



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**

REGION I  
2100 RENAISSANCE BLVD., SUITE 100  
KING OF PRUSSIA, PA 19406-2713

February 4, 2016

EA-14-192

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, LLC – INTEGRATED INSPECTION  
REPORT 05000220/2015004 AND 05000410/2015004**

Dear Mr. Hanson:

On December 31, 2015, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at the Nine Mile Point Nuclear Station, LLC (NMPNS), Units 1 and 2. The enclosed inspection report documents the inspection results, which were discussed on January 13, 2016, with Mr. Peter Orphanos, 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.

No NRC-identified or self-revealing findings were identified during this inspection.

In accordance with Title 10 of the *Code of Federal Regulations* 2.390 of the NRC's "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

B. Hanson

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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 05000220/2015004 and 05000410/2015004  
w/Attachment: Supplementary Information

cc w/encl: Distribution via ListServ

B. Hanson

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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. 05000220/2015004 and 05000410/2015004

Licensee: Exelon Generation Company, LLC (Exelon)

Facility: Nine Mile Point Nuclear Station, LLC (NMPNS)  
Unit 1 and Unit 2

Location: Oswego, New York

Date: October 1, 2015, through December 31, 2015

Inspectors: K. Kolaczyk, Senior Resident Inspector  
E. Miller, Resident Inspector  
G. Stock, Resident Inspector  
J. DeBoer, Emergency Preparedness Inspector  
T. Fish, Senior Operations Engineer  
C. Franklin, General Engineer  
S. Horvitz, Project Engineer  
A. Rosebrook, Senior Project Engineer  
B. Sienel, Resident Inspector

Approved by: Anthony Dimitriadis, Chief  
Reactor Projects Branch 1  
Division of Reactor Projects

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**SUMMARY**

Inspection Report 05000220/2015004 and 05000410/2015004; 10/01/2015 – 12/31/2015; NMPNS, Units 1 and 2; Routine Integrated Inspection Report.

This report covered a 3-month period of inspection by resident inspectors and announced inspections performed by regional inspectors. No findings were identified. The U.S. Nuclear Regulatory Commission's (NRC's) program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 5.

## REPORT DETAILS

### Summary of Plant Status

Unit 1 began the inspection period at 100 percent power. On October 3, 2015, operators reduced reactor power to 70 percent to place reactor recirculation pump 15 into service and perform a rod sequence exchange. Operators restored power to 100 percent the same day. On October 23, operators reduced reactor power to 85 percent to restore reactor recirculation pump 11 to service and perform control rod blade leakage testing. Operators restored power to 100 percent the same day. On December 12, operators reduced reactor power to 50 percent to perform main steam isolation valve (MSIV) partial stroke testing, turbine stop valve testing, and control rod stroke time testing. Operators restored reactor power to 100 percent the same day. 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 December 4, 2015, operators reduced reactor power to 83 percent to perform turbine valve testing and a rod pattern adjustment. On December 5, during turbine combined intermediate valve testing, the combined intermediate stop valve and intercept valve pair #4 failed to open following stroke testing. Operators held reactor power at 80 percent during troubleshooting. On December 6, following replacement of the test solenoid valve for combined intermediate valve #4, the valves were successfully reopened. Operators continued with the planned rod pattern adjustment and reduced reactor power to 70 percent. Following the rod pattern adjustment, operators returned Unit 2 to 100 percent power on December 6. 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**

#### 1R04 Equipment Alignment

#### .1 Partial System Walkdown (71111.04Q – 1 sample)

#### a. Inspection Scope

The inspectors performed a partial walkdown of the Unit 2 diesel generator building normal system ventilation prior to planned testing of the Division II diesel generator on December 1, 2015.

The inspectors selected this system based on its risk-significance relative to the reactor safety cornerstones at the time it was inspected. The inspectors reviewed the applicable operating procedures, system diagrams, the Updated Final Safety Analysis Report (UFSAR), technical specifications (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 corrective action program (CAP) for resolution with the appropriate significance characterization. Documents reviewed for each section of this inspection report are listed in the Attachment.

b. Findings

No findings were identified.

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

a. Inspection Scope

On December 21, 2015, the inspectors performed a complete system walkdown of accessible portions of the Unit 1 hydrogen and oxygen concentration in containment monitoring 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 electrical power availability, equipment line heating, and hanger and support functionality. 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 issue reports (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 – 4 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 out of service, degraded, or inoperable fire protection equipment, as applicable, in accordance with procedures.

- Unit 1 auxiliary control room (fire area 11) on October 10, 2015
- Unit 2 service water pump room 'A' (fire zone 806NZ) on October 10, 2015



- Unit 2 service water pump room 'B' (fire zone 807NZ) on October 10, 2015
- Unit 2 auxiliary boiler building (fire zone 808NZ) on October 10, 2015

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 November 18, 2015, that involved an oil fire at the Unit 1 turbine front standard area. 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, 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.

1R11 Licensed Operator Requalification Program and Licensed Operator Performance

.1 Quarterly Review of Licensed Operator Requalification Testing and Training  
(71111.11Q – 2 samples)

a. Inspection Scope

The inspectors observed:

- Unit 1 licensed operator annual exam simulator scenario, which included a drifting control rod, reactor recirculation pump trip, control rod failure to scram, emergency condenser condensate return valve failure to open, and control rod pump trip on October 6, 2015

- Unit 2 licensed operator annual exam job performance measure, which included the automatic start of the reactor core isolation cooling system and the restoration of drywell radiation monitor 2CMS\*CAB10A on October 14, 2015

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 (71111.11Q – 2 samples)

a. Inspection Scope

The inspectors observed:

- Unit 1 control room operations during surveillance testing of condensate transfer pump 11 and high-pressure coolant injection system 11 on October 13, 2015
- Unit 2 control room operations during surveillance testing of the scram discharge volume water instrumentation and radiation monitor channel calibrations for area radiation monitors on October 9, 2015

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.

.3 Biennial Review of Licensed Operator Requalification (71111.11B – 1 sample)

a. Inspection Scope

The following Unit 2 inspection activities were performed using NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," Revision 10, and Inspection Procedure 71111.11.

### Examination Results

On November 19, 2015, the 2015 requalification exam results for Unit 2 were reviewed to determine if pass/fail rates were consistent with the guidance of Inspection Manual Chapter (IMC) 0609, Appendix I, "Licensed Operator Requalification Significance Determination Process." The review verified that the failure rate (individual or crew) did not exceed 20 percent for both written and operating tests:

- The overall individual failure rate was 0.0 percent
- The crew failure rate was 0.0 percent

### Written Examination Quality

The inspectors reviewed comprehensive written exams associated with two different examination weeks.

### Operating Test Quality

The inspectors reviewed annual operating tests (scenarios and job performance measures) associated with two different examination weeks.

### Licensee Administration of Operating Tests

The inspectors observed facility training staff administer dynamic simulator exams and job performance measures. These observations included facility evaluations of crew and individual operator performance during the simulator exams and individual performance of job performance measures.

### Exam Security

The inspectors assessed whether facility staff properly safeguarded exam material and whether test item repetition was excessive.

### Conformance with License Conditions

License reactivation and license proficiency records for Unit 2 operators were reviewed to ensure that Title 10 of the *Code of Federal Regulations* (10 CFR) 55.53 license conditions and applicable program requirements were met. The inspectors also reviewed a sample of records for requalification training attendance, and a sample of medical examinations for compliance with license conditions and NRC regulations.

### Simulator Performance

Simulator performance and fidelity were reviewed for conformance to the reference plant control room. A sample of simulator deficiency reports was also reviewed to ensure facility staff addressed identified modeling problems.

