization" worksheet in Attachment 4 and IMC 0609, "Significance Determination Process." For findings within the Initiating Events, Mitigating Systems, and Barrier Integrity cornerstones, Attachment 4, Table 3, Paragraph 5.C, directs that if the finding affects the licensee's assessment and management of risk associated with performing maintenance activities under all plant operating or shutdown conditions in accordance with Baseline Inspection Procedure 71111.13, "Maintenance Risk Assessment and Emergent Work Control," the inspectors shall use IMC 0609, Appendix K, "Maintenance Risk Assessment and Risk Management Significance Determination Process," to determine the significance of the finding. The inspectors used Flowchart 2, "Assessment of RMA's," to analyze the finding and calculated incremental core damage probability using EOOS, Exelon's risk assessment tool, and found the result to be less than 1E-6. The inspectors determined that if this condition existed for the full duration of the TS LCO, the incremental core damage probability would have been 6.8E-7. Because the incremental core damage probability deficit was less than 1E-6 and the incremental large early release probability was less than 1E-7, this finding was determined to be of very low safety significance (Green).

This finding has a cross-cutting aspect in the area of Human Performance, Procedure Adherence, because Exelon failed to follow processes, procedures, and work instructions. Specifically, Exelon failed to follow procedure OP-AA-108-117, which led to the failure to protect the unit coolers for the RHR pump rooms, HX rooms, and associated breakers whose failure would have resulted in which could have led to a TS LCO 3.0.3 entry. [H.8]

Enforcement. Title 10 CFR 50.65(a)(4) requires, in part, that before performing maintenance activities, the licensee shall assess and manage the increase in risk that may result from the proposed maintenance activities. Exelon procedure OP-AA-108-117, Protected Equipment Program, implements this requirement. Contrary to the above, on January 27, 2016, Exelon failed to manage increased risk during maintenance activities by incorrectly implementing OP-AA-108-117. Exelon staff did not include the unit coolers for the RHR pump rooms, HX rooms, and their associated breakers as equipment that required protection during a Unit 2, Division III, switchgear electrical maintenance window, which rendered the HPCS pump room unit coolers inoperable. Specifically, without protection for the additional unit coolers, the potential existed for both trains of SBGT being rendered inoperable, which would result in an unplanned entry into LCO 3.0.3 and a short tern shutdown action statement. Exelon's immediate corrective actions included protecting the unit coolers for the RHR pump rooms, HX rooms, and their associated breakers, and entering this issue into their CAP

as IR 02617915. Exelon also applied a crew clock reset for operations personnel's failure to identify the appropriate protection scheme based on OP-AA-108-117, Section 4.2.1. Because this violation was of very low safety significance (Green), and Exelon entered this issue into the CAP, this violation is being treated as an NCV, consistent with Section 2.3.2 of the NRC Enforcement Policy. **(NCV 05000410/2016001-01, Inadequate Procedure Leading to Failure to Manage Elevated Risk during Preventive Maintenance)**

b.2 Findings

Introduction. The inspectors identified a Green NCV of 10 CFR 50.65(a)(4), "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," when Exelon did not assess and manage the increase in risk for online maintenance activities. Specifically, on February 12, 2016, Exelon did not assess and manage risk during planned testing associated with the 'A' RHR system HX. The inspectors identified that the Unit 2 'A' RHR minimum flow valve 2RHS*MOV4A was unavailable during testing. However, this was not considered as part of the planned maintenance window, which resulted in an unrecognized increase in plant risk during the unavailability of 2RHS*MOV4A from Green to Yellow.

Description. The 'A' RHR system is an emergency core cooling system associated with Unit 2 that has multiple functions to remove heat from both the reactor core and containment. Its functions include low-pressure coolant injection to the reactor vessel, containment sprays in both the drywell and wetwell, suppression pool cooling, and SDC. The 'A' RHR system is equipped with a single HX to cool the reactor coolant system following an accident, remove suppression pool heat following an accident or during planned evolutions, and to remove decay heat from the reactor coolant system during planned shutdowns and refueling outages (RFOs). On February 12, 2016, Exelon was performing N2-TTP-RHS-4Y003, "Residual Heat Removal (RHR) Heat Exchanger (2RHS*E1A) Performance Monitoring (Suppression Pool Cooling Mode)," Revision 00201. The HX performance test is performed once every 4 years to assess the HXs performance to ensure it will meet design basis heat removal requirements in accordance with NRC Generic Letter 89-13, "Service Water System Problems Affecting Safety-Related Equipment."

The inspectors noted Step 4.1, "Precautions," of procedure N2-TTP-RHS-4Y003 identified that during filling and venting of a test flow transmitter in parallel with several permanent RHR flow transmitters, which included 2RHS*FT86A, the flow transmitter associated with the 'A' RHR minimum flow valve 2RHS*MOV4A, there may be erratic response from the permanent transmitter. Section 7.1.1.8 of N2-TTP-RHS-4Y003 states that during installation or removal of testing flow transmitters, cyclic closure of 2RHS*MOV4A may occur due to potential pressure perturbations and that operators will need to re-align 2RHS*MOV4A, if required. Section 7.1.1.11 also provided a list of instruments that may be affected during fill and vent of temporary test transmitters, which included 2RHS*FT86A, and indicates potential impact to 2RHS*MOV4A.

2RHS*MOV4A is the minimum flow valve in the 'A' train of the RHR system and is designed to prevent pump cavitation during initial startup. N2-OP-31, "Residual Heat

Removal System," Revision 03000, Section D.8 states that the "RHS pump minimum flow requirement is greater than or equal to 1,000 gallons per minute. The RHS pumps must not operate for more than 15 seconds against a closed valve." N2-OP-31 also provides two caution statements. The first caution states "if 2RHS*MOV4A is not available, minimum flow requirements may be satisfied by opening 2 RHS*FV38A in an expeditious manner." The second caution states "if 'A' RHR pump is without minimum flow protection, minimum flow of greater than or equal to 1,000 gallons per minute must be established within 40 seconds of pump start. Use of a watch is recommended to ensure the pump is tripped within the required time if minimum flow is not achieved. Allowing 'A' RHR pump to run for greater than 15 seconds deadheaded is prohibited."

The inspectors questioned Exelon personnel regarding the impact of the installation of the temporary transmitter on the minimum flow valve of the 'A' RHR system. Exelon confirmed that, during previous tests, the valve had operated erratically. The inspectors questioned whether the erratic motion during transmitter installation was included in the EOOS risk assessment software tool to reflect the valve as unavailable during the February 12, 2016, test. Exelon confirmed that the risk scope for the day did not include the valve being unavailable during the test setup. Exelon performed an updated run for the risk associated with maintenance for the day on February 12, 2016, and confirmed that with the 'A' RHR minimum flow valve unavailable, the overall risk for the day would have risen from Green to Yellow.

The inspectors noted that this issue was not discussed during the pre-job brief to ensure compensatory actions were in place. Although not briefed prior to the test, inspectors did confirm that operators had familiarity with the caution statement regarding minimum flow requirements in the RHR operating procedure. The inspectors also confirmed with Exelon that the evolution to fill and vent the transmitter that impacted the 'A' RHR minimum flow valve would typically last between 20 and 30 minutes.

WC-AA-101-1006, "On-Line Risk Management and Assessment," Revision 001, Section 4.1.3 states to consider "work activities that cause equipment to be unavailable (e.g., valve strokes)" for assessment for risk under the requirements of 50.65(a)(4). It also states that "all activities entered into PARAGON/EOOS planning domain, either automatically or manually, shall reflect the scheduled start and stop times in the schedule." Contrary to this, the inspectors determined Exelon did not enter the 'A' RHR minimum flow valve unavailability into the EOOS model during the February 12, 2016 test. This resulted in risk not properly being reflected. Risk should have been indicated as Yellow for the day and not Green.

Upon identification, Exelon generated IR 02625546 to document this issue. Exelon corrective actions will include evaluating what compensatory measures should be implemented when the minimum flow valves are subject to maintenance or testing activities to ensure future work is properly screened.

Analysis. The inspectors determined that Exelon's failure to assess and manage risk in accordance with 50.65(a)(4) associated with the unavailability of the 'A' RHR minimum flow valve during the 'A' RHR HX performance test was a performance deficiency that was reasonably within Exelon's ability to foresee and correct and should have been

prevented. This finding is more than minor because it is associated with the configuration control attribute of the Mitigating Systems cornerstone and adversely affected the associated cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, Exelon's failure to plan for the unavailability of the 'A' RHR minimum flow valve resulted in the station being in an unplanned elevated risk category (i.e. Yellow) and a failure to ensure adequate RMAs were put in place and briefed to ensure maximum availability, reliability, and capability of the system. Additionally, this issue is similar to Example 7.f of IMC 0612, Appendix E, "Examples of Minor Issues," issued August 11, 2009, because the overall elevated plant risk placed the plant into a higher licensee-established risk category.

