



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

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

February 5, 2015

EA-14-192

Mr. Peter Orphanos
Site Vice President
Nine Mile Point Nuclear Station, LLC
Exelon Generation Company, LLC
P.O. Box 63
Lycoming, NY 13093

**SUBJECT: NINE MILE POINT NUCLEAR STATION - NRC INTEGRATED INSPECTION
REPORT 05000220/2014005 AND 05000410/2014005 AND PRELIMINARY
SEVERITY LEVEL III FINDINGS**

Dear Mr. Orphanos:

On December 31, 2014, the United States 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 January 8, 2015, with you, and other members of your staff.

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

Based on the results of this inspection, two NRC-identified apparent violations (AVs) of NRC requirements were identified that are being considered for escalated enforcement action in accordance with the NRC Enforcement Policy. The current Enforcement Policy is included on the NRC's Web site at: <http://www.nrc.gov/about-nrc/regulatory/enforcement/enforce-pol.html>.

The AVs are related to Exelon Generation Company, LLC (Exelon) providing inaccurate or incomplete information to the NRC pertaining to: (1) NMPNS staff submitting multiple operator license applications to the NRC that were not complete and accurate in all material respects and were the basis for the NRC making incorrect regulatory decisions between 2003 and 2012; and (2) Exelon staff not notifying the NRC within 30 days of changes in several operator's medical condition and requesting a condition be placed on these operators' licenses upon identification of potentially disqualifying medical conditions during licensed operator requalification reviews from 2002 to 2014. These AVs, preliminarily determined to be Severity Level III, are described in detail in the enclosed report. The NRC notes that, upon identifying the issue, Exelon took the appropriate immediate corrective action of informing the NRC and requesting license conditions or requesting the license be terminated, such that the AVs do not represent an immediate safety

concern. The NRC subsequently issued license amendments with the appropriate restrictions for the operators or terminated the licenses as requested, which restored full compliance for both AVs.

Before the NRC makes its enforcement decision, we require additional information about the long-term corrective actions developed by Exelon to prevent recurrence of the AVs. In particular, the NRC is interested in information related to any plans by Exelon to provide continuing training on NRC regulatory requirements and ANSI standards for both site medical staff and licensed operators. The NRC requires this information in order to assess the adequacy and comprehensiveness of the corrective actions and to determine whether a civil penalty is warranted in this case, in accordance with Section 2.3.4 of the Enforcement Policy. You may provide this information, along with any other information you believe the NRC should take into consideration, in a written response, which should be sent to the NRC within 30 days of the date of this letter. Your response may reference or include previously docketed correspondence and should include for each AV: (1) the reason for the AV; (2) the corrective steps that have been taken and the results achieved; and (3) the corrective steps that will be taken. This response should be clearly marked as a "Response to Apparent Violations in Inspection Report No. 05000220 & 410/2014005; EA-14-192," and sent to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001 with a copy to the Regional Administrator, Region I, 2100 Renaissance Boulevard, King of Prussia, PA 19406.

In lieu of providing this information in writing, you may, as an alternate, request a pre-decisional enforcement conference (PEC) to provide this information in person or you may request to participate in Alternative Dispute Resolution (ADR). If you choose to request a PEC, the meeting should be held in our office in King of Prussia, PA, within 30 days of the date of this letter. If a PEC is held, it will be open for public observation and the NRC will issue a press release to announce the conference time and date. Because the meeting will be public, any discussion of specific operator medical concerns should not include personally identifiable information. If such information is deemed to be necessary to the discussion, portions of the PEC would be closed to the public.

Because the NRC has not yet determined whether or not a civil penalty will be proposed for the AVs, in lieu of a PEC, you may also request ADR with the NRC in an attempt to resolve this issue. ADR is a general term encompassing various techniques for resolving conflicts using a neutral third party. The technique that the NRC has decided to employ is mediation. Mediation is a voluntary, informal process in which a trained neutral person (the "mediator") works with parties to help them reach resolution. If the parties agree to use ADR, they select a mutually agreeable neutral mediator who has no stake in the outcome and no power to make decisions. Mediation gives parties an opportunity to discuss issues, clear up misunderstandings, be creative, find areas of agreement, and reach a final resolution of the issues. Additional information concerning the NRC's program can be obtained at <http://www.nrc.gov/about-nrc/regulatory/enforcement/adr.html>. The Institute on Conflict Resolution (ICR) at Cornell University has agreed to facilitate the NRC's program as a neutral third party.

Please contact Dan Schroeder, Chief, Projects Branch 1, Division of Reactor Projects, NRC Region I, at 610-337-5262 within 10 days of the date of this letter to let him know whether you will be providing a written response, or if you are interested in attending a PEC or requesting ADR. Additionally, please contact ICR at 877-733-9415 within 10 days of the date of this letter if you are interested in pursuing resolution of this issue through ADR.

In addition, please be advised that the number and characterization of AVs described in the enclosed inspection report may change as a result of further NRC review.

This report also documents one NRC-identified finding, which was of very low safety significance (Green). This finding was determined to involve a violation of NRC requirements. However, because of the very low safety significance, and because it was entered into your corrective action program, the NRC is treating this finding as a non-cited violation, consistent with Section 2.3.2.a of the NRC Enforcement Policy. If you contest the non-cited violation 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 United States Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region I; the Director, Office of Enforcement, United States 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* (10 CFR) 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 and 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/

Ho K. Nieh
Director
Division of Reactor Projects

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

Enclosure: Inspection Report 05000220/2014005 and 05000410/2014005
w/Attachment: Supplementary Information

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Please contact Dan Schroeder, Chief, Projects Branch 1, Division of Reactor Projects, NRC Region I, at 610-337-5262 within 10 days of the date of this letter to let him know whether you will be providing a written response, or if you are interested in attending a PEC or requesting ADR. Additionally, please contact ICR at 877-733-9415 within 10 days of the date of this letter if you are interested in pursuing resolution of this issue through ADR.