### Problem Identification and Resolution

The inspectors reviewed recent operating history documentation found in inspection reports, licensee event reports (LERs), the CAP, end-of-cycle and mid-cycle reports, and

the most recent NRC plant issues matrix. The resident staff were also consulted for insights regarding licensed operators' performance. The inspectors focused on events associated with operator errors that may have occurred due to possible training deficiencies.

b. Findings

No findings were identified.

.4 Annual Review of Licensed Operator Regualification (71111.11A – 1 sample)

a. Inspection Scope

The following Unit 1 inspection activity was performed using NUREG-1021, Revision 10, and Inspection Procedure 71111.11A.

Examination Results

On November 19, 2015, the 2015 requalification exam results for Unit 1 were reviewed to determine if pass/fail rates were consistent with the guidance of IMC 0609, Appendix I. The review verified that the failure rate (individual or crew) did not exceed 20 percent for the operating test:

- The overall individual failure rate was 0.0 percent
- The crew failure rate was 0.0 percent

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12Q – 5 samples)

a. Inspection Scope

The inspectors reviewed the samples listed below to assess the effectiveness of maintenance activities on structure, system, and component (SSC) performance and reliability. The inspectors reviewed system health reports, CAP documents, drawings, maintenance WOs, maintenance rule basis documents, and performed walkdowns 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 staff 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 staff was identifying and addressing common cause failures that occurred within and across maintenance rule system boundaries.

- Unit 2 over-pressurization panels on October 7, 2015
- Unit 2 site doors on October 15, 2015

- Unit 2 steam leak from reactor water cleanup relief valve on November 11, 2015
- Unit 2 alternating current 4160 distribution system on December 16 to 21, 2015
- Unit 2 electrical penetrations December 21 to 24, 2015

b. Findings

No findings were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13 – 4 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 planned maintenance on emergency diesel generator (EDG) 103 during the week of October 5, 2015
- Unit 2 high-pressure core spray and Division III EDG switchgear during planned reactor core isolation cooling maintenance window on October 8, 2015
- Unit 2 planned maintenance on Division II standby gas treatment system on October 28, 2015
- Unit 1 planned down power to 50 percent to perform MSIV partial stroke testing and turbine stop valve testing on December 12, 2015

b. Findings

No findings were identified.

1R15 Operability Determinations and Functionality Assessments (71111.15 – 2 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 1 steam leak from pipe cap downstream of valve VLV-39-50, integrated leak rate connection for IV-38-08R, emergency condenser loop 12 outboard isolation valve on October 26, 2015

- Unit 1 core spray system 122 following relief valve PSV-81-243 lifting during surveillance testing on December 11, 2015

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 determined 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 – 4 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 liquid poison system 11 following relief valve PSV-42-37 replacement on October 13, 2015
- Unit 2 unit cooler 2HVR\*UC415B following planned maintenance on October 27, 2015
- Unit 1 square root converter for reactor building (RB) emergency ventilation system train 11 following replacement on October 29, 2015
- Unit 1 motor generator 141 following voltage regulator preventive maintenance (PM) on November 3, 2015

b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22 – 3 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-OSP-RHS-Q@005, RHR System Loop 'B' Pump and Valve Operability Test, System Integrity Test and ASME XI Pressure Test on October 2, 2015 (inservice test)
- Unit 1, N1-ST-Q8B, Liquid Poison Pump 12 and Check Valve Operability Test on October 26, 2015 (inservice test)
- Unit 2, N2-OSP-MSS-Q001, RPS Turbine Stop Valve Closure Logic, Control Valve Fast Closure Scram Functional Tests and Turbine Valve Cycling on December 5, 2015

b. Findings

No findings were identified.

**Cornerstone: Emergency Preparedness**1EP4 Emergency Action Level and Emergency Plan Changes (71114.04 – 1 sample)a. Inspection Scope

Exelon implemented various changes to NMPNS emergency action levels (EALs), Emergency Plan, and implementing procedures. Exelon determined that, in accordance with 10 CFR 50.54(q)(3), changes made to the EALs, Emergency Plan, and its lower-tier implementing procedures had not resulted in any reduction in effectiveness of the Plan and that the revised Plan continued to meet the standards in 50.47(b) and the requirements of 10 CFR 50 Appendix E, "Emergency Planning and Preparedness for Production and Utilization Facilities."

The inspectors performed an in-office review of all EAL and Emergency Plan changes submitted by Exelon as required by 10 CFR 50.54(q)(5), including the changes to lower-tier Emergency Plan implementing procedures, to evaluate for any potential reductions in effectiveness of the Plan. This review by the inspectors was not documented in an NRC Safety Evaluation Report and does not constitute formal NRC approval of the changes. Therefore, these changes remain subject to future NRC inspection in their entirety. The requirements in 10 CFR 50.54(q) were used as reference criteria.

b. Findings

No findings were identified.

1EP6 Drill Evaluation (71114.06 – 1 sample)

Emergency Preparedness Drill Observation

a. Inspection Scope

The inspectors evaluated the conduct of a routine Unit 1 Exelon emergency drill on December 3, 2015, to identify any weaknesses and deficiencies in the classification, notification, and protective action recommendation development activities. The inspectors observed emergency response operations in the technical support center and emergency operations facility to determine whether the event classification, notifications, and protective action recommendations were performed in accordance with procedures. The inspectors also attended the station drill critique to compare inspector observations with those identified by Exelon staff in order to evaluate Exelon critique and to verify whether Exelon was properly identifying weaknesses and entering them into the CAP.

b. Findings

No findings were identified.

**4. OTHER ACTIVITIES**

4OA1 Performance Indicator (PI) Verification (71151)

Occupational Exposure Control Effectiveness (1 sample)

a. Inspection Scope

The inspectors reviewed licensee submittals for the occupational radiological occurrences PI for the 1<sup>st</sup> quarter 2014 through the 4<sup>th</sup> quarter 2014. The inspectors used PI definitions and guidance contained in the Nuclear Energy Institute Document 99-02, Revision 7, to determine the accuracy of the PI data reported. The inspectors reviewed electronic personal dosimetry accumulated dose alarms, dose reports, and dose assignments for any intakes that occurred during the time period reviewed to determine if there were potentially unrecognized PI occurrences. The inspectors conducted walk-downs of various Locked High and Very High Radiation Area entrances to determine the adequacy of the controls in place for these areas. Note: This activity was performed during the second quarter 2015 but was not previously documented in an inspection report.

b. Findings

No findings were identified



## 4OA2 Problem Identification and Resolution (71152 – 6 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 Semi-Annual Trend Review

#### a. Inspection Scope

The inspectors performed a semi-annual review of site issues to identify trends that might indicate the existence of more significant safety issues. As part of this review, the inspectors included issues that were repetitive or closely related as documented by Exelon in trend reports, site performance indicators (PIs), major equipment problem lists, system health reports, maintenance rule assessments, and maintenance or CAP backlogs. The inspectors also reviewed Exelon’s CAP database for the third and fourth quarters of 2015 to assess IRs written in various subject areas (equipment problems, human performance issues, etc.), as well as individual issues identified during the NRC’s daily IR review (Section 4OA2.1). The inspectors reviewed Exelon’s monthly nuclear oversight site status reports report for January to October 2015 conducted under NO-AA-104-1007, “Nuclear Oversight Management Updates,” Revision 003, to verify that Exelon personnel were appropriately evaluating and trending adverse conditions in accordance with applicable procedures.

#### b. Findings and Observations

No findings were identified.