The inspectors evaluated the finding using Phase 1, "Initial Screening and Characterization" worksheet in Attachment 4 to IMC 0609, "Significance Determination Process." For findings within the Initiating Events, Mitigating Systems, and Barrier Integrity cornerstones, Attachment 4, Table 3, Paragraph 5.C, directs that if the finding affects the licensee's assessment and management of risk associated with performing maintenance activities under all plant operating or shutdown conditions in accordance with Baseline Inspection Procedure 71111.13, "Maintenance Risk Assessment and Emergent Work Control," the inspectors shall use IMC 0609, Appendix K, "Maintenance Risk Assessment and Risk Management Significance Determination Process," to determine the significance of the finding. The inspectors used Flowchart 1, "Assessment of Risk Deficit," to analyze the finding and calculated incremental core damage probability using EOOS, Exelon's risk assessment tool. The inspectors determined that had this condition existed for the full duration of the TS LCO, the incremental conditional core damage probability would have been 3.46E-9. Because the incremental core damage probability deficit was less than 1E-6 and the incremental large early release probability was less than 1E-7; therefore, this finding was determined to be of very low safety significance (Green).

This finding has a cross-cutting aspect in the area of Human Performance, Work Management, because Exelon did not properly implement a process of planning, controlling, and executing the work activity such that nuclear safety was the overriding priority. Specifically, Exelon did not ensure risk was properly assessed during the planning process in accordance with WC-AA-101-1006 prior to testing the 'A' RHR HX, which caused unavailability of the 'A' RHR minimum flow valve during certain periods of the test. [H.5]

Enforcement. Title 10 CFR 50.65(a)(4), states, in part, the licensee shall assess and manage the increase in risk that may result from the proposed maintenance activities. Exelon procedure WC-AA-101-1006, "On-Line Risk Management and Assessment," Revision 001, Section 4.1.3 states to consider "work activities that cause equipment to be unavailable (e.g., valve strokes)" for assessment of risk under the requirements of 50.65(a)(4). It also states that "all activities entered into PARAGON/EOOS planning domain, either automatically or manually, shall reflect the scheduled start and stop times in the schedule." Contrary to the above, on February 12, 2016, Exelon did not adequately assess the increase in risk ahead of scheduled on-line maintenance. Specifically, Exelon's failure to enter the minimum flow valve into the EOOS model

resulted in an elevated risk condition not being identified and to ensure RMAs were in place during the work activity. Because this violation was of very low safety significance and was entered into Exelon's CAP as IR 02625546, this violation is being treated as an NCV, consistent with the NRC Enforcement Policy. **(NCV 05000410/2016001-02, 50.65(a)(4) Risk Evaluation Not Properly Performed Prior to Residual Heat Removal Heat Exchanger Testing)**

1R15 Operability Determinations and Functionality Assessments (71111.15 – 7 samples)

a. Inspection Scope

The inspectors reviewed operability determinations for the following degraded or non-conforming conditions based on risk significance of the associated components and systems:

- Unit 2 RCIC following minimum flow relief valve opening during unit cooler maintenance on January 19, 2016
- Unit 1 diesel fire engine ENG-100-01 lube oil leak on January 26, 2016
- Unit 2 truck bay door following being struck by man lift on February 1, 2016
- Unit 1 primary containment increased N2 make-up on February 10, 2016
- Unit 1 bora flex coupon failed several acceptance criteria on February 18, 2016
- Unit 1 H2O2 system 11 drywell sample containment isolation valve (CIV) 201.7-01 on March 9, 2016
- Unit 1 EDG 103 failure to start on March 15, 2016

The inspectors evaluated the technical adequacy of the operability determinations to assess whether TS operability was properly justified and the subject component or system remained available such that no unrecognized increase in risk occurred. The inspectors compared the operability and design criteria in the appropriate sections of the TSs and UFSAR to Exelon's evaluations to determine whether the components or systems were operable. The inspectors confirmed, where appropriate, compliance with bounding limitations associated with the evaluations. Where compensatory measures were required to maintain operability the inspectors evaluated whether the measures in place would function as intended and were properly controlled by Exelon.

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing (71111.19 – 6 samples)

a. Inspection Scope

The inspectors reviewed the post-maintenance tests for the maintenance activities listed below to verify that procedures and test activities adequately tested the safety functions that may have been affected by the maintenance activity, that the acceptance criteria in the procedure were consistent with the information in the applicable licensing basis and/or design basis documents, and that the test results were properly reviewed and

accepted and problems were appropriately documented. The inspectors also walked down the affected job site, observed the pre-job brief and post-job critique where possible, confirmed that work site cleanliness was maintained, and witnessed the test or reviewed test data to verify quality control hold points were performed and checked, and that results adequately demonstrated restoration of the affected safety functions.

- Unit 1 125 VDC station battery 12 following jumping of battery cell number 23 on January 14, 2016
- Unit 2 RCIC pump room unit cooler 2HVR*UC412A following electrical preventive maintenance (PM) on January 13, 2016
- Unit 1 diesel fire pump following replacement of air start solenoid valves SOV-100-923 and SOV-100-924 on January 20, 2016
- Unit 2 SW discharge isolation valve 2SWP*MOV74C following testing on February 9, 2016
- Unit 2 control rod scram accumulator 22-39 water leak detection switch 2RDS*LS129 following replacement on February 20, 2016
- Unit 1 containment spray 121 system following HX PM on March 16, 2016

b. Findings

No findings were identified.

1R20 Refueling and Other Outage Activities (71111.20 – 1 partial sample)

a. Inspection Scope

In preparation for the planned spring RFO (N2R15) scheduled to commence on April 11, 2016, for Unit 2, the inspectors performed the following activities on various dates in February and March:

- Scaffold walkdowns
- Observed fuel receipt and inspection
- Reviewed SFP fuel reorganization
- Attended an outage planning meeting
- Assessed reactor building polar crane operation

b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22 – 7 samples)

a. Inspection Scope

The inspectors observed performance of surveillance tests and/or reviewed test data of selected risk-significant SSCs to assess whether test results satisfied TSs, the UFSAR, and Exelon procedure requirements. The inspectors verified that test acceptance

criteria were clear, tests demonstrated operational readiness and were consistent with design documentation, test instrumentation had current calibrations and the range and accuracy for the application, tests were performed as written, and applicable test prerequisites were satisfied. Upon test completion, the inspectors considered whether the test results supported that equipment was capable of performing the required safety functions. The inspectors reviewed the following surveillance tests:

- Unit 2, N2-ISP-ISC-Q@005, Quarterly Functional Test of the Reactor Vessel Water Low Low Level and the Reactor Vessel Low Low Low Level 1 Instrument Channels on January 6, 2016
- Unit 1, N1-ST-M4A, Emergency Diesel Generator 102 and PB 102 Operability Test on January 25, 2016
- Unit 1, N1-ST-Q13, Emergency Service Water Pump and Check Valve Operability Test on February 4, 2016 (inservice test)
- Unit 1, N1-PM-M9, Monthly Operation of Fire Pumps on February 5, 2016
- Unit 1, N1-ST-Q16B, Emergency Diesel Generator 103 Quarterly Test on February 9, 2016 (inservice test)
- Unit 2, N2-OSP-ICS-Q@002, RCIC Pump and Valve Operability Test and System Integrity Test and ASME XI Functional Test on February 12, 2016 (inservice test)
- Unit 2, ESP-ENS-Q731, Quarterly Channel Functional Test of LPCS/LPCI Pumps A, B, and C (Normal and Emergency Power) Auto Start Time Delay Relays on February 18, 2016

b. Findings

No findings were identified.

Cornerstone: Emergency Preparedness

1EP6 Drill Evaluation (71114.06 – 1 sample)

Training Observations

a. Inspection Scope

The inspectors observed a simulator training evolution for Unit 1 licensed operators on January 12, 2016, which involved restoring a RRP, an inadvertent opening of an ERV, a loss of vacuum, a failure to scram, and an emergency condenser steam line break, which required emergency plan implementation by an operations crew. Exelon planned for this evolution to be evaluated and included in performance indicator (PI) data regarding drill and exercise performance. The inspectors observed event classification and notification activities performed by the crew. The inspectors also attended the post-evolution critique for the scenario. The focus of the inspectors' activities was to note any weaknesses and deficiencies in the crew's performance and ensure that Exelon evaluators noted the same issues and entered them into the CAP.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (71151 – 6 samples)

Unplanned Scrams, Unplanned Power Changes, and Unplanned Scrams with Complications (6 samples)

a. Inspection Scope

The inspectors reviewed Exelon's submittals for the following Initiating Events cornerstone PIs for the period of January 1 through December 31, 2015:

- Units 1 and 2 Unplanned Scrams (IE01)
- Units 1 and 2 Unplanned Power Changes (IE03)
- Units 1 and 2 Unplanned Scrams with Complications (IE04)

To determine the accuracy of the PI data reported during those periods, inspectors used definitions and guidance contained in Nuclear Energy Institute (NEI) Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7. The inspectors reviewed NMPNS' operator narrative logs, maintenance planning schedules, IRs, event reports, and NRC integrated inspection reports to validate the accuracy of the submittals.

b. Findings

No findings were identified.