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Sincerely,
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DATE	2/2/15	2/2/15	2/4/15	2/4/15	2/2/15
OFFICE	RI/DRP				
NAME	HNieh/HKN				
DATE	2/5/15				

Letter to Mr. Peter Orphanos from Ho K. Nieh dated February 5, 2015

SUBJECT: NINE MILE POINT NUCLEAR STATION - NRC INTEGRATED INSPECTION
REPORT 05000220/2014005 AND 05000410/2014005 AND PRELIMINARY
SEVERITY LEVEL III FINDINGS

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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. 05000220/2014005 and 05000410/2014005

Licensee: Exelon Generation Company, LLC

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

Location: Oswego, New York

Dates: October 1, 2014, through December 31, 2014

Inspectors: K. Kolaczyk, Senior Resident Inspector
E. Miller, Resident Inspector
G. Stock, Resident Inspector
W. Cook, Senior Reactor Analyst
J. D'Antonio, Senior Operations Engineer
M. Modes, Senior Reactor Inspector
E. Andrews, Project Engineer
E. Burket, Emergency Preparedness Inspector
C. Graves, Health Physicist
B. Sienel, Resident Inspector
A. Rosebrook, Senior Project Engineer
T. Dunn, Operations Engineer

Approved by: Daniel L. Schroeder, Chief
Reactor Projects Branch 1
Division of Reactor Projects

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SUMMARY

IR 05000220/2014005, 05000410/2014005; 10/01/2014 – 12/31/2014; Nine Mile Point Nuclear Station (NMPNS), Units 1 and 2; Licensed Operator Requalification Program and Licensed Operator Performance and Maintenance Effectiveness.

This report covered a three-month period of inspection by resident inspectors and announced inspections performed by regional inspectors. Two traditional enforcement apparent violations (AVs) were identified. Also, the inspectors identified one finding of very low safety significance (Green), which was a non-cited violation (NCV). 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 June 2, 2011. Cross-cutting aspects are determined using IMC 0310, "Aspects Within the Cross-Cutting Areas," dated December 4, 2014. All violations of NRC requirements are dispositioned in accordance with NRC Enforcement Policy, dated July 9, 2013. 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

- Apparent Violations. Exelon Generation Company, LLC (Exelon) identified two AVs: (1) An AV of Title 10 of the *Code of Federal Regulations* (10 CFR) 50.9, "Completeness and Accuracy of Information;" and (2) An AV of 10 CFR 50.74, "Notification of Change in Operator or Senior Operator Status." Specifically, during an internal audit in July 2014, Exelon identified that between September 2002 and February 2012, NMPNS staff submitted certified copies of an NRC reactor operator and/or senior operator license applications for seven applicants that did not specify that the applicants required a restriction in order to maintain medical qualifications. The NRC issued the reactor operator and senior operator initial and renewed licenses for the seven applicants, but without the necessary medical restrictions (AV #1). From June 2002 through August 2014, Exelon had numerous additional opportunities to identify these potentially disqualifying medical conditions and that license conditions were required during the biennial licensed operator requalification program reviews and medical examinations. On September 25, 2014, a period that exceeded 30 days from when the conditions were identified, the facility notified the NRC of these medical conditions via a letter requesting amendment to the seven operators' licenses to include the appropriate restrictions (AV #2). The NRC issued the license amendment with the new restrictions. The NRC inspectors also identified an additional example of both AVs which had not been reported by Exelon to the NRC in the September 25, 2014 letter. On November 5, 2014, Exelon requested termination of the license for that operator. This issue was entered into Exelon's corrective action program (CAP).

The inspectors determined that Exelon's failure to provide complete and accurate information to the NRC in the reactor operator and senior operator license applications and to notify the NRC of a change in a reactor operator or senior operator's status for a condition which was known by Exelon were performance deficiencies that were within their ability to foresee and correct and should have been prevented. The inspectors determined that traditional enforcement applies, as the issue affected the NRC's ability to perform its regulatory function. Namely, the NRC requires Exelon to ensure all licensed operators meet the medical conditions of their licenses. If, during the term of the individual operator license, an operator develops a permanent physical or mental disability that causes the operator to fail to meet the requirements of 10 CFR 55.21, "Medical Examination," the licensee shall

notify the NRC within 30 days of learning of the diagnosis, in accordance with 10 CFR 50.74(c). Additionally, the NRC issued reactor operator and senior operator licenses to the applicants based on information that was not complete and accurate in all material aspects. The performance deficiencies were screened against the Reactor Oversight Process per the guidance of IMC 0612, Appendix B, "Issue Screening." No associated Reactor Oversight Process finding was identified and no cross-cutting aspect was assigned. These issues constitute AVs in accordance with the NRC's Enforcement Policy, and their final significance will be dispositioned in separate future correspondence. (Section 1R11)

Cornerstone: Barrier Integrity

- Green. The inspectors identified a Green NCV of Unit 2 Technical Specification (TS) 5.4, "Procedures," for Exelon's failure to properly perform procedure N2-OSP-GTS-R001, "Secondary Containment Integrity Test," Revision 01100. Specifically, Exelon staff failed to ensure spectacle flanges associated with alternate decay heat (ADH) secondary containment isolation were properly installed. As a result, surveillance testing associated with ADH check valves 2ADH*V21A/B and 2ADH*V22A/B was not performed to ensure secondary containment integrity as required by N2-OSP-GTS-R001. Exelon immediately entered this issue into their CAP as issue report (IR) 2403311. Exelon entered TS Surveillance Requirement (SR) 3.0.3, "Limiting Condition for Operability Applicability," which is used when a licensee discovers that a surveillance test requirement has not been performed. As required by the TS, Exelon completed a risk evaluation of the missed surveillance and determined large early release frequency remained low without ADH secondary containment isolation. Exelon also performed extent-of-condition inspections for other systems which may not have proper alignment to ensure they are meeting TS requirements. On December 4, Exelon rotated the spectacle flanges to the no flow isolation position to ensure secondary containment integrity was maintained.