The inspectors evaluated a sample of issues and events that occurred over the course of the third and fourth quarters of 2015 to determine whether issues were appropriately considered as emerging or adverse trends. The inspectors verified that these issues were addressed within the scope of the CAP or through department review.

The inspectors identified one trend concerning equipment and control issues with the Unit 1 reactor recirculation system that was not documented in Exelon’s CAP. The specifics regarding the issues are documented in Section 4OA2.5 of this report. With

exception of the trend described in Section 4OA2.5, the inspectors determined that Exelon personnel were identifying trend issues at a low threshold and entering them into the CAP for resolution and were appropriately prioritizing investigation reviews. The inspectors noted minor adverse trends identified by Exelon staff in the areas of HILTI bolt installation (IR 02438804), site doors requiring repair (02512293), and tubing failures (IR 02427676). The inspectors also noted that Exelon's nuclear oversight organization continued to identify negative trends at an appropriate level and elevated issues when necessary.

There were no adverse safety consequences as a result of the low-level trend issues stated above, and the inspectors determined that Exelon was properly identifying adverse trends at NMPNS before they became more significant safety problems. The inspectors independently evaluated the deficiencies noted above for significance in accordance with the guidance in IMC 0612, Appendix B, "Issue Screening," and Appendix E, "Examples of Minor Issues." The inspectors determined these conditions were deficiencies of minor significance and, therefore, are not subject to enforcement action in accordance with the NRC's Enforcement Policy.

.3 Annual Sample: Unit 1 Fire Detection and Suppression Equipment Reliability

a. Inspection Scope

The inspectors performed a review of Unit 1 fire detection and suppression equipment reliability issues, which have resulted in challenges with the main fire panels and local fire panels that include multiple spurious trouble alarms, unnecessary charging of the fire sprinkler, carbon dioxide, and halon 1301 suppression systems. The inspectors reviewed a Unit 1 diesel fire pump (ENG-100-02) failure to start on low air pressure during testing on February 1, 2014, as documented in IR 02003322, and a subsequent failure to start on low air pressure on May 1, 2015, as documented in IR 02494255. The inspectors reviewed IRs in the CAP associated with these systems including an in-depth review of the causal evaluation associated diesel fire pump failures to start during testing. The inspectors assessed corrective actions along with their effectiveness and evaluated events for potential trends and common causes. The inspectors also reviewed the most recent system health report for Unit 1 fire detection and suppression equipment from July 1 through September 30, 2015, performed interviews with system engineers, conducted plant walkdowns of fire detection and suppression equipment, and reviewed applicable procedures and licensing documents.

b. Findings and Observations

No findings were identified.

On February 1, 2014, Exelon staff performed procedure N1-PM-M9, "Monthly Operation of Fire Pumps," Revision 00801. This procedure is used to perform system operability testing of both the diesel-driven fire pump and the electric motor-driven fire pump. During implementation of Section 6.3, "Diesel Fire Pump Low Air Pressure Operability Test," the diesel failed to start at the designated set point of 65 plus or minus 5 pounds per square inch gauge. Exelon entered this issue into the CAP as IR 02003322. The diesel-driven fire pump is equipped with two redundant air receivers, two associated solenoid valves for directing the air to the engine, and associated relays to select between the two air receivers used to start the engine. Exelon staff troubleshooting the

issue identified that the relay used to select an air accumulator to start the diesel, R-10, was degraded due to an internal circuit failure of the coil or contact operating mechanism that alternates the state of the relay contacts. This degradation caused the R-10 relay to be locked in on only one of the two air receivers when providing a start signal. Therefore, only solenoid-operated valve SOV-100-924 was being cycled to start the diesel fire pump since the beginning of plant operation. An Exelon inspection of the air start solenoid valve also identified that SOV-100-924 did not fully open during the test and was stuck in this position. The inspection also revealed the valve internals were dry, which contributed to binding.

Exelon staff performed an apparent cause evaluation (ACE) which concluded the failure of the R-10 relay was directly related to age, as it had been in service since 1968 without previous issues. It was also identified by Exelon staff during their ACE that the failure of SOV-100-924 was directly related to lack of preventive maintenance (PM) that should have been performed. The additional cycling of SOV-100-924 due to the R-10 relay being stuck selected to it also contributed to an earlier failure. Immediate corrective actions included cleaning and lubricating both solenoid valves used to supply air to the engine from its respective air receiver and cleaning the R-10 relay. The R-10 relay was also replaced in August 2014 in accordance with WO C92562924. PM N1152823 was also initiated to perform a cleaning, inspection, and lubrication of diesel air start solenoids.

On May 1, 2015, Exelon staff were performing N1-PM-M9, Section 6.3, in accordance with its regular schedule to perform a low air pressure starting test. Similar to the event in February 2014, when performing the low air pressure operability test, the diesel fire pump failed to start. Exelon's investigation determined that SOV-100-924 did not fully open due to mechanical sticking. The condition of the valve was that the lubricant was dried and was restricting valve movement. Immediate corrective actions included cleaning and lubricating the valve. An action to assess the PM implemented instituted during the February 2014 failure determined that the in order to eliminate the condition affecting the lubrication, the air start receivers 11 and 12 should also be inspected and cleaned to ensure any potential dust or debris does not reach the solenoid valves. The action also resulted in the issuance of IR 0504655 to create a WO for the cleaning and to consider finding replacement solenoid valves if the air start receivers are found to be in reasonable condition. WO C93128596 was created to replace the solenoid valves and was being tracked by the plant health committee for planned replacement in January 2016.

The inspectors determined that although a failure reoccurred 15 months following the first failure, the diesel fire pump was run successfully using N1-ST-22, "Diesel Fire Pump Instrument Air Test and Flow Verification," Revision 00301, to perform low air start pressure starts that involved cycling the solenoid valves SOV-100-924 and SOV-100-923, on July 5, 2014 and December 31, 2014. The diesel fire engine was also successfully started using N1-PM-M9 on April 3, 2014, August 28, 2014, November 16, 2014, January 2, 2015, and March 12, 2015. Based on the successful starts following the first failure, it would have been reasonable to assume that corrective action to clean and lubricate the solenoids was reasonable. The inspectors determined that corrective actions for the May 2015 failure to inspect and clean the air start receivers and replace the solenoid valves appear reasonable to ensure the diesel-driven fire pump could meet its mission of providing a water supply to suppress a potential fire at Unit 1. The risk

associated with the failure of the pump to start remained low with a negligible impact on core damage frequency.

.4 Annual Sample: Review of Corrective Actions for Repetitive Riley Temperature Switch Failures

a. Inspection Scope

The inspectors reviewed Unit 2 leak detection system (LDS) 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.

b. Findings and Observations

No findings were identified.

The Unit 2 LDS used Riley temperature modules to monitor the temperature of approximately 30 safety-related areas. Historically, module failures have resulted in numerous spurious system isolations. This issue was not unique to NMPNS as noted in NRC Information Notice 86-69, "Spurious System Isolations Caused by the Panalarm Model 86 Thermocouple Monitor," which highlighted similar system performance issues observed at other plants in the United States.

To address these failures, NMPNS replaced electrolytic capacitors in these modules during the 1990's as part of PM. This PM action was successful in substantially reducing the failure rate. Approximately 12 years ago, NMPNS decided to replace these temperature modules with a new digital temperature monitoring system and suspended the PM. However, the digital system did not meet acceptance criteria, and the replacement plan was suspended. Although the digital system upgrade was suspended, NMPNS did not resume the PM activity to replace the aging capacitors in the installed temperature modules. As a result, starting in 2011, after approximately 10 years in service, the failure rate on the temperature modules again began to increase as the electrolytic capacitors reached the end of their service life. The system was placed in system category A(1) in accordance with the maintenance rule and a monitoring plan was developed.