4OA2 Problem Identification and Resolution (71152 – 4 samples)

.1 Routine Review of Problem Identification and Resolution Activities

a. Inspection Scope

As required by Inspection Procedure 71152, "Problem Identification and Resolution," the inspectors routinely reviewed issues during baseline inspection activities and plant status reviews to verify that Exelon entered issues into the CAP at an appropriate threshold, gave adequate attention to timely corrective actions, and identified and addressed adverse trends. In order to assist with the identification of repetitive equipment failures and specific human performance issues for follow-up, the inspectors performed a daily screening of items entered into the CAP and periodically attended screening meetings. The inspectors also confirmed, on a sampling basis, that, as

applicable, for identified defects and non-conformances, Exelon performed an evaluation in accordance with 10 CFR Part 21, “Reporting of Defects and Noncompliance.”

b. Findings

No findings were identified.

.2 Annual Sample: Unit 1 Reactor Building Closed Loop Cooling System Drain Down

a. Inspection Scope

On January 25, 2016, a Unit 1 non-licensed operator manipulated a RBCLC drain valve out of sequence during a SDC HX tagout for planned maintenance. As a result, the system began to drain to a reactor building sump resulting in multiple low RBCLC pump suction pressure alarms, and entry into abnormal operating procedures by control room operators. The event was terminated when control room operators were able to contact the field operators who isolated the drain down path. The tagout was in support of performing maintenance of the #13 SDC HX. The SDC HXs are cooled by RBCLC; and to perform maintenance on the SDC HX, the RBCLC system had to be isolated. RBCLC is a safety-related system at Unit 1 that provides cooling for several systems including the control room emergency ventilation system, instrument air compressors 11 and 12, the SFP, and the pumps for the HPCI system.

The inspectors reviewed Exelon’s apparent cause evaluation (ACE) and corrective actions implemented as a result of the configuration control event. Additionally, the inspectors interviewed management and staff personnel who were familiar with the evaluation or corrective actions. The inspectors also reviewed the prompt investigation and human performance review board which was conducted immediately following the event. The inspectors also reviewed calculations associated with performance of the RBCLC system to ensure the system responded properly to the drop in RBCLC water volume. The inspectors reviewed operator response to the event, abnormal and normal operating procedures associated with the RBCLC system, and design drawings to assess the expected system response during a drain down event.

b. Observation and Assessment

One self-revealing Green NCV for failure to follow procedures is documented in 4OA2.2.c.

Additionally, the inspectors concluded that although Exelon performed an ACE of the human performance aspects associated with the non-licensed operator’s actions, the station did not assess the response of the plant equipment and control room operators. As a result, the potential for unexpected system performance was not assessed. Exelon procedure OP-AA-106-101-1001, “Event Response Guidelines,” Revision 24, Section 4.5.4, assigns responsibility to the shift manager to assess operator response to an event and complete a critique using OP-AA-101-113-1006, “4.0 Crew Critique Guidelines,” Revision 006. The 4.0 critique was a process added as part of a corrective action associated with IR 01279070. A 4.0 critique should have been used to identify

any potential challenges to plant equipment or operator response. The inspectors also noted in accordance with PI-AA-125-1003, "Apparent Cause Evaluation Manual," Revision 002, that based on the charter established per Section 4.2.6 of the procedure, control room operators and equipment response should have been assessed given that a RBCLC transient was experienced and abnormal operating procedure N1-SOP-11.1, "RBCLC Failure," Revision 00500, was entered.

The inspectors noted that during the event, the low pump suction pressure alarms for the system annunciated. Calculation No. S13.4-70-M002 states the RBCLC system low pump suction pressure alarm was set at 10 psig, based on net positive suction head required. The minimum required pump suction pressure is approximately 5.14 psig, also based on Calculation No. S13.4-70-M002. The control room logs indicated that RBCLC discharge pressure dropped by 19 psig, from 95 psig to 76 psig during the event. Based on inspectors' review of design calculations, procedures, and drawings, the inspectors questioned if the system responded appropriately and if operator response was appropriate. Exelon generated IR 02643997 to assess the equipment response during the event.

Exelon's evaluation for IR 02643997 determined, from Calculation No. S13.4-70-F011, that normal operating suction pressure is approximately 25 psig based on the RBCLC system static head estimated to be 57.33 feet. Given a drop of 19 psig during the event, it is reasonable to assume pressure dropped to approximately 6 psig, near the pump limit of 5.14 psig. It was determined that although the pump may have cavitated momentarily before the drain valve was closed, it is unlikely the pumps were damaged. System parameters have remained steady and pump vibration data has not shown any adverse trend to date.

Although Exelon did not perform a review of the RBCLC system response or operator response in accordance with PI-AA-125-1003 or OP-AA-106-101-1001, the inspectors determined this issue to be minor because although the system may have cavitated, the duration of the vent was short and system parameters following the event have shown that the RBCLC pumps were performing in accordance with their established acceptance criteria for performance. The inspectors also identified an NCV which is documented below. No additional issues were identified during the review.

c. Findings

Introduction. A self-revealing Green NCV of TS 6.4.1, "Procedures," was identified when a Unit 1 operator did not maintain proper configuration of a plant system during a system tagout for planned maintenance. Specifically, on January 25, 2016, a Unit 1 non-licensed operator manipulated a RBCLC system drain valve out of sequence while performing a tagout for the #13 SDC HX for planned maintenance. This resulted in unintentional draining of the operating RBCLC system, causing multiple alarms to annunciate in the main control room, and operators entering abnormal operating procedures to recover the RBCLC system.

Description. On January 25, 2016, a Unit 1 non-licensed operator manipulated a drain valve out of sequence on a tagout that was intended to isolate the SDC system for

maintenance. This resulted in a transient of the RBCLC system due to the system draining and subsequent unplanned entry into abnormal operating procedure N1-SOP-11.1. Upon receiving alarms in the control room, operators were able to contact the non-licensed operator to correct the configuration error and stop the system drain down.

The tagout for the SDC system was intended to isolate the #13 SDC HX to perform PM. The tagout evolution began on January 24, 2016, during night shift. While beginning the tagout, it was discovered that scaffolding was required to check the position of a SDC vent valve. The operators proceeded as far as they could before turning over to day shift on January 25. During day shift, a non-licensed operator and reactor operator were designated to complete the tagout for the #13 SDC HX maintenance. The pre-job brief specifically identified that the reactor operator would be the tagout performer and the non-licensed operator would be designated as only the peer checker. Following the brief, the operators entered the reactor building with a radiation protection technician. Once they reached the SDC system room, it was recognized that there were multiple contaminated areas they would have to enter to perform the tagout. The crew became separated when the reactor operator went to identify a vent valve. Soon after the reactor operator left, contrary to the brief, the non-licensed operator opened a RBCLC drain valve on the #13 SDC HX, which initiated the drain down of the RBCLC system. The RBCLC drain valve was opened out of sequence from the designated tagout sheet. The valve should have been opened following closure of a RBCLC supply valve.

IR 02616859 was written to document the event, and an ACE was performed. The ACE focused on the facts associated with the human performance event using interviews and information captured from a prompt investigation and human performance review board. The apparent cause concluded that the event occurred because an experienced operator failed to contact supervision, stepped out of the assigned peer-checker role, and operated plant equipment without using established human performance tools. Exelon concluded that the non-licensed operator's actions were driven by self-imposed time pressure.

OP-CE-109-101, "Clearance and Tagging," Revision 003, Section 4.11.3.4.E, requires components to be aligned and tagged in the sequence specified on the tagout. The non-licensed operator failed to adhere to the procedural requirements for tagging and was removed from the shift and fitness for duty tested, with negative results. As part of corrective actions, the operator involved in the event was given a remediation plan for requalification and placed on an operations excellence plan.

Analysis. The inspectors determined that not adhering to the procedural requirements of OP-CE-109-101 to perform the #13 SDC HX tagout in a proper sequence as specified by the tagout sheet was a performance deficiency that was reasonably within Exelon staffs' ability to foresee and correct and, therefore, was preventable. This finding is more than minor because it impacted the configuration 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; and if left uncorrected, the event had potential to lead to a more significant safety concern. Specifically, the failure to quickly isolate the drain down

of the RBCLC system would have required a manual reactor scram, a manual trip of all five RRPs, a manual isolation of the reactor water cleanup system, a loss of cooling to the SFP cooling system, instrument air compressors, and the control room emergency ventilation system.

The inspectors evaluated the finding using 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 was of very low safety significance (Green) because the performance deficiency did not result in the loss of a support system, RBCLC, or affect mitigation equipment.