The finding is more than minor because it is associated with the configuration control attribute of the Barrier Integrity cornerstone objective to provide reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. Specifically, by performing N2-OSP-GTS-R001 in 2012 and 2014 without first ensuring the spectacle flanges were properly installed, Exelon did not verify the secondary containment requirements of TS SR 3.4.6.1 were maintained. Additionally, this issue was similar to Example 3.d in IMC 0612, Appendix E, "Examples of Minor Issues," in that the failure to implement the TS SR as required was not minor if the surveillance had not been conducted. By not correctly testing the secondary containment in 2012 and 2014, the SR of TS 3.4.6.1 was not met. In accordance with IMC 0609.04, "Initial Characterization of Findings," and Exhibit 3 of IMC 0609, Appendix A, "The Significance Determination Process for Findings At-Power," the inspectors determined this finding is of very low safety significance (Green) because the finding only represents a degradation of the radiological barrier function provided for the control room, or auxiliary, spent fuel pool (SFP), or standby gas treatment system (boiling water reactor). This finding has a cross-cutting aspect in the area of Human Performance, Avoid Complacency, because Exelon staff did not implement appropriate error reduction tools. Specifically, operators did not use error reduction tools to ensure the spectacle flanges were installed in the no flow position and as a result, they failed to leak test the ADH check valves in the secondary containment drawdown test as required by N2-OSP-GTS-R001 [H.12]. (Section 1R12)

REPORT DETAILS

Summary of Plant Status

Unit 1 began the inspection period at 100 percent power. On October 18, 2014, Unit 1 operators performed two down powers in the same day. The first, during the morning of October 18, reduced power to 95 percent to remove reactor recirculation motor generator set 11 from service for preventive maintenance (PM) and operators returned power to 100 percent early that morning. During the evening of October 18, Unit 1 operators reduced power to 85 percent to restore reactor recirculation motor generator set 11 following PM. Operators restored Unit 1 to 100 percent the same day. On October 19, Unit 1 operators reduced reactor power to 95 percent to remove reactor recirculation motor generator set 12 for PM. Unit 1 power was restored to 100 percent the same day. On October 25, Unit 1 operators reduced reactor power to 75 percent to restore reactor recirculation motor generator set 12 to service, perform a rod pattern adjustment, and perform control rod settle testing. Unit 1 was returned to 100 percent power the same day. On November 22, Unit 1 operators reduced power to 85 percent to perform a rod pattern adjustment. Unit 1 was returned to 100 percent power the same day. On December 13, operators reduced power to 75 percent to perform turbine stop and control valve testing, control rod stall flow testing, and a rod pattern adjustment. Operators returned Unit 1 to 100 percent power the same day and remained at or near 100 percent power for the remainder of the inspection period.

Unit 2 began the inspection period at 100 percent power. On December 6, 2014, operators reduced power to 83 percent to perform control rod scram time testing, hydraulic control unit repairs, turbine stop and control valve testing, and a rod pattern adjustment. Unit 2 returned to 100 percent power on December 7. Unit 2 remained at or near 100 percent power 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)

a. Inspection Scope

Readiness for Impending Adverse Weather Conditions

The inspectors reviewed Exelon's readiness for the onset of impending adverse weather conditions that involved unseasonably cold temperatures and snow during the week of November 30, 2014. The review focused on the Unit 1 and Unit 2 operation departments' preparations and response to the adverse weather conditions. The inspectors walked down the Unit 1 and Unit 2 screen houses as well as the Unit 1 and Unit 2 emergency diesel generators (EDGs) and associated 4160 volt switchgear. The inspectors verified that operator actions defined in Exelon's adverse weather procedure 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 Walkdown (71111.04Q – 1 sample)

a. Inspection Scope

The inspectors performed partial walkdowns of the following system:

- Unit 2 115-kilovolt (kV) offsite power system following completion of a planned surveillance test on the Division I EDG on October 15, 2014

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 applicable operating procedures, system diagrams, the Updated Final Safety Analysis Report (UFSAR), TSs, work orders (WOs), condition reports (CRs), IRs, and the impact of ongoing work activities on redundant trains of equipment in order to identify conditions that could have impacted system performance of its intended safety functions. The inspectors also performed field walkdowns of accessible portions of the system to verify 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 December 2, 2014, the inspectors completed a complete system walkdown of accessible portions of the Unit 1 high pressure coolant injection system to verify the existing equipment lineup was correct. The inspectors reviewed operating procedures, drawings, the system health report, and the UFSAR to verify the system was aligned to perform its required safety functions. 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 examined the material condition of components and observed operating parameters of equipment to verify that there were no deficiencies. Additionally, the inspectors reviewed a sample of related CRs, IRs, and WOs to ensure Exelon appropriately evaluated and resolved any deficiencies.

b. Findings

No findings were identified.

1R05 Fire ProtectionResident 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 out of service, degraded, or inoperable fire protection equipment, as applicable, in accordance with procedures.

- Unit 1 diesel fire pump room (fire area (FA) 14) on October 1 and 2, 2014
- Unit 2 Division I diesel generator room and control room (FA 28) on October 6, 2014
- Unit 2 Division II diesel generator room and control room (FA 29) on October 6, 2014
- Unit 2 Division I battery room (FA 17) on October 9, 2014
- Unit 2 Division II battery room (FA 19) on October 9, 2014
- Unit 2 Division III battery room (FA 75) on October 15, 2014

b. Findings

No findings were identified.

1R06 Flood Protection Measures (71111.06 – 1 sample)Annual Review of Cables Located in Underground Bunkers/Manholesa. Inspection Scope

On October 22, 2014, the inspectors conducted an inspection of an underground manhole subject to flooding that contained cables whose failure could affect risk-significant equipment. The inspectors performed a walkdown of Unit 2 manhole 3 that contains 4160 volt cables for the high pressure core spray (HPCS) pump, to verify the cables were not submerged in water, that cables and/or splices appeared intact, and to observe the condition of cable support structures. The inspectors verified proper sump pump operation and verified level alarm circuits were set in accordance with station procedures and calculations to ensure that the cables will not be submerged.

b. Findings

No findings were identified.

1R11 Licensed Operator Requalification Program and Licensed Operator Performance
(71111.11B – 2 samples and 71111.11A – 2 samples)

Biennial Review

a. Inspection Scope

The following inspection activities were performed using NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," Revision 9, Supplement 1, and Inspection Procedure Attachment 71111.11, "Licensed Operator Requalification Program and Licensed Operator Performance."

Examination Results

On December 30, 2014, the results of the written and annual operating tests for Unit 1 and the annual operating tests for Unit 2 were reviewed to determine if pass/fail rates were consistent with the guidance of NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," Revision 9, Supplement 1, and IMC 0609, Appendix I, "Operator Requalification Human Performance Significance Determination Process." (There was no written requalification examination administered in 2014 for Unit 2.) The review verified that the failure rate (individual or crew) did not exceed 20 percent.

Unit 1

- 0 out of 51 operators failed the simulator section of the annual examination.
1 out of 51 operators failed the job performance measures (JPMs) section of the annual exam. The overall individual failure rate was 2 percent.
- 0 out of 11 crews failed the simulator test. The crew failure rate was 0 percent.
- 0 out of 51 operators failed the biennial written examination. The overall individual failure rate was 0 percent.