To improve the reliability of the temperature monitoring system, in 2013, NMPNS resumed the Riley temperature switch PM program and evaluated several system replacement strategies. The inspectors noted restarting the preventive replacement program had reduced the number of module failures. Indeed, since the replacement program was resumed, no module failures had occurred that resulted in spurious system isolations. However, even with the PM in place, modules have continued to fail periodic surveillance tests, which necessitated replacement.

To permanently resolve the Riley module reliability issues, during the spring 2016 refueling outage, Exelon planned to replace all of the Riley temperature modules with a digital monitoring system supplied by a different vendor. In the interim, Exelon will

continue the module refurbishment program. This strategy is consistent with the system category A(1) maintenance rule monitoring strategy that Exelon has developed for the LDS.

The inspectors determined that Exelon's module refurbishment program had improved the reliability of the LDS by eliminating spurious system isolations. The planned long-term corrective actions to replace the Riley modules appear reasonable to remove a troublesome component in the leak detection circuitry that has been a long-standing issue at NMPNS.

.5 Annual Sample: Recent Performance Issues with Unit 1 Reactor Recirculation System

a. Inspection Scope

The inspectors performed an in-depth review of Exelon's recent performance issues associated with the Unit 1 reactor recirculation system, specifically issues pertaining to the control of the system including the reliability of the reactor recirculation pumps. Since early 2013, there were periodic condition reports (CRs) submitted describing various issues with the control of the reactor recirculation system including flow oscillations, unresponsiveness to control manipulations, and unexpected flow changes. There were a number of actions taken to correct these issues, but in the case of the unexpected flow changes and flow oscillations, the master flow controller was replaced, which Exelon believes should alleviate these issues in the future.

The inspectors assessed Exelon's problem identification threshold, extent-of-condition reviews, and the prioritization and timeliness of Exelon's corrective actions to determine whether Exelon staff were 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 Exelon's CAP and the requirements of 10 CFR 50, Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants." In addition, the inspectors independently performed walkdowns of the reactor recirculation system, reviewed maintenance rule criteria, and interviewed cognizant engineering personnel to assess the effectiveness of the implemented corrective actions.

b. Findings and Observations

No findings were identified.

In June 2013, reactor recirculation pump 12 had to be taken to local lock due to inability to control the pump from the flow controller in the control room. Local lock consists of isolating the controls of the pump from remote controls and controlling it locally at the pump in the plant. In accordance with the NMPNS maintenance rule system basis document, this constituted a maintenance rule functional failure because it resulted in the loss of control from the control room. In a number of recent instances (IR 02522792, IR 02484603, IR 02566804, and IR 02569194), reactor recirculation pumps were taken into local lock or switched to manual control. Ultimately, these were determined to not meet the threshold for maintenance rule functional failures. For the recent issues, flow had only taken a minor step change or was oscillating a slightly wider band than normal; whereas, with the 2013 issue, there was a component failure in the controller, which could have potentially resulted in large flow changes with no operator actions.

The inspectors recognized that since the upgrade of the Unit 1 plant process computer, operators have the ability to view reactor recirculation flow to a much finer degree than they were previously able. This created an increase in sensitivity to the oscillations and changes in flow by operators and resulted in most of the IRs that were generated. Exelon determined for many of the IRs generated, the IRs described conditions with flow that were normal and did not pose a threat to flow stability or flow control but were the result of the ability to view flow with much greater detail. However, Exelon did discover a series of controller issues, in part due to this increased capability, resulting in the replacement of some of the individual controllers as well as the master flow controller.

The inspectors reviewed the replacement of the reactor recirculation master controller in the control room in July 2015. Initially, following installation, the replacement flow controller was much more sensitive than the previous one. Slight controller adjustments caused large changes in recirculation flow. Operators retained control of reactivity at all times, however to maintain consistency and familiarity for the operators, Exelon determined the controller required replacement. Exelon initiated a failure modes and effects analysis with a number of failure modes identified. After multiple attempts to correct the sensitivity issue, engineering determined the cause to be an incorrect diode in the controller. As part of corrective actions associated with IR 02522792, Exelon replaced the Unit 1 reactor recirculation master controller again on October 30, 2015, with a master controller that had the proper specified diode for the control circuit. Since the installation of the new controller and successfully post-maintenance testing operations has reported significant improvement in reactivity control.

The inspectors determined that Exelon had identified issues with the control of the Unit 1 reactor recirculation system at an appropriate level and entered them into the CAP. The inspectors concluded Exelon's overall response to the issues associated with the control of the Unit 1 reactor recirculation system was commensurate with the safety significance and corrective actions were completed in a timely manner.

.6 Annual Sample: Effectiveness of Corrective Actions for Unit 1 Loss of Shutdown Cooling Event

a. Inspection Scope

The inspectors performed an in-depth review of Exelon's evaluations and effectiveness of corrective actions associated with Unit 1 loss of shutdown cooling event which occurred on April 16, 2013. The inspectors assessed Exelon's problem identification threshold, associated analyses and evaluations, and prioritization and timeliness of corrective actions pertaining to loss of shutdown cooling event and issues identified during Exelon's and the NRC's evaluation of the event. The inspectors performed this review to determine whether Exelon personnel were appropriately identifying, characterizing, and correcting problems associated with this issue and whether the planned and completed corrective actions were appropriate. The inspectors reviewed CRs, a root cause analysis, and an ACE, as well as conducted interviews with various Exelon staff to assess the adequacy, effectiveness, and timeliness of implemented corrective actions.

This sample primarily focused on the development, implementation, and effectiveness of corrective actions. The event itself was documented in NRC Inspection Report 05000220/2013003 and 05000410/2013003 (ML13225A471), dated August 13, 2013;

the NRC's Preliminary Choice Letter (ML13266A237), dated September 23, 2013; and the NRC's Final Significance Determination of Green Finding Letter (NRC Inspection Report 05000220/2013010, ML13344A989), dated December 10, 2013. Two Green non-cited violations (NCVs) were documented in NRC Inspection Report 05000220/2013010. Additionally during a follow-up problem identification and resolution sample in 2014, NRC Inspection Report 05000220/2014003 and 05000410/2014003 (ML14223A021), another Green NCV was issued related to untimely corrective actions.

b. Findings and Observations

No findings were identified.

The inspectors reviewed Exelon staff's root cause analysis (CR-2013-002926 and CR-2013-002916) and additional CRs written for the event. As discussed in the NRC inspection reports and letters reviewing this event, there were two separate and distinct performance deficiencies identified—a loss of equipment configuration control which resulted in an unplanned loss of direct current bus 21, and inadequate procedural guidance, which resulted in the unplanned loss of all shutdown cooling during restoration from the loss of direct current bus 21. Additionally, there was a significant complicating factor identified—the planning and scheduling of the loss of offsite power/loss of coolant accident testing, which although permitted by TSs, significantly impacted the plant risk presented by this event.

While Exelon did not have a single evaluation which encompassed the entire event, the inspectors concluded that Exelon staff evaluated and developed corrective actions for each of the major aspects discussed in NRC Inspection Report 05000220/2013010. The inspectors determined that the corrective actions were reasonable and appeared appropriate to address the issues identified in the report. Effectiveness reviews of the corrective actions were completed where appropriate.

The inspectors verified that all procedure revisions were completed, that the revised procedures contained adequate detail to preclude a repeat of the event, that initial and refresher training for operators was completed, and examined effectiveness reviews conducted by the site quality assurance group. The inspectors also attended outage planning meetings for the 2016 Unit 2 outage and reviewed documentation related to the performance of the 2014 Unit 2 and 2015 Unit 1 outages.