This finding has a cross-cutting aspect in the area of Human Performance, Procedure Adherence, because the non-licensed operator failed to follow Exelon's procedures and the instructions he received at the pre job brief when manipulating the drain valve. Specifically, the non-licensed operator rationalized, without being the designated performer of the tagout, that it was acceptable to perform a valve manipulation out of sequence with the tagout plan. [H.8]

Enforcement. Technical Specification 6.4.1, "Procedures," requires that procedures be implemented as recommended in Appendix A of Regulatory Guide 1.33, "Quality Assurance Program Requirements (Operations)," Revision 3. Regulatory Guide 1.33, Section 1.c requires administrative procedures for equipment control to be implemented. OP-CE-109-101, "Clearance and Tagging," Revision 003, Section 4.11.3.4.E requires components to be aligned and tagged in the sequence specified on the tagout. Contrary to the above, on January 25, 2016, a non-licensed operator failed to implement Exelon procedure OP-CE-109-101 and as a result, did not maintain proper configuration of a plant system during a system tagout for planned maintenance of the #13 SDC HX. Specifically, the non-licensed operator manipulated a RBCLC drain valve out of sequence which caused a RBCLC transient, unplanned entry into the abnormal operating procedure, and prompted rapid response by the control room operators. Corrective actions included promptly restoring proper system configuration, and conducting an immediate human performance review and a subsequent ACE. Because this deficiency was considered to be of very low safety significance (Green) and was entered into the CAP as IR 02616859, this violation is being treated as a NCV consistent with Section 2.3.2 of the NRC Enforcement Policy. **(NCV 05000220/2016001-03, Inadequate Tagout Resulting in Reactor Building Closed-Loop Cooling Drain Down Event)**

.3 Annual Sample: Failure of Unit 1 Emergency Diesel Generator 102 to Start

a. Inspection Scope

The inspectors performed an in-depth review of Exelon's response and corrective actions associated with the Unit 1 EDG 102 failure to start during monthly surveillance testing on July 20, 2015. The inspectors reviewed the ACE performed by Exelon staff to determine whether Exelon staff appropriately identified, characterized, and corrected problems associated with the issue and whether the planned or completed corrective

actions were appropriate. The inspectors also reviewed IRs, procedures, drawings, engineering change documents, completed WOs associated with troubleshooting, past work on the speed sensing relay board, and performed interviews of Exelon personnel.

b. Findings and Observations

No findings were identified.

Exelon performed an ACE of the Unit 1 EDG 102 failure to start on July 20, 2015, under IR 02530361. Exelon determined the cause to be associated with a failure to implement the 10-year replacement Preventive Maintenance (PM) which was established as part of a corrective action in response to NRC Information Notice 2010-23, "Malfunction of Emergency Diesel Generator Speed Switch Circuits," dated November 1, 2010. During the first opportunity to implement the10-year replacement PM in November 2012, it was identified that the spare speed-sensing board was unacceptable when it failed pre-installation testing. It was also identified that the speed-sensing board and its subcomponents were obsolete. Based on not having an additional spare speed-sensing board, Exelon revised the PM to replace the capacitors associated with the speed-sensing board. Exelon also continued with performance of the planned calibration of the speed-sensing relays, N1-IPM-079-004, "Diesel Generator Speed Sensing Instrumentation Calibration," Revision 00100.

The speed-sensing board consists of two speed-sensing relays - the first is to ensure the EDG reaches 200 revolutions per minute (rpm), and the second is to ensure the EDG reaches 750 rpm during startup. The speed-sensing board also contains two capacitors and two rheostats; each associated with its respective speed sensing relay. On July 20, 2015, when Exelon performed N1-ST-M4A, "Emergency Diesel Generator 102 and PB 102 Operability Test," Revision 00300, EDG 102 failed to reach rated speed of 900 rpm. Troubleshooting revealed that the 750 rpm relay had failed to perform its function. Following analysis of the 750 rpm speed relay by Exelon Power Labs, no failure mechanism could be identified. Based on the analysis, Exelon staff determined that oxidation of the rheostat was the likely problem preventing successful operation of the 750 rpm relay. Exelon replaced the speed-sensing board capacitors following the failure to start on July 20 and also performed N1-IPM-079-004 to ensure the speed-sensing relays were properly calibrated. The calibration involved the manipulation of the rheostat, which ensured wiping the rheostat contacts clean to remove oxidation. The EDG 102 was then successfully post-maintenance tested and returned to service.

The inspectors' review identified that although Exelon's ACE determined the failure to implement the 10-year replacement PM of the speed-sensing board was the apparent cause, Exelon did take adequate corrective action to replace the capacitors associated with the speed-sensing board. Capacitors were part of the planned vendor maintenance associated with the board once it was to be removed from the EDG during the first PM in 2012. Exelon's decision to modify its plan and perform the maintenance on-site was equivalent to the planned work prescribed to the vendor. Information Notice 2010-23 indicated that most of the failures associated with the speed-sensing circuits were associated with capacitors that are part of the power supply. The inspectors determined

that based on the corrective actions taken in 2012 to replace the capacitors, the failure of EDG 102 on July 20 was not within Exelon's ability to foresee and prevent and, therefore, it is not a performance deficiency.

The inspectors also reviewed procurement aspects associated with the capacitors used in the speed-sensing relay board in EDG 102. Specifically, the inspectors reviewed purchase records from the vendor, date of manufacture, receipt and testing inspection records, and shelf life records. Exelon's procurement of the capacitors for use in EDG 102 appeared to be adequate.

Following completion of the apparent cause, Exelon developed an engineering change package (ECP) to replace the obsolete speed relays for both Unit 1 EDG 102 and EDG 103 and Unit 2 Division III EDG. The inspectors concluded that corrective actions appeared reasonable and commensurate with the safety significance.

.4 Annual Sample: Review of the Preventive Maintenance Optimization Project

a. Inspection Scope

The inspectors performed an in-depth review of Exelon's PM optimization project. The inspectors assessed Exelon's problem identification threshold, associated analyses and evaluations, and prioritization and timeliness of corrective actions pertaining to equipment performance and reliability resulting from changes and recommended changes to the PM frequency and/or elimination of PM tasks. The inspectors performed this review to determine whether Exelon personnel were properly applying their PM optimization program in accordance with plant procedures and guidance, appropriately identifying, trending, characterizing, and correcting problems associated with this issue. The inspectors reviewed Exelon procedures, PM oversite committee meeting minutes, selected IRs, PM change requests, and the basis for changes made to the PM program from November 2015 to March 2016. The inspectors also conducted interviews with various Exelon staff to assess the adequacy, effectiveness, and timeliness of this program.

b. Findings and Observations

No findings were identified.

Exelon implemented a fleet-wide program to review and optimize PM tasks at each site with the goal of maximizing equipment reliability and reducing maintenance expenditures. In 2015, NMPNS realized over 6,000 person hours savings. Due to the age and historical issues with equipment reliability at NMPNS, there was a concern that a reduction in PM activities may have an adverse impact on equipment reliability.

Exelon established a PM oversight committee in accordance with Exelon procedure ER-AA-200-1002, "Preventive Maintenance Oversite Committee," Revision 0. The committee is a cross-departmental group which has decision-making authority for the PM program including PM scope and frequency changes, addressing scheduling issues between departments, and support of the PM "checkbook" (balancing maintenance tasks

and maintenance resource hours). The committee reviews the craft feedback and makes decisions on all PM deferrals, scope expansions, and first-time PM scoping. Exelon procedure WC-AA-120, "Preventive Maintenance Database Revision Requirements," Revision 2, describes the process for making changes to PMs. Attachment 3 to this procedure is the PM deferral checklist.

The inspectors reviewed the program guidance documents and concluded that the process appropriately considers the impact of PM scope changes on the potential impact to equipment reliability, regulatory commitments, maintenance rule, and single-point vulnerabilities. The majority of the PM changes sampled by the inspectors appropriately identified and considered these factors and the PM oversight committee rejected PM deferral recommendations when the criteria was not met. The inspectors did not identify any examples of maintenance rule A1 systems having PMs deferred or instances where PMs on safety-related equipment were changed.

However, in one instance the inspectors identified that Exelon inappropriately used the PM deferral process when the change should have been performed using the 10 CFR 50.59 process. In February 2016, the PM oversight committee approved deferral of the combined intermediate valve (CIV) testing until after the next RFO. This change represented a change not only to the PM, but also affected a TS surveillance procedure, a surveillance requirement contained in the UFSAR, and a regulatory commitment made via a licensee amendment request and associated safety analysis report. Although the PM deferral checklist directed the reviewer to consider regulatory and non-regulatory commitments related to the PM, the existence of the commitment was not recognized. Regardless of the commitment, Exelon personnel were aware of the surveillance requirement discussed in the UFSAR.