Unit 2

- 0 out of 47 operators failed any section of the annual operating test. The overall individual failure rate was 0 percent.
- 0 out of 8 crews failed the simulator test. The crew failure rate was 0 percent.

Written Examination Quality Unit 1

The inspectors reviewed two written examinations administered during the 2014 examination cycle for qualitative and quantitative attributes as specified in Appendix B of Attachment 71111.11, "Licensed Operator Requalification and Licensed Operator Performance."

Operating Test Quality

The Unit 1 JPMs for the inspection week and simulator scenarios for two examination weeks were reviewed for qualitative and quantitative attributes as specified in Appendix C of 71111.11, "Licensed Operator Requalification Program."

Licensee Administration of Operating Tests

Observations were made of the Unit 1 dynamic simulator exams and JPMs administered during the week of October 13, 2014. These observations included facility evaluations of crew and individual performance during the dynamic simulator exams and individual performance of five JPMs for two crews.

Examination Security Unit

The inspectors assessed whether facility staff properly safeguarded exam material. JPMs, scenarios, and written examinations were checked for excessive overlap of test items.

Remedial Training and Re-Examinations

There were no Unit 1 biennial or annual exam failures to review for the previous examination cycle. The inspectors noted the facility did remediate performance deficiencies before returning crews to shift.

Conformance with Operator License Conditions

Medical records for both units for a total of 19 licenses were reviewed to assess conformance with license conditions.

Proficiency watch standing records were reviewed for 2 years to ensure operators were standing required watches.

The reactivation plan for one reactor operator and one senior reactor operator license was reviewed for compliance with the reactivation process.

Records for the participation of licensed operators in the requalification program for this the most recent 2 year requalification training cycle and records of examination results were reviewed to verify completion of the program.

Simulator Performance

Simulator performance and fidelity was 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. Simulator test documentation was also reviewed.

Problem Identification and Resolution

A review was conducted of recent operating history documentation found in inspection reports, Exelon's CAP, and the most recent NRC plant issues matrix. The inspectors also reviewed specific events from Exelon's CAP which indicated possible training deficiencies, to verify that they had been appropriately addressed. The senior resident inspector was also consulted for insights regarding licensed operators' performance. These reviews did not detect any operational events that were indicative of possible training deficiencies.

b. Findings

Introduction. Exelon identified multiple examples of two AVs: (1) An AV of 10 CFR 50.9, “Completeness and Accuracy of Information;” and (2) An AV of 10 CFR 50.74, “Notification of Change in Operator or Senior Operator Status.” Specifically, during an internal audit in July 2014, Exelon identified that between September 2002 and February 2012, NMPNS submitted certified copies of an NRC reactor operator and/or senior operator license applications for seven applicants that did not specify that the applicants required a restriction in order to maintain medical qualifications. The NRC inspectors also identified an additional example of both AVs which had not been reported by Exelon to the NRC in the September 25, 2014 letter. On November 5, 2014, Exelon requested termination of the license for that operator. This issue was entered into Exelon’s CAP.

Description.

1. Failure to provide complete and accurate information in NRC Form 396s submitted for the renewal of operator licenses.

Between September 2002 and February 2012, NMPNS submitted a total of 13 applications for the issuance, renewal, or amendment of licenses for the seven operators listed above, each of which included NRC Form 396s that certified the medical fitness of the applicants and that did not identify any needed license operator restrictions regarding disqualifying medical conditions or related prescribed medication. Each of the applicants had medical conditions that did not meet the minimum standards of 10 CFR 55.33(a)(1) and, therefore, required specific license conditions in order to perform licensed activities. Specifically, the operators, during pre-application medical examinations, informed the NMPNS medical review officer (MRO) that they had been prescribed medications or medical devices for such conditions as hypertension, psychological/mental conditions, vision, and asthma. Based, in part, on this inaccurate information, the NRC issued operator license documents without proper evaluation of disqualifying medical conditions and application of license operator restrictions to ensure the applicant would remain medically qualified.

2. Failure to report to the NRC changes in operators’ medical conditions within 30 days and restrict operators with disqualifying medical conditions from performing licensed duties.

On at least 18 occasions between June 2002 and August 2014, Exelon did not notify the NRC within 30 days of learning of changes in the medical conditions of at least seven licensed reactor operators and senior reactor operators that involved permanent disabilities/illnesses, as required by 10 CFR 50.74. Specifically, the operators, during biennial medical examinations, informed the NMPNS MRO that they had been prescribed medications for such conditions as hypertension, psychological/mental conditions, and asthma. However, the MRO did not recognize that these conditions constituted permanent disabilities or illnesses that required NRC notification and, therefore, did not provide the required notification.

Additionally, between June 2002 and September 2014, Exelon did not restrict at least seven licensed reactor operators and senior reactor operators from performing licensed duties when the individuals had disqualifying medical conditions without required license conditions. Specifically, the seven operators listed above performed licensed duties while they had permanent disabilities or illnesses that caused them to not meet the requirements of 10 CFR 55.33(a)(1), since each had medical issues that were defined

by American National Standards Institute/American Nuclear Society (ANSI/ANS) 3.4-1983 as disqualifying conditions, and the NRC licenses for these operators were not restricted to accommodate the medical concerns.

While Exelon did identify the majority of the examples during an internal audit conducted in July 2014, during the NRC's inspection of the program in October 2014, the inspectors identified an additional example of a senior reactor operator who had a known disqualifying medical condition and was prescribed medication to treat that condition, but the initial license application submitted in 2008 did not list the condition or the medication taken and did not request any restrictions. This condition was not reported during subsequent biennial medical examinations or when the operator's medical status was observed to change significantly in April 2014. Exelon had removed the operator from licensed operator duties when this change was observed; however, this change in operator medical status was not reported to the NRC until November 5, 2014.

On September 25, 2014, Exelon provided updated medical examination forms requesting the required restrictions and on November 5, 2014, Exelon requested termination of the license for one operator. The NRC then issued correctly restricted licenses and terminated the other license as requested. This restored full compliance.

Analysis. Exelon's failure to submit complete and accurate information in a license application to the NRC regarding the applicant's medical condition and the failure to notify the NRC within 30 days of a change in an operator or senior operator's medical condition and request a condition be placed on the operator's license are performance deficiencies that were reasonably within Exelon's ability to foresee and prevent. These performance deficiencies adversely affected the regulatory process, because the NRC used the inaccurate information as a basis for an incorrect regulatory decision. Specifically, the NRC issued a reactor operator and senior operator licenses which did not include the necessary restrictions required to ensure the applicants were medically qualified and did not have the opportunity to amend these regulatory decisions because the information was not reported to the NRC as required. Because the regulatory process was affected, traditional enforcement was applicable.