The inspectors concluded that plant management had placed significant emphasis on the lessons learned from the 2013 event and incorporated those lessons in the outage planning process. Operators and maintenance staff included these lessons learned in pre-job briefs when appropriate. Corrective actions to address the timeliness of corrective actions were completed and also determined to be effective. No violation of NRC requirements was identified.

.7 Annual Sample: Follow-Up of Corrective Actions Related to License Operator Medical Reporting Requirements

a. Inspection Scope

On April 10, 2015, the NRC issued a Severity Level (SL) III Notice of Violation (NOV) to Exelon for an issue involving two related violations identified during an inspection at

NMPNS (ML15100A341). The NRC concluded that both violations resulted from Exelon's failures to oversee the licensed operator medical examination process and train the medical staff involved with the process on the requirements of American National Standards Institute/American Nuclear Society (ANSI/ANS) 3.4-1983, "Medical Certification and Monitoring of Personnel Requiring Operator Licenses for Nuclear Power Plants," and 10 CFR Part 55. Accordingly, these violations were categorized collectively as one SL III problem to emphasize the importance of providing suitable training, oversight, and focus on licensed operator medical requirements.

The inspectors reviewed Exelon's evaluation and actions taken as a result of the NOV. Additionally, the inspectors interviewed management and staff personnel who were familiar with the violation and participated in the evaluation or corrective actions. The inspectors also interviewed the site nurse and several licensed operators to assess the effectiveness of the corrective actions completed.

b. Findings and Observations

No findings were identified.

The inspectors concluded that Exelon's staff completed a timely and adequate evaluation of the issue that used a systematic method to identify the causes of the traditional enforcement violation. Exelon personnel conducted an investigation into the causes of the violation and conducted interviews with relevant station personnel and contractors when possible. The inspectors determined that the station adequately assessed the extent-of-condition and extent-of-cause of the violations. The inspectors concluded that Exelon's actions were sufficient to address the identified cause and that the completed and planned corrective actions addressed the causes described in the evaluation. Effectiveness reviews were scheduled as appropriate. This issue is discussed in greater detail in Section 4OA5.

4OA3 Follow-Up of Events and Notices of Enforcement Discretion (71153 – 3 samples)

.1 (Closed) LER 0500220/2015-003-00: Secondary Containment Inoperable due to Simultaneous Opening of Airlock Doors (1 sample)

LER 0500220/2015-003-00 reported that on August 5, 2015, Unit 1 operators declared secondary containment inoperable when station personnel opened both inner and outer airlock doors on the RB 261 foot elevation simultaneously while traversing through the airlock similar to what was reported in LERs 0500220/2014-004-00, 0500220/2014-005-00, 0500220/2014-006-00, 0500220/2015-001-00, and 0500220/2015-002-00. The doors were both open for a period of about 5 seconds, so the operators entered TS 3.4.3. The operators promptly exited TS 3.4.3 when the inner door was verified closed. The cause of this event was determined to be the failure of an individual to follow clear and well-advertised barriers and posted expectations for passage through the airlock doors.

Corrective actions for this event included disciplinary action administered for the individual entering the airlock and additional visual aids posted at the airlock doors. Corrective actions from the previous LERs for this condition included site communication on the proper method for operating the airlock doors, installation of breakable tie wraps on all magnetic door lock bypass pushbutton lockable covers and labels stating security



use only, installation of a camera monitoring system at frequently used airlock doors, establishing and implementing training to emphasize the significance of the airlock doors, and disciplinary action for the individuals involved in the previous events. This event was entered into Exelon's CAP as IR 02538089.

For the instance stated above, the inspectors reviewed the RB differential pressure as recorded by the plant process computer for the time that both doors were open, which indicated that the actual differential pressure remained negative and was unaffected by the brief simultaneous opening of the airlock doors.

The inspectors previously documented a minor issue in Section 4OA2 of NRC Inspection Report 05000220/2015002 and 05000410/2015002 regarding Exelon not evaluating these events for common causes. In response to the report and this event, an apparent cause evaluation (ACE) was conducted that included a common cause analysis to compare this event with similar recent events. The ACE identified the 5-second delay may not have been sufficient wait time to ensure anyone in the airlock had adequate time to exit. Unit 2 does not have cameras inside the airlock like Unit 1, the airlock doors do not have a single component owner to ensure system health, and change management communications related to the NUREG 1022, "Event Reporting Guidelines: 10 CFR 50.72 and 50.73," Revision 3, changes were not sent out to the site to assist in putting emphasis on the operation of airlock doors. Planned corrective actions included re-evaluating the recommended pause time to ensure sufficient time was given to traverse the airlocks, evaluating placing a camera in the Unit 2 airlock doors, evaluating assigning a component owner to the airlock doors to ensure proper emphasis is placed on maintenance and repair of doors, and sending out a site communication to ensure workers understand the importance of this issue. The inspectors also reviewed the current status of WOs for repair of the airlock doors magnetic locks. The inspectors identified during review of IR 2532071 that action item number 3 was closed before the assignment was completed. The inspectors noted that Unit 1 refuel airlock door D-056 had an associated WO C92938212 that was closed although work had not been completed. The inspectors also noted that WO C92671987 associated with Unit 2 RB airlock door R261-1 was moved to August 2016 even though the work had been previously scheduled to be completed in November 2015. The inspectors also identified that WO C91856157 associated with Unit 2 RB airlock door SA262-2 was still open, although it was planned to be completed in the last week of 2015. The issues identified by the inspectors were determined to be minor because although deficiencies with the magnetic airlock still existed, both Unit 1 and Unit 2 secondary containment airlock doors have had cameras installed and additional signs have been put in place to prevent airlock doors from being opened simultaneously. Also, secondary containment structural integrity, the ability to automatically isolate the non-safety-related RB ventilation system, and the RB emergency ventilation system availability were not impacted by this event.

The inspectors reviewed the 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.

.2 (Closed) LER 05000410/2015-003-00: Primary Containment Isolation Function for Some Valves Not Maintained during Surveillance Testing

On June 23, 2015, Exelon identified two separate instances where the Unit 2 primary containment isolation function was not maintained for Divisions I and II of the reactor

vessel low water level, level 2. The valves were associated with RB closed loop cooling and reactor water cleanup primary containment isolation valves during the performance of surveillance testing. The events occurred on April 22 and May 5, 2015; and were reportable under 10 CFR 50.73 (a)(2)(v)(C) as an event or condition that could have prevented the fulfillment of the safety function of structures or systems that are needed to control the release of radioactive material.

Surveillance procedure N2-ISP-ISC-Q005, "Quarterly Functional Test of Reactor Vessel Level 2 and Level 1 Instrument Channels," Revision 00600, is used to test functionality Rosemount Analog Trip Systems for several isolation group functions associated with reactor vessel water level 2 and reactor vessel water level 1 to satisfy TS 3.3.6.1.3-1.a. Section 3.0, "Precautions," required additional risk mitigation requirements be put into effect to attempt to prevent an inadvertent primary containment isolation valve closure during portions of the surveillance which generate an isolation signal. Each isolation valve can receive an isolation signal from one or both of two divisions within the primary containment isolation system logic circuitry. During the performance of the surveillance, Exelon staff attempted to disable the isolation function for the division being worked. However, Exelon staff failed to recognize that when they disabled the isolation function for one division, interconnections in the primary containment isolation system logic circuitry caused the disabling of the other division as well. The result was a loss of automatic primary containment isolation function for both divisions on reactor vessel low water level, level 2, during the time of the surveillance.