In this case, the surveillance requirement which describes an evaluation that demonstrates the turbine over-speed protection design function will be accomplished was changed following the failure of CIV #4 on December 4, 2015. The failure of the CIV and concerns about EHC fluid quality were non-conforming conditions. The change to the UFSAR described surveillance program, temporarily deferring the performance of the testing, was an interim compensatory action taken to address the non-conforming condition involving a temporary procedure and/or facility change. In accordance with NEI 96-07, "Guidelines For 10 CFR 50.59 Implementation," Revision 1, Section 4.4, "Applying 10 CFR 50.59 to Compensatory Actions to Address Degraded or Non-Conforming Conditions," 10 CFR 50.59 should have been applied to the temporary change. The inspectors noted that a generic 50.59 evaluation related to turbine testing existed which would cover this scenario. As such, this issue is unlikely to have required NRC review and approval prior to implementation. Therefore, screening the issue using IMC 0612, Appendix B, and the NRC Enforcement Policy, this concern is subject to traditional enforcement, because it impacted the regulatory process. However, this issue screens to minor when compared to the examples in NRC Enforcement Policy Section 6, since it is a violation of 10 CFR 50.59 which likely does not require prior NRC review and approval. Exelon entered this issue into its CAP as IR 02637446 and initiated a 10 CFR 50.59 screening and evaluation restoring compliance.

In general, the inspectors concluded that Exelon appears to be adequately developing and implementing their PM optimization program. There was no evidence that equipment reliability has been adversely impacted by the PM reductions implemented to date.

.5 Annual Sample: Electromatic Relief Valve Failure during Plant Transient

a. Inspection Scope

The inspectors performed an in-depth review of Exelon's evaluation and corrective actions associated with an ERV failure during a Unit 1 automatic shutdown (scram) on September 4, 2015. Specifically, following an automatic scram due to a main steam line isolation, ERV-122 automatically opened, as designed, due to the increased pressure condition; however, it failed to reclose after reactor pressure lowered below the ERV lift set point. In response, operators manually closed ERV-122 from the control room in accordance with operating procedures. There are six ERVs that are part of the automatic depressurization system. Only ERV-122 received an open demand during the transient, and it effectively reduced reactor pressure.

The inspectors assessed Exelon's problem identification threshold, problem analysis, extent-of-condition reviews, compensatory actions, and the prioritization and timeliness of Exelon's corrective actions to determine whether Exelon was appropriately identifying, characterizing, and correcting problems associated with this issue and whether the planned or completed corrective actions were appropriate. The inspectors compared the actions taken to the requirements of Exelon's CAP and 10 CFR Part 50, Appendix B. The inspectors reviewed associated station and vendor documents and interviewed engineering personnel to assess the reasonableness of the planned and completed corrective actions.

b. Findings and Observations

No findings were identified.

An ERV consists of a main valve and a pilot valve. The main and pilot discs are held on their closed seats by inlet pressure. When the associated solenoid (actuator) is energized, a plunger moves downward, striking a pilot valve lever to cause downward motion of the stem and pilot disc. When the solenoid is de-energized, the solenoid plunger moves upward to its closed position by the force of solenoid springs. After the mechanical force is removed from the pilot disc, steam pressure and spring force move the pilot disc upward against its seat.

When an ERV opens, the solenoid plunger in the solenoid assembly makes contact with and moves (pivots) a cut-out switch strike lever plate (the cut-out switch is used to prevent burnup of the coils while the solenoid is energized). The strike lever plate has a square opening at the one end where the solenoid plunger (and lip on its underside) makes contact with it during its downward travel.

After the transient, Exelon entered the drywell to investigate the condition of ERV-122 and discovered that the strike lever plate had interfered with the lip on the underside of the solenoid plunger. Specifically, when manually cycled, the solenoid plunger lip was catching on the inside edge of the opening in the cut-out switch strike lever plate, due to deformation of the square opening in the strike lever plate. The solenoid plunger lip being caught on the strike lever plate prevented the pilot valve and, consequently, the ERV from re-closing during the September 4, 2015, event. Maintenance personnel duplicated this failure mechanism several times.

Exelon contacted the ERV vendor to determine if the design of the lip on the underside of the solenoid plunger was acceptable and to determine whether any specific PM activities had been recommended. The vendor indicated that although problems were not anticipated with the plunger lip and opening in the lever, that was the intended design of the components and the reason for the square opening in the lever plate was necessitated due to the tolerances in the direct current solenoid valve application. Further, no specific PM activities were identified relative to the associated tolerances.

Exelon corrected the issue by filing down both the solenoid actuator and the strike lever plate to eliminate interference and sharp edges to provide sufficient clearance to allow uninterrupted full stroking of the solenoid plunger. Exelon conducted post-maintenance testing of ERV-122 by manually cycling the actuator 50 times and then operating the ERV from the control room three times. An extent-of-condition was also performed on the other five ERVs before restarting the reactor (manually stroked 10 times and electronically stroked three times from the control room); no similar interference conditions were identified.

During each RFO, an inspection was performed on all six ERV solenoid actuators and their associated cut-out switches. Resistance checks were performed on the actuators coils, and actuator operating currents during electrical actuation were verified to be within acceptance limits. However, Exelon identified that the maintenance procedure did not include a specific inspection to verify clearance between the lip on the underside of the plunger head and inside edge of the cut-out switch lever. In response, Exelon instituted additional actions to incorporate industry-best PM practices for the ERV solenoid actuators, including a specific action to inspect the switch lever plate for deformation, and to verify clearance between the lip on the underside of the solenoid plunger and inside edge of the switch lever plate.

The inspectors found that Exelon implemented reasonable corrective actions associated with the ERV-122 failure to close during the September 4, 2015, transient. However, the inspectors did note the presence of burrs and dents on the upper portion of the solenoid plunger. Although these indications did not have any impact on the ERV failure or any other adverse consequences, damage to these parts may have been an indication of lack of attention to detail given to these important components. Further, while the inspectors did not identify any missed PM recommendations, there was sufficient operating experience for these valves that indicated a need to re-evaluate the existing activities. While these observations were missed opportunities to identify this issue, they do not represent a violation of NRC regulations or Exelon procedures in place at the

time. Exelon's planned and completed corrective actions, as previously described, addressed these concerns.

4OA3 Follow-Up of Events and Notices of Enforcement Discretion (71153 – 5 samples)

.1 Plant Events

a. Inspection Scope

For the plant event listed below, the inspectors reviewed and/or observed plant parameters, reviewed personnel performance, and evaluated performance of mitigating systems. The inspectors communicated the plant event to appropriate regional personnel, and compared the event details with criteria contained in IMC 0309, "Reactive Inspection Decision Basis for Reactors," for consideration of potential reactive inspection activities. As applicable, the inspectors verified that Exelon made appropriate emergency classification assessments and properly reported the event in accordance with 10 CFR Parts 50.72 and 50.73. The inspectors reviewed Exelon's follow-up actions related to the events to assure that Exelon implemented appropriate corrective actions commensurate with their safety significance.

- Unit 2 unplanned down power to 98 percent following unexpected isolation of feedwater heater 2FWS-E6C on March 10, 2016

b. Findings

No findings were identified.

.2 (Closed) Licensee Event Report (LER) 05000220/2015-004-00: Automatic Scram Due to Main Steam Isolation Valve Closure (1 sample)

On September 4, 2015, Unit 1 automatically scrammed from approximately 100 percent rated power due to an inadvertent MSIV closure during quarterly surveillance testing. This event was reportable under 10 CFR 50.73 (a)(2)(iv)(A) as an event or condition that resulted in a manual or automatic actuation of any of the systems listed in 10 CFR 50.73(a)(2)(iv)(B).

Exelon determined that the root cause of the event was inadequate application of the test pilot valve for MSIV control, which led to pilot valve binding during the surveillance test. Corrective actions taken and planned included replacement of the failed pilot valve, a design change to use an industry proven design in this application, and WO revisions to verify proper alignment during valve reassembly in the interim until the design change is implemented. This event was entered into Exelon's CAP as IR 02551180.

The reactor scram was previously reviewed and documented in NRC Integrated Inspection Report 05000220/2015003, Section 4OA3. The inspectors reviewed this LER for accuracy, the adequacy of proposed and completed corrective actions, and the

appropriateness of the extent-of-condition review. No findings or violations of NRC requirements were identified. This LER is closed.

.3 (Closed) LER 05000410-001-00 and LER 05000410/2014-001-01: Emergency Diesel Generator Actuation due to Loss of Offsite Power Source Line 5 (2 samples)

On February 16, 2014, at 12:16 p.m., Unit 2 experienced an automatic initiation of the Division I and III EDGs due to a loss of Line 5. Line 5 is one of the two 345 kilovolt (kV) offsite power sources owned by National Grid. Line 5 was lost due to a faulted current transformer associated with 345 kV breaker R210 in National Grid's switchyard due to insulation break down internal to the current transformer.

During the electrical transient, Unit 2 also experienced a feedwater level control lockup, requiring manual control, and SW radiation monitor and radwaste/reactor building vent gaseous effluent monitoring systems were lost. No emergency core cooling systems actuated. Plant response to the offsite grid transient was as expected. Feedwater level control was returned to automatic. Compensatory actions were established as required by station procedures and the Offsite Dose Calculation Manual for the radiation monitors. Unit 2 remained at 100 percent power during the loss of Line 5; and Unit 1 was unaffected.