Section 6.4.c.4 of the NRC Enforcement Policy describes an example of a Severity Level III violation that involves:

"A nonwillful compromise (see 10 CFR 55.49, "Integrity of Examinations and Tests") of an application ... or examination required by 10 CFR Part 55, or inaccurate or incomplete information inadvertently provided to the NRC, subsequently contributes to the NRC making an incorrect regulatory decision, such as the following: (a) In the case of initial operator licensing, contributes to an individual being granted an operator or senior operator license or (b) In the case of operator requalification, contributes to an individual being permitted to perform the functions of an operator or senior operator or (c) contributes to a medically unqualified individual performing the functions of a licensed operator or senior operator.

Therefore, the inspectors preliminarily determined that these violations are Severity Level III because Exelon failed to report a condition that would have required the addition of a license restriction. In these cases, the operators required license

restrictions in order to maintain medical qualifications. The AVs affected the initial licensing actions, license renewals, and subsequent licensed operator requalifications and likely resulted in at least one medically unqualified individual performing the functions of a licensed operator or senior operator.

In accordance with IMC 0612, Appendix B, "Issue Screening," these performance deficiencies were also evaluated for significance under the Reactor Oversight Process. No operational issues resulted from the performance of the seven operators without properly restricted licenses and in most cases the operators were taking any prescribed medications, using prescribed medical devices, or meeting the No-Solo restriction even though there were no formal licensee restrictions. For the one instance where an individual may have been medically unqualified, the individual was promptly removed from license operator duties and no operational performance issues were noted. As a result, there is not a more than minor Reactor Oversight Process violation; therefore, no cross-cutting aspects are assigned to the AVs.

Enforcement.

1. 10 CFR 50.9, "Completeness and Accuracy of Information," requires, in part, that information provided to the NRC by a licensee shall be complete and accurate in all material respects.

10 CFR 55.3, "Licensee Requirements," requires, in part, that a person must be authorized by a license issued by the Commission to perform the function of a licensed operator or a licensed senior operator as defined in Part 55.

10 CFR 55.21 requires, in part, that individual licensed operators and licensed senior operators shall have a medical examination by a physician every 2 years and that the physician shall determine that the licensee meets requirements of Section 55.33(a)(1).

10 CFR 55.33(a)(1) requires, in part, that an applicant's medical condition and general health will not adversely affect the performance of assigned operator job duties or cause operational errors endangering public health and safety. 10 CFR 55.33(b) states, in part, that if the applicant's general medical condition does not meet the minimum standards under 10 CFR 55.33(a)(1), the NRC may approve the application and include conditions in the license to accommodate the medical defect.

10 CFR 55.23, "Certification," requires, in part, that to certify the medical fitness of the applicant, an authorized representative of the facility licensee shall complete and sign NRC Form 396, "Certification of Medical Examination by Facility Licensee." NRC Form 396, when signed by an authorized representative of the facility licensee, certifies that based on the results of the physical examination, including information furnished by the applicant, the physician has determined that the applicant's physical condition and general health are such that the applicant would not be expected to cause operational errors endangering public health and safety and documents whether the applicant's license should be conditioned with restrictions.

Contrary to the above, Exelon provided information to the NRC that was not complete and accurate in all material respects. Specifically, between September 2002 and February 2012, NMPNS submitted applications for seven operators (including applications for four reactor operator and four senior reactor operator initial licenses, a senior reactor operator license amendment, three reactor operator license amendments, and a reactor operator renewal), each of which included NRC Form 396s that certified

the medical fitness of the applicants and that did not identify any needed license operator restrictions regarding disqualifying medical conditions or related prescribed medication. However, each of the applicants had medical conditions that did not meet the minimum standards of 10 CFR 55.33(a)(1) and, therefore, required specific license conditions in order to perform licensed activities. Based, in part, on this inaccurate information, the NRC issued the license documents without the required restricting license conditions. These issues were entered into Exelon's CAP as IR-02421334. **(AV 05000220, 05000410/2014-005-01, Incomplete and Inaccurate Medical Information Provided by Exelon which Impacted Issuance of Initial and Renewal Licenses)**

2. 10 CFR 55.3, "Licensee Requirements," requires, in part, that a person must be authorized by a license issued by the Commission to perform the function of a licensed operator or a licensed senior operator as defined in Part 55.

10 CFR 50.74(c), "Notification of Change in Operator or Senior Operator Status," requires, in part, that each facility licensee notify the appropriate NRC Regional Administrator within 30 days of a permanent disability or illness as described in 10 CFR 55.25, "Incapacitation Because of a Disability or Illness," involving a licensed operator or senior operator.

10 CFR 55.25 requires, in part, that if a licensed operator or licensed senior operator develops a permanent physical condition that causes the licensee to fail to meet the requirements of 10 CFR 55.21, "Medical Examination," the facility must notify the NRC within 30 days of learning of the diagnosis. For conditions where a license condition is required, the facility licensee must provide medical certification on NRC Form 396, "Certification of Medical Examination by Facility Licensee."

10 CFR 55.21 requires, in part, that individual licensed operators and senior operators shall have a medical examination by a physician every 2 years and that the physician shall determine that the operator meets requirements of Section 55.33(a)(1), "How to Apply." 10 CFR 55.33(a)(1) requires, in part, that an applicant's medical condition and general health will not adversely affect the performance of assigned operator job duties or cause operational errors endangering public health and safety. 10 CFR 55.33(b), "Disposition of an Initial Application," states, in part, that if the general medical condition of an applicant does not meet the minimum standards under 10 CFR 55.33(a)(1), the NRC may approve the application and include conditions in the license to accommodate the medical defect.