Exelon's ACE identified a failure to adequately communicate and reinforce the use of technical human performance tools during work preparation activities. Corrective actions taken included the correction of the WO and future WOs which could cause the same issue and that operations and maintenance leadership reinforce the requirements of procedure HU-AA-102, "Technical Human Performance Practices," Revision 007.

This event was reportable under 10 CFR 50.73 (a)(2)(v)(C) as an event or condition that could have prevented the fulfillment of the safety function of structures or systems that are needed to control the release of radioactive material, which is also the definition of a safety system functional failure (SSFF) PI in accordance with Nuclear Energy Institute (NEI) 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7. The inspectors determined that Exelon's failure to accurately classify this event as an SSFF in accordance with the definition of a SSFF in NEI 99-02 resulted in a violation of 10 CFR 50.9, "Completeness and Accuracy of Information," associated with the failure to accurately report the SSFF PI Data during a quarterly submission to the NRC.

The inspectors evaluated this issue using IMC 0612, Appendix B, "Issue Screening." Since this issue involves inaccurate PI data submission, the issue impacts the regulatory process and traditional enforcement applies. The inspectors evaluated the issue using the NRC Enforcement Policy and compared the issue to the examples in Section 6.9, "Inaccurate and Incomplete Information or Failure to Make a Required Report." SL IV examples 6.9.d.1, "A licensee fails to make a required report that, had it been submitted, would have resulted in, for instance, increasing the inspection scope of the next regularly scheduled inspection;" and 6.9.d.11, "A 10 CFR Part 50 licensee submits inaccurate or incomplete PI data to the NRC that would have caused a PI to change from green to white;" were most applicable. Since the SSFF PI Green to White threshold is greater than 6 and this represented one SSFF input, the fact that the NRC was aware of the underlying issue, no regulatory decisions were made relying upon the inaccurate PI

data, and no increase of inspection scope over normal baseline was required, this issue was determined to be of minor significance. Exelon agreed with the inspectors' assessment, entered the issue into their CAP, and committed to update the PI data in the second quarter 2016. No other findings or violations of NRC requirements were identified. This LER is closed.

#### 4OA5 Other Activities

##### Follow-Up Inspection for a SL III Traditional Enforcement NOV EA-14-192 (92702)

###### a. Inspection Scope

The inspectors performed a follow-up inspection for this SL III Traditional Enforcement NOV (EA-14-192). On April 10, 2015, the NRC issued a SL III NOV to Exelon for an issue involving two related violations identified during an inspection at NMPNS (ML15100A341). The first violation involved Exelon's failure, on multiple occasions, to notify the NRC within 30 days as required by 10 CFR 50.74 (c) of medical conditions of licensed reactor operators and senior reactor operators involving permanent disabilities/illnesses. The second violation involved the submittal by Exelon of information to the NRC that was not complete and accurate in all material respects as required by 10 CFR 50.9. Subsequently, the NRC, based, in part, on this inaccurate information, issued reactor operator licenses without the required restricting license conditions.

The NRC concluded that both violations resulted from Exelon's failure to oversee the licensed operator medical examination process and to train the medical staff involved with the process on the requirements of ANSI/ANS 3.4-1983, "Medical Certification and Monitoring of Personnel Requiring Operator Licenses for Nuclear Power Plants," and 10 CFR Part 55. Accordingly, these violations were categorized collectively as one SL III problem to emphasize the importance of providing suitable training, oversight, and focus on licensed operator medical requirements.

In accordance with NRC Inspection Procedure 92702, "Follow-Up on Traditional Enforcement Actions Including Violations, Deviations, Confirmatory Action Letters, Confirmatory Orders, and Alternate Dispute Resolution Confirmatory Orders," follow-up inspection was conducted on all traditional enforcement violations.

The objectives of the inspection were to determine whether Exelon staff:

- Implemented adequate corrective actions
- Identified the root cause(s) of the NOV
- Addressed any generic implications
- Appropriately enhanced the station's programs and practices to prevent recurrence

The inspectors conducted an in-office review of Exelon's evaluation and actions taken as a result of the NOV. Additionally, the inspectors interviewed management and staff personnel who were familiar with the violation and participated in the evaluation or corrective actions. The inspectors also interviewed the site nurse and several licensed operators to assess the effectiveness of the corrective actions completed.

b. Findings

No findings were identified.

The inspectors concluded that Exelon staff completed a timely and adequate evaluation that used a systematic method to identify the causes of the traditional enforcement violation. Exelon personnel conducted an investigation into the causes of the violation and conducted interviews with relevant station personnel and contractors when possible.

Exelon concluded that, in the majority of the cases, the medical conditions were properly reported to the medical staff, properly evaluated, and the physician determined that the conditions were being treated and/or managed appropriately. The medical staff at NMPNS concluded the operators were fit for duty since they met the medical requirements when tested. However, they did not recognize the condition was still required to be reported to the NRC and that conditions were required to be added to the license to ensure the operators remained fit for duty. Corrective actions included additional training for site medical personnel and regulatory assurance personnel, training for operators and security personnel on requirements to promptly report to site medical when medications are prescribed or changed, participation by medical personnel in industry seminars, and additional reviews of licensing applications by Exelon corporate medical personnel and the applicants themselves.

The inspectors determined that Exelon adequately assessed the extent-of-condition and extent-of-cause of the violations. The inspectors concluded that Exelon's actions were sufficient to address the identified cause and that the completed and planned corrective actions addressed the causes described in the evaluation. NOV EA-14-192 is closed.

4OA6 Meetings, Including Exit

On January 13, 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 proprietary information was retained by the inspectors or documented in this report.

**ATTACHMENT: SUPPLEMENTARY INFORMATION**

**SUPPLEMENTARY INFORMATION****KEY POINTS OF CONTACT**Licensee Personnel

P. Orphanos, Site Vice President  
 W. Trafton, Plant Manager  
 T. Barlow, Manager, Emergency Preparedness  
 M. Busch, Operations Director  
 S. Howe, Manager, Chemistry  
 K. Kristensen, Regulatory Principle Engineer  
 C. Kronich, Manager, Nuclear Oversight  
 M. Kunzwiler, Manager, Site Security  
 A. Moisan, Dosimetry Supervisor  
 D. Moore, Manager, Regulatory Assurance  
 J. Robideau, Regulatory Specialist  
 B. Scaglione, Manager, Engineering  
 A. Sterio, Director, Site Engineering  
 T. Tanguay, Shift Operations Superintendent (Unit 2)  
 J. Thompson, Director, Site Maintenance  
 J. Tsardakas, Shift Operations Superintendent (Unit 1)  
 D. Tulowiecki, Radiation Protection Manager

**LIST OF ITEMS OPENED, CLOSED, DISCUSSED, AND UPDATED**Closed

05000220/2015-003-00	LER	Secondary Containment Inoperable due to Simultaneous Opening of Airlock Doors (Section 4OA3)
05000410/2015-003-00	LER	Primary Containment Isolation Function for Some Valves Not Maintained during Surveillance Testing (Section 4OA3)
05000220/2015008-01 & 05000410/2015008-01	NOV	Incomplete/Inaccurate Medical Information Resulted in Issuance of Multiple Operator Licenses without Required Medical Restrictions and Failure to Report Permanent Changes in Medical Status (Section 4OA5)

## LIST OF DOCUMENTS REVIEWED

### **Section 1R04: Equipment Alignment**

#### Procedures

N1-OP-9, N2 Inerting and H2-O2 Monitoring Systems, Revision 04600  
 N1-ST-Q5, Primary Containment Isolation Valves Operability Test, Revision 03000  
 N1-ST-R11, Valve Remote Position Indicator Verification, Revision 01700  
 N2-OP-57, Diesel Generator System Ventilation System, Revision 00700