The SW radiation monitor was restored to service on February 16, 2014, at 2:50 p.m., the radwaste/reactor building vent gaseous effluent monitoring systems were restored to service on February 17, 2014, at 2:40 a.m., and Line 5 was restored on February 17, 2014, at 4:28 p.m. This LER was revised to reflect the completion of the cause evaluation performed by National Grid.

The inspectors reviewed the Event Notification (EN) 49832 and the associated LERs. It was noted that, as documented in an update to EN 49832 at 5:27 p.m. on February 17, 2014, the loss of the emergency assessment capability due to the loss of the SW and radwaste/reactor building vent gas effluent monitoring systems was not made within 8 hours of the event as required by 10 CFR 50.72(b)(3)(xii). The inspectors reviewed this violation using IMC 0612, Appendix B, "Issue Screening," and the NRC Enforcement Policy and determined the violation was minor because the report was late and not missed, the public record was updated promptly when the error was discovered, and no NRC regulatory decisions would have been impacted by not having the information in the late report. The issue was documented in Exelon's CAP as AR 02003759. No additional issues were identified. This LER is closed.

.4 (Closed) LER 05000410/2014-007-01: Secondary Containment Inoperable due to Simultaneous Opening of Airlock Doors (1 sample)

At 1:23 a.m. on April 2, 2014, Unit 2 was in Mode 5 (refueling) and in the other specified condition of an operation with a potential for draining the reactor vessel (OPDRV). Specifically, RRP 'B' seal replacement was in progress. Secondary containment was required to be operable in Mode 5 during refueling operations and when OPDRVs were in progress. During this condition, both redundant personnel airlock doors were open at the same time in an airlock penetration of the reactor building. This condition represents

a loss of secondary containment safety function. Technical Specification 3.6.4.1, Action A.1 was entered for the loss of secondary containment and was promptly exited when the doors were closed. A second opening of both airlock doors occurred at 11:40 a.m. the same day.

Secondary containment being inoperable is an 8-hour report per 10 CFR 50.72(b)(3)(v)(C), any event or condition that at the time of discovery could have prevented the fulfillment of the safety function of structures or systems that are needed to mitigate the consequences of an accident. Exelon made EN 49985 on April 2, 2014, at 8:42 a.m. and submitted LER 05000410/2014-007-00 as required for the opening of both airlock doors at 1:23 a.m. on April 2, but did not report the opening of both airlock doors at 11:40 a.m. During an internal records review, Exelon discovered the omission and submitted LER 05000410/2014-007-01 on October 5, 2015.

In both cases, secondary containment remained above the minimum TS limit of 0.25 inches of water gauge, and personnel had positive control of the door. As such, secondary containment remained capable of performing its safety function, and the condition was promptly corrected (within seconds) upon identification. Operators properly entered and completed the appropriate TS action statement. As such, there was no violation of NRC requirements identified related to the underlying condition. However, the inspectors noted that the required report per 10 CFR 50.72(b)(3)(v)(C) was missed for the 11:20 a.m. openings, and the LER was 1 year and 4 months late. The inspectors determined that no regulatory decisions would have relied upon this information, and the scope and inspection hours of the NRC's follow-up inspection (Inspection Procedure 71153) were unchanged. The enforcement aspects of this issue are discussed further in Section 4OA7. This LER is closed.

4OA6 Meetings, Including Exit

On April 19, 2016, the inspectors presented the inspection results to Mr. Peter Orphanos, Site Vice President, and other members of the NMPNS staff. The inspectors verified that no propriety information was retained by the inspectors or documented in this report.

4OA7 Licensee-Identified Violations

The following traditional enforcement violations of very low safety significance (Severity Level IV) were identified by Exelon staff and are violations of NRC requirements which meets the criteria of the NRC Enforcement Policy for being dispositioned as NCVs:

- 10 CFR 50.72(b)(3)(v)(C) states, in part:

  > *Eight-hour reports.* If not reported under paragraphs (a), (b)(1), or (b)(2) of this section, the licensee shall notify the NRC as soon as practical and in all cases within eight hours of the occurrence of any of the following: (v) Any event or condition that at the time of

> discovery could have prevented the fulfillment of the safety function of structures or systems that are needed to: (C) Control the release of radioactive material.

Contrary to the above, from April 2, 2014, until October 5, 2015, Exelon failed to submit an EN to the NRC within 8 hours upon discovery on a condition which could have prevented the safety function of a SSC needed to control the release of radioactivity on April 2, 2014, at 11:20 a.m. Specifically, secondary containment being declared inoperable due to both airlock doors being open at the same time in Mode 5 with an OPDRV in progress. The inspectors reviewed the violation using IMC 0612 Appendix B, "Issue Screening," and the NRC Enforcement Policy. This violation impacted the regulatory process so traditional enforcement applies. Comparing this violation to the examples in the NRC Enforcement Policy Chapter 6, the violation matches Severity Level IV Example 6.9.d.9, "a licensee fails to make a report required by 10 CFR 50.72 or 10 CFR 50.73." The NRC did not rely upon the information to make any regulatory decisions and the error did not result in increased scope or effort of NRC inspections. Compliance was restored when Exelon submitted LER 05000410/2014-007-01, "Secondary Containment Inoperable due to Simultaneous Opening of Airlock Doors," to correct the public record and inform the NRC. Exelon staff entered the issue into its CAP.

- 10 CFR 50.73(a)(2)(v)(C) states, in part:

  > The holder of an operating license under this part shall submit a Licensee Event Report (LER) for any event of the type described in this paragraph within 60 days after the discovery of the event. (v) Any event or condition that could have prevented the fulfillment of the safety function of structures or systems that are needed to: (C) Control the release of radioactive material.

Contrary to the above from June 2, 2014, until October 5, 2015, Exelon failed to submit an LER notification to the NRC within 60 days after discovery of a condition which could have prevented the safety function of a SSC needed to control the release of radioactivity on April 2, 2014 at 11:20 a.m. Specifically, secondary containment being declared inoperable due to both airlock doors being open at the same time in Mode 5 with an OPDRV in progress. The inspectors reviewed the violation using IMC 0612, Appendix B and the NRC Enforcement Policy. This violation impacted the regulatory process so traditional enforcement applies. Comparing this violation to the examples in the NRC Enforcement Policy Chapter 6, the violation matches Severity Level IV Example 6.9.d.9, "a licensee fails to make a report required by 10 CFR 50.72 or 10 CFR 50.73." The NRC did not rely upon the information to make any regulatory decisions, and the error did not result in increased scope or effort of NRC inspections. Compliance was restored when Exelon submitted LER 05000410/2014-007-01 to correct the public record and inform the NRC. Exelon staff entered the issue into its CAP.

ATTACHMENT: SUPPLEMENTARY INFORMATION

SUPPLEMENTARY INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel
P. Orphanos, Site Vice President
R. Kreider, Plant Manager
M. Busch, Director Site Operations
B. Felicita, Engineer
J. Gerber, Manager Site Chemistry, Environment, and Radwaste
S. Homoki, Senior Engineer
P. Kehoe, Engineering Analyst
M. Khan, Senior Manager, Engineering
B. Knowlton, Senior Engineer
K. Kristensen, Regulatory Principle Engineer
M. Kunzwiler Manager Site Security
D. Moore, Manager Site Regulatory Assurance
B. Scaglione, Manager, Engineering
A. Sterio, Director, Site Engineering
D. Tulowiecki, Manager Site Radiation Protection
J. Vaughn, Senior Engineering Manager

LIST OF ITEMS OPENED, CLOSED, DISCUSSED, AND UPDATED

Opened/Closed		
05000410/2016001-01	NCV	Inadequate Procedure Leading to Failure to Manage Elevated Risk during Preventive Maintenance (Section 1R13)
05000410/2016001-02	NCV	50.65(a)(4) Risk Evaluation Not Properly Performed Prior to Residual Heat Removal Heat Exchanger Testing (Section 1R13)
05000220/2016001-03	NCV	Inadequate Tagout Resulting in Reactor Building Closed-Loop Cooling Drain Down Event (Section 4OA2)
Closed		
05000220/2015-004-00	LER	Automatic Scram due to Main Steam Isolation Valve Closure (Section 4OA3)
05000410/2014-001-00	LER	Emergency Diesel Generator Actuation due to Loss of Offsite Power Source Line 5 (Section 4OA3)
05000410/2014-001-01	LER	Emergency Diesel Generator Actuation due to Loss of Offsite Power Source Line 5 (Section 4OA3)
05000410/2014-007-01	LER	Secondary Containment Inoperable due to Simultaneous Opening of Airlock Doors (Section 4OA3)

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

Procedures
LS-AA-104-1000, 50.59 Resource Manual, Revision 009
N1-OP-64, Meteorological Monitoring, Revision 01400
N1-SOP-64, High Winds, Revision 00200
N2-OP-102, Meteorological Monitoring, Revision 01700