Contrary to the above, between June 2002 and September 2014, seven licensed reactor operators performed licensed duties when they had permanent disabilities or illnesses that caused them to not meet the requirements of 10 CFR 55.33(a)(1), since each had

medical issues that were defined by ANSI/ANS 3.4-1983 as disqualifying conditions. The facility did not notify the NRC within 30 days of learning of these medical concerns and did not provide medical certification on NRC Form 396 to request conditions in the licenses to accommodate the medical defects. Specifically, the operators, during initial and biennial medical examinations, informed the NMPNS MRO that they had been prescribed medications for such conditions as hypertension, post-traumatic stress disorder, attention deficit disorder, and asthma. However, NMPNS did not restrict these licensed operators from performing licensed operator duties, report these changes in

permanent medical condition to the NRC within 30 days, or request amended licenses with conditions to account for the disqualifying medical issues. These issues were entered into Exelon's CAP as IR-02421334. **(AV 05000220, 05000410/2014005-02, Failure to Make Timely Reports of Changes in Licensed Operator Medical Status which Impacted Issuance of Initial and Renewal Licenses)**

Licensed Operator Regualification Program and Licensed Operator Performance (71111.11Q)

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

a. Inspection Scope

The inspectors observed:

- Unit 1 licensed operator annual test simulator scenario, which included an electronic pressure regulator failure, reactor vessel level transmitter failure, reactor recirculation pump seal leak inside containment, and an emergency condenser steam leak inside containment on October 21, 2014
- Unit 2 licensed operator annual test simulator scenario which included a loss of offsite power line 5, a control rod drive pump trip, a decrease in main condenser vacuum, a reactor core isolation coolant steam leak, and a bypass valve system failure on October 21, 2014

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 control room supervisor. The inspectors verified the accuracy and timeliness of the emergency classifications made by the shift manager and the TS action statements entered by the control room 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 1 control room observation during GEMAC 12 level transmitter troubleshooting on October 17, 2014
- Unit 2 control room observation during scheduled maintenance on the high pressure coolant injection system and Division III EDG on October 23, 2014

The inspectors reviewed CNG-OP-1.01-1000, "Conduct of Operations," Revision 01000, 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 – 1 sample)

a. Inspection Scope

The inspectors reviewed Unit 2's ADH removal system on October 29, 2014, to assess the effectiveness of maintenance activities on structure, system, and component (SSC) performance and reliability. The inspectors reviewed CAP documents, maintenance WOs, the UFSAR, drawings, maintenance rule basis documents, and performed a system walkdown to ensure that Exelon was identifying and properly evaluating performance problems within the scope of the maintenance rule. 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.

b. Findings

Introduction. The inspectors identified a Green NCV of TS 5.4, "Procedures," for Exelon's failure to properly perform procedure N2-OSP-GTS-R001, "Secondary Containment Integrity Test," Revision 01100. Specifically, Exelon staff failed to ensure spectacle flanges associated with ADH secondary containment isolation were properly installed. As a result, surveillance testing associated with ADH check valves 2ADH*V21A/B and 2ADH*V22A/B was not performed to ensure secondary containment integrity as required by N2-OSP-GTS-R001.

Description. The ADH removal system is a non-safety-related system used to remove decay heat from the SFP and the reactor core during shutdown conditions. It consists of two loops—a primary loop that circulates hot water from the SFP to a heat exchanger (HX), and a secondary loop that transfers the heat from the HX to a natural draft cooling tower. Although the ADH removal system is not safety-related, a section of the ADH removal system which penetrates the reactor building (RB) wall (secondary containment boundary) is safety-related and is subject to leak rate testing to ensure the requirements of TS 3.4.6.1, "Secondary Containment," are maintained. This section consists of two separate pipes that contain two safety-related check valves in series 2ADH*V21A, 2ADH*V21B, 2ADH*V22A, and 2ADH*V22B. Secondary containment integrity can be verified by leak testing the check valves or repositioning spectacle flanges that are installed in each of the lines to the no flow position, which provides full isolation of the secondary containment to the atmosphere.

During an inspection of the system in the plant on October 28, 2014, the inspectors identified that the spectacle flanges for each line were not repositioned to the no-flow

position. In response to the inspector's observation, Exelon reviewed previous surveillance tests performed under N2-OSP-GTS-R001 and determined that tests performed in 2012 and 2014 were not implemented correctly. Specifically, when operators performed section 8.2.1 of procedure N2-OSP-GTS-R001, they marked a check box that stated the flanges were repositioned to the no flow condition when, in fact, they were still positioned to allow system flow. As a result, operators should have conducted a seat leak check on valves 2ADH*V21A, 2ADH*V21B, 2ADH*V22A, and 2ADH*V22B to ensure the secondary leakage requirements of TS 3.4.6.1 were maintained. Exelon identified the last successfully performed secondary containment integrity test was performed in 2010, which verified the ADH isolation check valves were leak-tight without the spectacle flanges rotated to the no flow condition.

Exelon immediately entered this issue into their CAP as IR 2403311. Exelon entered TS SR 3.0.3, which is used when a licensee discovers that a surveillance test requirement has not been performed. As required by the TS, Exelon completed a risk evaluation of the missed surveillance and determined large early release frequency remained low without ADH secondary containment isolation. Exelon also performed extent-of-condition inspections for other systems which may not have proper alignment to ensure they are meeting TS requirements. No other valve lineup issues were discovered. On December 4, 2014, Exelon rotated the spectacle flanges to the no flow isolation position to ensure secondary containment integrity was maintained.

Analysis. The inspectors determined the failure to ensure that ADH spectacle flanges were in their proper configuration prior to performing secondary containment integrity testing per N2-OSP-GTS-R001 was a performance deficiency that was within Exelon's ability to foresee and correct and should have been prevented. The finding is more than minor because it is associated with the configuration control attribute of the Barrier Integrity cornerstone objective to provide reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. Specifically, by performing N2-OSP-GTS-R001 in 2012 and 2014 without first ensuring the spectacle flanges were properly installed Exelon did not verify the secondary containment requirements of TS SR 3.4.6.1 were maintained. Additionally, this issue was similar to Example 3.d in IMC 0612, Appendix E, "Examples of Minor Issues," in that the failure to implement the TS SR as required was not minor if the surveillance had not been conducted. By not correctly testing the secondary containment in 2012 and 2014, the TS SR 3.4.6.1 was not met.

In accordance with IMC 0609.04, "Initial Characterization of Findings," and Exhibit 3 of IMC 0609, Appendix A, "The Significance Determination Process for Findings At-Power," issued June 19, 2012, the inspectors determined this finding is of very low safety significance (Green) because the finding only represents a degradation of the radiological barrier function provided for the control room, or auxiliary, SFP, or standby gas treatment system (boiling water reactor).