#### Drawings

C-18014-C, Drywell and Torus Leak Rate and Anal. TIP System Electrical Pen and N2 Supply Piping and Instrumentation Diagram (P&ID), Revision 52  
 C-26939-C, Primary Containment Atmosphere H2-O2 Monitor System #12 P&ID, Revision 14  
 C-26949-C, Primary Containment Atmosphere H2-O2 Monitor System #11 P&ID, Revision 15  
 PID-57A-8, Diesel Generator Building Ventilation System, Revision 8

#### Condition Report

2013-009293

#### Issue Reports

02597507	02494618	02599795
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#### Work Orders

C91051283	C92330320	C92330347	C93058629
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#### Miscellaneous

Engineering Change Package (ECP)-15-000442, H2O2 System Declassification, Revision 0000  
 SBDB-202, Containment Systems Design Basis Document, Revision 06  
 Unit 1 UFSAR, Revision 22  
 Unit 2 UFSAR, Revision 21

### **Section 1R05: Fire Protection**

#### Procedures

N1-PFP-0101, Unit 1 Pre-Fire Plans, Revision 00400  
 N2-FPI-PFP-0201, Unit 2 Pre-Fire Plans, Revision 003  
 OP-AA-201-003, Fire Drill Performance, Revision 014  
 OP-AA-201-005 Fire Brigade Qualification, Revision 009

#### Issue Reports

02550379	02564520
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#### Miscellaneous

Unit 1 UFSAR, Revision 22

## **Section 1R11: Licensed Operator Requalification Program and Licensed Operator Performance**

### Procedures

HU-AA-101, Human Performance Tools and Verification Practices, Revision 009  
OP-AA-112-101, Shift Turnover and Relief, Revision 11

### Issue Reports

02399366	02405893	02424899	02454892
02482254	02497820	02508646	02572002
02660673			

### Unit 2 Job Performance Measures

2102-EOP006P1R	2102-EOP021J1R	2102-EOPHC5J1RF
2102-NOP030J1RF	2102-NOP042P1RF	2102-NOP053J1R
2102-NOP082J1R	2102-SOP078P1RF	LOR-NCJ-2S2021

### Unit 2 Comprehensive Written Exams

Biennial Written Exam Week 1  
Biennial Written Exam Week 3

### Unit 2 Simulator Scenarios

2102-DMSAT2-S03 2102-DMSRL2-S01 2102-DMSRL3-S03 2102-DMSSC1-S03

### Unit 2 Simulator Testing

DMS-AT-2 DMS-RL-2 DMS-PC-6

### Miscellaneous

2015 Licensed Operator Requalification Annual Operating Exam Sample Plan  
ANSI/ANS-3.4-1983, Medical Certification and Monitoring of Personnel Requiring Operator Licenses for Nuclear Power Plants  
ANSI/ANS-3.5-2009, Nuclear Power Plant Simulators for Use in Operator Training and Examination

## **Section 1R12: Maintenance Effectiveness**

### Procedures

ER-AA-310-1006, Dispositioning Between (a)(1) and (a)(2), Revision 007  
N1-OP-9, N2 Inerting and H2-O2 Monitoring Systems, Revision 04700  
N2-ARP-842100, 2CEC-PNL842 Series 100 Alarm Response Procedures, Revision 00100  
N2-EMP-CES-753, Maintenance of Drywell Penetrations, Revision 00500  
N2-ISP-CNT-R@001, Type 'B' Leak Rate Test, Revision 00803  
N2-OP-37, WCS Rapid Shutdown, Revision 02800  
N2-OP-81, Containment Leakage Monitoring System, Revision 00302  
S-MMP-SDM-001, Site Doors Maintenance, Revision 00601

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EV-202A, Reactor Building Over-Pressurization Vent Arrangement and Details, Revision 4  
EV-202B, Reactor Building Over-Pressurization Vent Details, Revision 3  
EV-202C, Reactor Building Over-Pressurization Vent Arrangement and Details, Revision 2

EV-202E, Main Steam Tunnel Over-Pressurization Vent Arrangement and Details, Revision 3  
 PID-37B, Reactor Water Cleanup System P&ID, Revision 24

Condition Reports

2001-004662	2002-002326	2007-003356	2007-006341
2010-010030	2012-001437		

Issue Reports

01991707	01997321	02056721	02489622
02525420	02532915	02542255	02547824
02564417	02564797	02575166	02576438
02576995	02585789	02588398	02595306
02596493			

Work Orders

C91060155	C92781206	C92844831	C93274508
C92984118	C92064786	C92603615	C93162947
C92305107	C011271900	C93128405	C92305107

Miscellaneous

License Operator Training Document for Main Power Distribution, Revision 1.0  
 Turbine Building Over-Pressurization Vent Miscellaneous Inspection, June 7, 2010  
 Turbine Building Over-Pressurization Vent Miscellaneous Inspection, July 10, 2009  
 Unit 1 Maintenance Rule Basis Document, Primary Containment Structures  
 Unit 1 UFSAR Section VI, Revision 14  
 Unit 2 4160 Standby and Emergency Power Source, October 2015  
 Unit 2 Maintenance Rule Basis Document, Primary Containment Structures  
 Unit 2 UFSAR Section 3B, Sub-Compartment Analysis, Revision 22  
 Unit 2 UFSAR Section 8.3.1.1.5, Revision 13

**Section 1R13: Maintenance Risk Assessments and Emergent Work Control**

Procedures

N1-ST-Q26, Feedwater and Main Steam Line Power Operated Isolation Valves Partial Exercise  
 Test and Associated Functional Testing of Reactor Protection System Trip Logic,  
 Revision 01400  
 N1-ST-Q29, Quarterly Turbine Valve Log, Revision 00700  
 OP-NM-108-117, Protected Equipment Program at Nine Mile Point, Revision 00200  
 WC-AA-101, On-Line Work Control Process, Revision 025  
 WC-AA-104, Integrated Risk Management, Revision 023  
 WC-AA-101-1006, On-Line Risk Management and Assessment, Revision 001

**Section 1R15: Operability Determinations and Functionality Assessments**

Procedures

N1-MSP-GEN-251, ASME OM Code Pressure Relief Valve Removal, Bench Testing, and  
 Installation, Revision 01000  
 N1-OP-13, Emergency Cooling System, Revision 03900  
 N1-ST-Q1D, CS 122 Pump and Valve Operability Test, Revision 01100  
 N1-TSP-201-550, Local Leak Rate Test Summary (Type 'B' and 'C' Tests) for 10 CFR 50  
 Appendix J and Secondary Containment Bypass Leakage, Revision 01400



Drawings

C-18017-C, Emergency Cooling System P&ID, Revision 56  
 F-45516-C SH 3, Crosby Nozzle Type Relief Valves, Revision 2  
 LR-18006-C, Drywell and Torus Isolation & Blocking Valves License Renewal AMR Drawing,  
 Revision 0

Issue Reports

02570157                      02597860

Miscellaneous

Adverse Condition Monitoring Program – Steam Leak on VLV-39-50 Local Leak Rate Test –  
 Emergency Condition Steam IV 122 at Stem (39-08), October 18, 2015  
 Calculation S14-39F008, Emergency Cooling System Closed Loop Leakage Requirements,  
 Revision 0  
 Calculation S14-40F012, Core Spray Minimum Flow Bypass Piping and Valve Design, Revision 0  
 Calculation S14-81-F017, Reactor Core Spray Input into Appendix K Analysis, Revision 0  
 ECP-10-000662, NMP1 ECS Closed Loop Designation, Revision 0  
 Inspection and Enforcement Bulletin 88-04, Potential Safety-Related Pump Loss  
 MDC-11, Pump Curves and Acceptance Criteria, Revision 17  
 NMPNS-IST-001, Pump and Valve Inservice Testing Program, Revision 6  
 SDBD-201, Core Spray System, Revision 4  
 Unit 1 USFAR Section XV, Safety Analysis, Revision 22  
 Unit 1 UFSAR Section VII, Engineered Safeguards, Revision 15