Issue Report
02622050

Section 1R04: Equipment Alignment

Procedures
LS-AA-104-1000, 50.59 Resource Manual, Revision 009
N1-OP-5, Control Rod Drive System, Revision 05400
N1-OP-13, Emergency Cooling System, Revision 03900
N1-OP-45, Emergency Diesel Generators, Revision 03900
N2-OP-21, Main Turbine System, Revision 01600
N2-OP-23, Main Turbine Electrohydraulic Control, Revision 01300

Drawings
C-18002-C, Steam Flow Main Steam and High-Pressure Turbine Piping and Instrumentation Diagram (P&ID), Revision 049
C-18016-C, Control Rod Drive System P&ID, Revision 043
C-18017-C, Emergency Cooling System P&ID, Revision 056
C-18019-C, Reactor Liquid Poison System P&ID, Revision 36
C-18026-C, Emergency Diesel Generator 102 Starting Air, Cooling Water, Lube Oil and Fuel P&ID, Revision 26
LR-18017-C, Emergency Cooling System License Renewal Aging Management Drawing, Revision 000
PID-23A, Turbine Hydraulic Oil System P&ID, Revision 021
PID-23B-8, Turbine Hydraulic Oil System P&ID, Revision 007
PID-23C, Turbine Hydraulic Oil System P&ID, Revision 007
PID-23D-6, Turbine Hydraulic Systems P&ID, Revision 005
PID-23E, Turbine Hydraulic System P&ID, Revision 009
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Issue Reports

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Work Orders

C92798389	C92857265	C93264072

Miscellaneous
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Section 1R05: Fire Protection

Procedure
N2-FPI-PFP-0201, Unit 2 Pre-Fire Plans, Revision 03

Miscellaneous
Unit 2 UFSAR, Revision 21

Section 1R06: Flood Protection Measures

Procedure
LS-AA-104, Exelon 50.59 Review Process, Revision 10

Work Order
C92947281

Miscellaneous
Calculation A10.1-AA-018, Maximum Steady State Flood Height at Floor Elevation 261 feet 0 inch of the Control and Diesel Generator Building, Revision 00
ECP-13-000997, Non-Safety Related Battery Charger 2BYS-CHGR1A1, 1B1, and 1C1 Replacement
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Section 1R11: Licensed Operator Requalification Program and Licensed Operator Performance

Procedures
N1-EMP-SB-260, 24/48 VDC 250 VDC and 125 VDC Batteries – Cell and Connector Replacement, Revision 01500
N1-OP-19, Circulating Water System, Revision 03400
N1-OP-45, Emergency Diesel Generators, Revision 03900
N1-SOP-19, Intake Structure Icing, Revision 00400
N1-SOP-47A.1, Loss of DC, Revision 00200
N1-ST-M4A, Emergency Diesel Generator 102 and PB 102 Operability Test, Revision 01800
N2-ARP-601300, 2CEC*PNL601 Series 300 Alarm Response Procedures, Revision 000
N2-EOP-RPV, RPV Control – Flowchart, Revision 01400
N2-EOP-SC, Secondary Containment Control – Flowchart, Revision 01100
N2-OP-101D, Power Changes, Revision 02000
N2-OP-102, Meteorological Monitoring, Revision 01700
N2-SOP-23, EHC Pressure Regulator Failure, Revision 00900
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Work Orders
C92029228 C92937540

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Section 1R12: Maintenance Effectiveness

Procedures
N1-EPM-FPM-M001, Emergency Lighting Inspection, Revision 00203
N2-OP-52, Reactor Building Ventilation, Revision 01500
N2-OP-75, Station Lighting System, Revision 00600
N2-OP-72, Standby and Emergency AC Distribution System, Revision 01401

S-EPM-GEN-813, Annual Inspection of Emergency Battery Light Units, Revision 00302
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Issue Reports

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Work Order
C93115798

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Section 1R13: Maintenance Risk Assessments and Emergent Work Control

Procedures
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N1-ST-Q3, High-Pressure Coolant Injection Pump and Check Valve Operability Test, Revision 01500
N2-OP-52, Reactor Building Ventilation, Revision 01500
N2-OP-72, Standby and Emergency AC Distribution System, Revision 01401
N2-OSP-ICS-Q@002, RCIC Pump and Valve Operability Test and System Integrity Test and ASME XI Functional Text, Revision 01200
N2-TTP-RHS-4Y003, Residual Heat Removal System Heat Exchanger (2RHS*E1A) Performance Monitoring (Suppression Pool Cooling Mode), Revision 00201
OP-AA-108-115, Operability Determinations (CM-1), Revision 016
OP-AA-108-117, Protected Equipment Program, Revision 004
OP-NM-108-117, Protected Equipment Program at Nine Mile Point, Revision 00200
WC-AA-101, On-Line Work Control Process, Revision 026
WC-AA-101-1006, On-Line Risk Management and Assessment, Revision 001

Drawings
ECP-13-000087-CN-001 061A-13.00, Primary Containment Purge and Standby Gas Treatment P&ID, Revision 003
ECP-13-000087-CN-014 EB-015Q-10.00, Ventilation Reactor Building Air Cool and Purge Elevation 306 feet 6 inches, Revision 002, Sheet 15
ECP-13-000087-CN-016 EB-015AJ-11.00, Ventilation Reactor Building Air Cool and Purge Section, Revision 001
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Issue Reports

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02627359			

Work Orders

C92124830	C92929437	C93291978

Miscellaneous

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Section 1R15: Operability Determinations and Functionality Assessments

Procedures

LEP-DG-105, Maintenance and Adjustment of Woodward U8 Governor Shutdown Solenoids, Revision 13
N1-ISP-LRT-TYC, Type 'C' Containment Isolation Valve Leak Rate Test, Revision 01200
N1-OP-9, N2 Inerting and H2-O2 Monitoring Systems, Revision 04700
N1-PM-C3, Electrical and Diesel Fire Pump Performance Tests, Revision 01401
N1-PM-M9, Monthly Operation of Fire Pumps, Revision 00900
N1-ST-22, Diesel Fire Pump Instrument Air Test and Flow Verification, Revision 00301
N2-OP-35, Reactor Core Isolation Cooling, Revision 01300
N2-OSP-CNT-M003, Reactor Building Integrity Verification Test, Revision 00300
PI-AA-115-1003, Processing of Level 3 OPEX Evaluations, Revision 2

Drawings

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C-18014-C, Drywell and Torus Leak Rate and ANAL T.I.P. System Electrical Pen and N2 Supply, Revision 053, Sheet 2
EA-056A, Floor and Roof Plans Standby Gas Treatment Building and Railroad Access Lock, Revision 006
ESK-11ICS11, D.C. Elementary Diagram – 125V Reactor Core Isolation Cooling Minimum Flow MOV 2ICS*MOV143, Revision 009
PID-35A, Reactor Core Isolation Cooling P&ID, Revision 017
PID-35B, Reactor Core Isolation Cooling P&ID, Revision 014
PID-35C, Reactor Core Isolation Cooling P&ID, Revision 028
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Issue Reports

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01983596	02014457	02494407	02596315
02608609	02608733	02613812	02615231
02617370	02620227	02623596	02628886
02640675			

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NMP-AMP-BFX01, Nine Mile Point Unit 1 Program Plan for Spent Fuel Rack Boraflex Degradation Monitoring Program, Revision 03

Section 1R19: Post-Maintenance Testing

Procedures
N1-EMP-SB-260, 24/48 VDC, 250 VDC and 125 VDC Batteries – Cell and Connector Replacement, Revision 01401
N1-ST-22, Diesel Fire Pump Instrument Air Test and Flow Verification, Revision 00301
N1-ST-Q6B, Containment Spray System Loop 121 Quarterly Operability Test, Revision 01202
N2-EPM-GEN-V781, Unit Cooler Handling Unit PM, Revision 01800
N2-IPM-RDS-4Y103, Calibration/Testing of the HCU Scram Accumulator Pressure and Level Instrument Channel, Revision 00400
N2-OP-30, Control Rod Drive, Revision 02100
S-EPM-GEN-063, MOV Diagnostic Testing, Revision 00800
S-EPM-GEN-067, Limitorque MOV Actuator PM, Revision 00701

Drawings
C-18012-C, Reactor Containment Spray Raw Water System P&ID, Revision 26, Sheet 1
C-18012-C, Reactor Containment Spray System P&ID, Revision 47, Sheet 2
PID-11A, Service Water System P&ID, Revision 018

Issue Reports

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Work Orders

C91846724	C92029228	C92223557	C92626279
C93128596	C93296162		

Section 1R20: Refueling and Other Outage Activities

Procedures:
CNG-MN-1.01-1005, Scaffold Control, Revision 00400
MA-AA-716-008-1008, Reactor Services Refuel Floor FME Plan, Revision 011
N2-FHP-014, Movement of New Fuel and Control Rod Blades into the Spent Fuel Pool, Revision 00900
N2-FHP-026, Moving Fuel and Blade Guides within the Spent Fuel Pool, Revision 00400