This finding has a cross-cutting aspect in the area of Human Performance, Avoid Complacency, because Exelon staff did not implement appropriate error reduction tools. Specifically, operators did not use error reduction tools to ensure the spectacle flanges were installed in the no flow position and as a result, they failed to leak test the ADH check valves in the secondary containment drawdown test as required by N2-OSP-GTS-R001 [H.12].

Enforcement. TS 5.4 “Procedures,” states, in part, “written procedures shall be established, implemented, and maintained...covering the applicable procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978...” Regulatory Guide 1.33, Revision 2, Appendix A, February 1978, Section 8, “Procedures for Control of Measuring and Test Equipment and for Surveillance Tests, Procedures, and Calibrations,” states, in part, “implementing procedures are required for each surveillance test...listed in the technical specification”. N2-OSP-GTS-R001 is a procedure that implements a surveillance test listed in the Unit 2 TSs. Contrary to the above, Exelon staff did not properly perform N2-OSP-GTS-R001, “Secondary Containment Integrity Test,” Revision 01100, as required by TS 3.6.4.1. Specifically, Exelon staff failed to confirm the ADH spectacle flanges were installed properly during surveillance testing in 2012 and 2014. This resulted in the ADH secondary containment leakage not being properly measured to confirm meeting the surveillance test and design requirements as required by TS 3.4.6.1. Because this violation was of very low safety significance and was entered into Exelon’s CAP (IR 2403311), this violation is being treated as an NCV consistent with Section 2.3.2.a of the NRC Enforcement Policy. **(NCV 05000410/2014005-03, Missed Surveillance Test of Alternate Decay Heat Removal System Secondary Containment Isolation Valves)**

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13 –7 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 EDG 103 during the week of October 7, 2014
- Unit 2 planned maintenance on Division III EDG on October 22, 2014
- Unit 1 planned reactivity maneuver for reactor recirculation motor generator 12 recovery and rod pattern adjustment on October 25, 2014
- Unit 2 planned maintenance on Division II EDG on October 31, 2014
- Unit 2 planned load testing of Division III battery 2BYS*BAT2C on November 18, 2014
- Unit 1 unplanned failure of square root converter associated with the control rod drive system flow control valves on November 24, 2014
- Unit 2 planned maintenance on Division I EDG on December 11, 2014

b. Findings

No findings were identified.

1R15 Operability Determinations and Functionality Assessments (71111.15 – 4 samples)a. Inspection Scope

The inspectors reviewed operability determinations for the following degraded or non-conforming conditions:

- Unit 2 Division II EDG lube oil leak on cylinder 6 fuel oil pump on October 10, 2014
- Unit 1 solenoid-operated valves associated with emergency condenser isolation valves IV-39-05 and IV-39-06 environmental qualification PM omission on October 17, 2014
- Unit 2 ADH secondary containment check valves on October 30, 2014
- Unit 2 normal vent fire damper found closed during 20-year PM on November 10, 2014

The inspectors selected these issues based on the risk significance of the associated components and systems. 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. 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. The inspectors determined, where appropriate, compliance with bounding limitations associated with the evaluations.

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing (71111.19 – 8 samples)a. Inspection Scope

The inspectors reviewed the post-maintenance tests for the maintenance activities listed below to verify that procedures and test activities ensured system operability and functional capability. The inspectors reviewed the test procedure to verify that the procedure 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 procedure had been properly reviewed and approved. The inspectors also witnessed the test or reviewed test data to verify that the test results adequately demonstrated restoration of the affected safety functions.

- Unit 2 electrohydraulic control relief valve 2TMB*RV5 following leak repair on October 2, 2014
- Unit 1 EDG 103 ventilation system performance test following installation of National Fire Protection Act 805 modification per engineering change package (ECP-2-000572, "ESR 12-000329 NMP-ESR (0000) – U1 NFPA 805 Transition Project – Modification for EDG Room Cooling," Revision 0000.00, on October 8, 2014

- Unit 1 EDG 103 surveillance test following planned maintenance activities on October 8, 2014
- Unit 2 Division III EDG manhole 3 sump pump following level switch replacement on October 22, 2014
- Unit 1 charcoal ventilation system 12 fan discharge expansion joint following replacement November 2, 2014
- Unit 2 Division II EDG over-speed trip mechanism following cable repair on November 5, 2014
- Unit 1 replacement of level transmitter LT-60-10A on emergency condenser 11 make-up tank on November 12, 2014
- Unit 2 Division II EDG following fuel oil pipe replacement on December 9, 2014

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 2015 refueling outage at Unit 1, the inspectors performed the following activities:

- Observed fuel bundle channel installation, new fuel cask unloading, new fuel cleanliness inspections, and foreign material exclusion controls.
- Walked down several plant areas in the reactor and turbine building to ensure pre-outage activities such as scaffold erection did not adversely impact plant equipment

b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22 – 4 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 1, N1-ST-M4A, Emergency Diesel Generator 102 and PB 102 Operability Test on October 20, 2014
- Unit 1, N1-ST-Q16A, Emergency Diesel Generator 102 Quarterly Test on October 20, 2014 (inservice test)

- Unit 1, N1-ST-DI, [Independent Spent Fuel Storage Installation]ISFSI Daily Checks on October 21, 2014
- Unit 2, N2-OSP-ICS-Q@002, [reactor core isolation cooling] RCIC Pump and Valve Operability Test and System Integrity Test and [American Society of Mechanical Engineers] ASME XI Functional Test on November 6, 2014 (inservice test)

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 the NMPNS Emergency Action Levels (EALs), Emergency Plan, and Implementing Procedures. Exelon had determined that, in accordance with 10 CFR 50.54(q)(3), any change 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.

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 Emergency 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.

2. RADIATION SAFETY

Cornerstone: Public Radiation Safety and Occupational Radiation Safety

2RS5 Radiation Monitoring Instrumentation (71124.05 – 1 sample)

a. Inspection Scope

During the period of October 27 to 30, 2014, the inspectors verified that Exelon personnel were assuring the accuracy and operability of radiation monitoring instruments that are used to protect occupational workers and to protect the public from nuclear power plant operations. The inspectors used the requirements in 10 CFR 20, "Standards for Protection Against Radiation;" 10 CFR 50, Appendix I, "Numerical Guides

for Design Objectives and Limiting Conditions for Operations to Meet the Criterion ‘As Low As Is Reasonably Achievable’ for Radioactive Material in Light-Water-Cooled Nuclear Power Reactor Effluents;” TSs; offsite dose calculation manual (ODCM); applicable industry standards; and procedures required by TSs as criteria for determining compliance.