**Section 1R19: Post-Maintenance Testing**Procedures

N1-EMP-999-035, MG Set Voltage Regulator Setup, Revision 004  
 N1-IPM-202-002, Reactor Building Emergency Ventilation Flow Control System, Revision 00400  
 N1-OP-48, Motor Generator Sets, Revision 02803  
 N1-ST-Q8A, Liquid Poison Pump 11 and Check Valve Operability Test, Revision 00100  
 N2-TTP-HVR-@415, Performance Evaluation Test for Unit Cooler 2HVR\*UC415A and B,  
 Revision 00500

Drawing

C-18019-C, Reactor Liquid Poison System P&ID, Revision 12

Condition Reports

2013-008220                      2013-008790

Work Orders

C91602939                      C92447466                      C92462169                      C92463448  
 C92692866

Miscellaneous

ECP-13-000946, Replace SRC-(1S68)202-49F with an NUS Module per ECP-13-000946,  
 Revision 0  
 NMPNS-IST-001, Pump and Valve Inservice Testing Program, Revision 6

**Section 1R22: Surveillance Testing**

Procedures

N2-OSP-RHS-Q@005, RHR System Loop 'B' Pump and Valve Operability Test, System Integrity Test and ASME XI Pressure Test, Revision 00800

N2-OSP-RPS-Q001, RPS Turbine Stop Valve Closure Logic, Control Valve Fast Closure Scram Functional Tests and Turbine Valve Cycling, Revision 00500

Drawing

PID-31E, Residual Heat Removal P&ID, Revision 021

Issue Reports

02576780	02576947	02576949	02576952
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Work Order

C92838126

Miscellaneous

Control Rod Sequence NM2C15-23-1

Unit 2 UFSAR Section 10.2, Turbine Generator, Revision 10

**Section 1EP4: Emergency Action Level and Emergency Plan Changes**

Procedures

CNG-EP-1.01-1013, Emergency Classification and PAR, Revision 00100

CNG-EP-1.01-1015, Emergency Notifications, Revision 00200

CNG-EP-1.01-1025, NMP Dose Assessment, Revision 00100

EP-AA-1000, Exelon Nuclear Standardized Radiological Emergency Plan, Revision 027

Miscellaneous

Nine Mile Point Site Emergency Plan, Revision 63

**Section 1EP6: Drill Evaluation**

Miscellaneous

Emergency Preparedness Scenario Site Emergency Exercise NMP-EP-PI-15-01

**Section 4OA2: Problem Identification and Resolution**

Procedures

ER-AA-610-1003, NFPA 805 Monitoring Program, Revision 000

N1-IGN-F001, Nine Mile Point Unit 1 Fire PRA Notebook Ignition Frequency (IGN) Notebook, Revision 002

N1-OP-1, Nuclear Steam Supply System, Revision 06600

N1-OP-43B, Normal Power Operations, Revision 01800

N1-PM-M9, Monthly Operation of Fire Pumps, Revision 00801

NO-AA-104-1007, Nuclear Oversight Management Updates, Revision 003

PI-AA-125, Corrective Action Program (CAP) Procedure, Revision 002

Condition Reports

2013-000442	2013-000538	2013-002015	2013-002916
2013-002926	2013-004038		

Issue Reports

01700605	02003654	02003322	02006948
02391699	02397529	02420132	02424134
02427676	02431781	02432008	02438804
02466684	02484603	02494255	02495269
02507596	02512293	02520641	02522792
02522999	02523205	02524015	02532405
02540874	02551259	02563322	02565013
02566804	02569194		

Drawing

C-27088-C, Fire Protection Plan for Cable Trays Floor Elevation 277 feet 0 inches, 281 feet 0 inches, and 291 feet 0 inches, Revision 009

Work Orders

C92562924	C93128596
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Miscellaneous

January to October 2015 Nuclear Oversight Site Status Reports  
 Third Quarter 2014 System Health Report Leak Detection System  
 Unit 1 Maintenance Rule System Basis Document  
 Unit 1 Reactor Recirculation System Health Report  
 Unit 1 UFSAR, Revision 24

**Section 40A3: Follow-up of Events and Notices of Enforcement Discretion**Procedures

HU-AA-102, Technical Human Performance Practices, Revision 007  
 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 System Trip Logic, Revision 01300  
 N2-ISP-ISC-Q005, Quarterly Functional Test of Reactor Vessel Level 2 and Level 1 Instrument Channels, Revision 0600  
 N2-ISP-RPS-Q001, Quarterly Functional Test and Trip Unit Calibration, Revision 00500  
 OP-AA-111-101, Operating Narrative Logs and Records, Revision 010

Issue Reports

02005260	02005285	02398224	02451587
02462596	02486377	02515436	02518177
02527363	02530825	02532071	02538089
02544405	02551180	02551605	02572190
02572281			

Work Orders

C91856157	C92625878	C92639600	C92671987
C92929931	C92938212	C93247505	

Miscellaneous

HU-NM-104-101, NMP Partial Use (Step Delete) Process, Attachment 1 for N1-ST-Q26 dated September 11, 2015  
IE Circular No. 81-14, MSIV Failures to Close dated November 5, 1981  
Instructor Guide 1101-239001C01  
N1-ST-Q26, Feedwater and Main Steam Line Power Operated Isolation Valves Partial Exercise Test and Associated Functional Testing of Reactor Protection System Trip Logic, Revision 01100, Completed September 4, 2015  
Plant Event Report EN 51369  
Post-Trip Review 1F15-02

**Section 40A5: Other Activities**

Procedures

HR-AA-07-101, NRC Licensed Operator Medical Examination, Revision 014  
OP-AA-105-101, Administrative Process for NRC License and Medical Requirements, Revision 018  
SY-AA-102-206, Reporting Use of Medication, Revision 010

Action Request

02421334

Miscellaneous

ANSI/ANS 3.4-1983, Medical Certification and Monitoring of Personnel Requiring Operator Licenses for Nuclear Power Plants  
License Operator Requalification Training Cycle 15-2, Condition of Licenses  
License Operator Requalification Training Cycle 15-2, License Maintenance  
NRC Form 396, Certification of Medical Examination by Facility Licensee  
NRC Form 398, Personal Qualification Statement – Licensee  
NRC Inspection Report 05000220/2014005 and 05000410/2014005  
NRC Inspection Report 05000220/2015008 and 05000410/2014008

**LIST OF ACRONYMS**

10 CFR	Title 10 of the <i>Code of Federal Regulations</i>
ACE	apparent cause evaluation
ANSI/AS1	American National Standards Institute/American Nuclear Society
CAP	corrective action program
CR	condition report
EAL	emergency action level
ECP	engineering change package
EDG	emergency diesel generator
IMC	Inspection Manual Chapter
IR	issue report
LDS	leak detection system
LER	Licensee Event Report
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.
NOV	notice of violation
P&ID	pipng and instrumentation diagram
PI	performance indicator
PM	preventive maintenance
RB	reactor building
SL	severity level
SSC	structure, system, and component
SSFF	safety system functional failure
TS	technical specification
UFSAR	Updated Final Safety Analysis Report
WO	work order