Section 1R22: Surveillance Testing

Procedures
N1-PM-M9, Monthly Operation of Fire Pumps, Revision 00900
N1-ST-M4A, Emergency Diesel Generator 102 and PB 102 Operability Test, Revision 01800
N1-ST-Q13, Emergency Service Water Pump and Check Valve Operability Test, Revision 01600
N2-ESP-ENS-Q731, Quarterly Channel Functional Test of LPCS/LPCI Pumps A, B, and C (Normal and Emergency Power) Auto Start Time Delay Relays, Revision 00600
N2-ISP-ISC-Q@005, Quarterly Functional Test of the Reactor Vessel Water Low Low Level 2 and the Reactor Vessel Low Low Low Level 1 Instrument Channels, Revision 00600
N2-OSP-ICS-Q@002, RCIC Pump and Valve Operability Test and System Integrity Test and ASME XI Functional Test, Revision 01200
N2-TTP-RHS-4Y003, Residual Heat Removal System Heat Exchanger (2RHS*E1A) Performance Monitoring (Suppression Pool Cooling Mode), Revision 00201

Drawings
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C-18022-C, Service Water Reactor and Turbine Buildings P&ID, Revision 082, Sheet 1
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Issue Reports
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Work Order
C92929586

Miscellaneous
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Section 4OA1: Performance Indicator Verification

Issue Reports
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Miscellaneous
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LER 05000410-2015-003-00, Primary Containment Isolation Function for Some Valves Not Maintained during Surveillance Testing
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Section 4OA2: Problem Identification and Resolution

Procedures
ER-AA-200, Preventive Maintenance Program, Revision 2
ER-AA-200-1002, Preventive Maintenance Oversight Committee, Revision 0
N1-IPM-079-004, Diesel Generator Speed Sensing Instrumentation Calibration, Revision 00001
N1-OP-11, Reactor Building Closed-Loop Cooling System, Revision 19
N1-SOP-1.4, Stuck Open ERV, Revision 00300
N1-SOP-11.1, RBCLC Failure, Revision 00500
OP-AA-101-113-1006, 4.0 Crew Critique Guidelines, Revision 006
OP-AA-106-101-1001, Event Response Guidelines, Revision 24
OP-AA-108-112, Plant Status and Configuration, Revision 9
OP-AA-113-1004, Human Performance Issue Verbal Report Format, Revision 32
OP-CE-109-101, Clearance and Tagging, Revision 003
PI-AA-125, Corrective Action Program (CAP) Procedure, Revision 002
PI-AA-125-1003, Apparent Cause Evaluation Manual, Revision 002
WC-AA-120, Preventive Maintenance Database Revision Requirements, Revision 2

Issue Reports

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02106698	02530361	02552423	02551308
02596195	02596436	02616859	02637446
02643997			

Work Orders

C91397767	C91397769	C91397771	C92391257
C93071049	C93137583	C93137583	C93179991

PM Change Requests (Unit 1)

P-NMP-036095	P-NMP-036982	P-NMP-036984	P-NMP-037005
P-NMP-037033	P-NMP-037037	P-NMP-037040	P-NMP-037047
P-NMP-037049	P-NMP-037050	P-NMP-037051	P-NMP-037052
P-NMP-037055	P-NMP-037068	P-NMP-037075	P-NMP-037076
P-NMP-037077	P-NMP-037090	P-NMP-037092	P-NMP-037117
P-NMP-037134	P-NMP-037135	P-NMP-037137	P-NMP-037138
P-NMP-037142	P-NMP-037145	P-NMP-037149	P-NMP-037154
P-NMP-037190	P-NMP-037231		

PM Change Requests (Unit 2)

P-NMP-035414	P-NMP-035963	P-NMP-035985	P-NMP-036843
P-NMP-036882	P-NMP-036908	P-NMP-036911	P-NMP-036923
P-NMP-036944	P-NMP-036964	P-NMP-036983	P-NMP-036996
P-NMP-037000	P-NMP-037003	P-NMP-037006	P-NMP-037012
P-NMP-037013	P-NMP-037029	P-NMP-037032	P-NMP-037034
P-NMP-037035	P-NMP-037039	P-NMP-037043	P-NMP-037045
P-NMP-037046	P-NMP-037078	P-NMP-037093	P-NMP-037096
P-NMP-037097	P-NMP-037111	P-NMP-037113	P-NMP-037146
P-NMP-037147	P-NMP-037148	P-NMP-037173	P-NMP-037184
P-NMP-037191	P-NMP-037210	P-NMP-037237	P-NMP-037288
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Drawings

C-18022-C, Turbine Building Closed-Loop Cooling System P&ID, Revision 32, Sheet 1
C-18022-C, Turbine Building Closed-Loop Cooling System P&ID, Revision 55, Sheet 2
C-18022-C, Turbine Building Closed-Loop Cooling System P&ID, Revision 48, Sheet 3
C-22448-C Sheet 2, Diesel Generator #103 Diesel Engine Panel, Revision 13
E-1969, Closed-Loop Cooling System Makeup Tank, Revision 4

Miscellaneous

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Calculation No. S13.4-70-F002
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ECP-13-000375, Replacement of Speed Sensing Panel Assembly for EDG 102
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N1D24500ICNTRL001, Instructions for Operating and Repairing Consolidated ERV, Revision 1
N1D24500VALVE001, Installation and Maintenance Consolidated ERV Nuclear, Revision 04
N1T08500VALVE001, Technical Report ERV Enclosure Assembly/Installation, Revision 04
NMP-2-2015-1266, Operational Decision Making for Unit 2 CIV Testing
NRC Information Notice 2010-23, Malfunctions of Emergency Diesel Generator Speed Switch Circuits, November 1, 2010
Tagout 04-005
UFSAR, Revision 15
Unit 1 Control Room Log dated January 25, 2016
Unit 2 TS Licensee Amendment Package, Revision 63

Section 4OA3: Follow-Up of Events and Notices of Enforcement Discretion

Procedures
HU-NM-104-101, Nine Mile Point Partial Use (Step Delete) Process, Revision 00000
N1-ISP-001-006, Main Steam Isolation Valve Position Calibration Surveillance and Maintenance, Revision 01000
N1-ST-Q26, Feedwater and Main Steam Line Power Operated Isolation Valves Partial Exercise Test and Associated Functional Testing of Reactor Protection Trip Logic, Revision 01100
N1-ST-Q26, Feedwater and Main Steam Line Power Operated Isolation Valves Partial Exercise Test and Associated Functional Testing of Reactor Protection Trip Logic, Revision 01300
N2-OP-2, Moisture Separator Reheater System, Revision 0600
N2-SOP-08, Unplanned Power Changes, Revision 01000
N2-SOP-101D, Rapid Power Reduction, Revision 00900

Drawing
PID-2D, Moisture Separators and Reheaters P&ID, Revision 21

Issue Reports

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02530825	02638335	02638807	

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HU-NM-104-101, NMP Partial Use (Step Delete) Process, Att. 1 for N1-ST-Q26 dated September 11, 2015
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Instructor Guide 1101-239001C01
LER 05000410/2012-005-00, Automatic Diesel Actuation due to the Loss of a 115 kV Offsite Power Source
LER 05000410/2014-001-00 and 2014-001-01, Emergency Diesel Generator Actuation due to Loss of Offsite Power Source Line 5
LER 05000410/2014-007-00 and 2014-007-01, Secondary Containment Inoperable due to Simultaneous Opening of Airlock Doors
NUREG 1022, Event Reporting Guidelines: 10 CFR 50.72 and 50.73, Revision 2
Post-Trip Review 1F15-02

LIST OF ACRONYMS

10 CFR	Title 10 of the *Code of Federal Regulations*
ACE	apparent cause evaluation
CAP	corrective action program
CIV	containment isolation valve
ECP	engineering change package
EDG	emergency diesel generator
EHC	electrohydraulic control
EN	event notification
EOOS	Equipment Out of Service
ERV	electromatic relief valve
FA	fire area
HPCI	high-pressure coolant injection
HPCS	high-pressure core spray
HX	heat exchanger
IMC	Inspection Manual Chapter
IR	issue report
kV	kilovolt
LCO	limiting condition for operation
LER	licensee event report
LPCS	low-pressure core spray
MSIV	main steam isolation valve
NEI	Nuclear Energy Institute
NCV	non-cited violation
NMPNS	Nine Mile Point Nuclear Station, LLC
NRC	Nuclear Regulatory Commission, U.S.
OOS	out of service
OPDRV	operation with a potential for draining the reactor vessel
P&ID	piping and instrumentation diagram
PI	performance indicator
PM	preventive maintenance
RBCLC	reactor building closed-loop cooling
RCIC	reactor core isolation cooling
RFO	refueling outage
RHR	residual heat removal
RMA	risk management action
rpm	revolutions per minute
RRP	reactor recirculation pump
SBGT	standby gas treatment
SDC	shutdown cooling
SFP	spent fuel pool
SSC	structure, system, and component
SW	service water
TS	technical specification
UFSAR	Updated Final Safety Analysis Report
WO	work order