Inspection Planning

The inspectors conducted an in-office review of the UFSAR, TS requirements for post-accident monitoring instrumentation, ODCM, and audits and self-assessments pertaining to radiation monitoring instrumentation.

Walkdowns and Observations

The inspectors performed the following:

- Walkdowns of the effluent radiation monitoring systems (Unit 1 stack, Unit 2 RB, and turbine building vents) to assess configuration alignment
- Observed staff performance of source checks for portable survey instruments
- Walkdowns of various in-plant monitor area radiation monitors and continuous air monitors and compared control room monitor response with actual monitor readouts
- Evaluated periodic source checks of personnel contamination monitors, portal monitors, and small area monitors

Calibration and Testing Program

The inspectors performed the following:

- Evaluated channel calibration, functional tests, and alarm set points of selected effluent monitoring instruments
- Assessed laboratory analytical instruments to evaluate performance checks, calibration data, frequency of testing, and corrective action maintenance of the equipment
- Reviewed calibration records, and the methods used to perform functional tests for the whole body counter
- Reviewed the electronic and source calibration documentation for the drywell high-range radiation monitors
- Evaluated two effluent/process monitors (Unit 1 stack and Unit 2 RB vents) used in emergency operating procedures for current calibration and availability of these instruments
- Evaluated the calibration documentation for selected portable survey instruments, area radiation monitors, air samplers, personnel contamination monitors, and small article monitors
- Reviewed Exelon’s current calibration of portable survey and area radiation monitor instrument calibrator unit
- Reviewed Exelon’s waste stream characterization to assess whether calibration sources used were representative of radiation encountered in the plant

Problem Identification and Resolution

The inspectors evaluated whether problems associated with radiation monitoring instrumentation were being identified by Exelon at an appropriate threshold and were properly addressed for resolution in Exelon's CAP. The inspectors assessed the appropriateness of the corrective actions for a selected sample of problems documented by Exelon that involved radiation monitoring instrumentation.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

4OA2 Problem Identification and Resolution (71152 – 5 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 attended a station ownership committee screening meeting.

b. Findings

No findings were identified.

.2 Semi-Annual Trend Review

a. Inspection Scope

The inspectors performed a semi-annual review of site issues as required by Inspection Procedure 71152 to identify trends that might indicate the existence of more significant safety issues. In this review, the inspectors included repetitive or closely related issues that may have been documented by Exelon outside of the CAP such as trend reports, performance indicators, 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 2014 to assess CRs and 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 oversight reports for June to December 2014 conducted under NO-AA-104-1007, "Nuclear Oversight Management Updates," Revision 3, 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.

Operations Performance Involving Configuration Control

In the fourth quarter of 2013 and second quarter of 2014, the inspectors identified a growing trend in the area of human performance which included improper tagging, plant transients, and configuration control including mispositioning events. Despite increased awareness provided by station management and corrective actions directed at correcting this ongoing issue, this trend continued, particularly in the Unit 2 operations department. In March of 2014, Exelon's nuclear oversight (NOS) group highlighted this weakness in an escalation letter to plant management (CR-2014-002596), which provided additional focus on operations performance related to the trend. Exelon management made operational focus a part of the site's excellence plan to provide increased management oversight and station focus to improve performance involving configuration control, safety tagging, and leadership fundamentals.

The increased management attention on this area resulted in improved performance, and in September 2014, NOS closed the escalation letter regarding operations performance. During that same month, a review conducted by NMPNS and Exelon corporate staff resulted in the rating of operations being reduced from 'Red' to 'Yellow' under their comprehensive performance assessment process. On November 12, 2014, the station also reached 100 days without experiencing a configuration control event.

The inspectors reviewed corrective actions associated with the excellence plan as part of a problem identification and resolution sample listed in Section 4OA2 of this report. The inspectors noted improvement in operations performance through effective leadership and error free operation of system components. The inspectors will continue to monitor progress of corrective actions associated with operations performance through the daily CAP review.

Unit 1 EDG 102 and EDG 103 Duplex Strainer Differential Pressure

The EDG 102 and EDG 103 raw water duplex strainers at Unit 1 are used to filter debris from incoming fresh water used to provide cooling to the diesel generator HXs during system operation. N1-ST-Q25, "Emergency Diesel Generator Cooling Water Surveillance Test," Revision 02500, indicates the maximum differential pressure (DP) across the strainers should be 6 pounds per square inch. Excessive strainer DP is an indication of strainer fouling which could lead to reduced cooling water flow through the EDG HXs. The inspectors identified an adverse trend associated with an increase in DP across the EDG 102 and EDG 103 raw water duplex strainers exceeding procedural requirements during the performance of N1-ST-Q25. These issues were documented in CR-2014-006028, CR-2014-007895, IR 2265990, IR 2392663, and IR 2411540.

The raw water piping for both EDGs was replaced in June 2014, which provided an improvement to raw water flow performance. However, it was not expected that DP would increase to the 6 pounds per square inch limit outlined in N1-ST-Q25 with the increased raw water flows. Exelon identified the likely cause of the rise in DP to be associated with strainer clogging. Although a WO was created in June 2014 to clean the strainers, it was not scheduled to be performed. As documented by the IRs listed above, increased strainer fouling could result in reduced raw water flow to the EDG HXs. IR

2411540 contained a corrective action to revise the procedural limits in N1-ST-Q25 to increase the maximum DP allowed across the strainers. This corrective action was based, in part, on an Exelon evaluation that determined that the maximum raw water strainer DP limit is 8.1 pounds per square inch differential which will allow 375 gallons per minute to flow to the EDG HXs. EDG raw water flow rates are typically between 285 and 340 gallons per minute.

Although changing the acceptance criteria in N1-ST-Q25 may be an acceptable interim corrective action, the inspectors noted that Exelon missed several opportunities to perform strainer raw water cleaning, which may address the root cause of the issue. Although the adverse trend exists, it has not resulted in the inoperability of the EDG, as adequate cooling water flows continue to meet procedural requirements outlined in N1-ST-Q25, therefore this issue is minor. The inspectors will continue to follow this adverse trend through daily review of the CAP program.

Seasonal Readiness Implementation Timeliness

The inspectors identified an adverse trend associated with the implementation of seasonal readiness at NMPNS in accordance with WC-AA-107, "Seasonal Readiness," Revision 014. The purpose of the seasonal readiness program is to prepare the site for reliable operation during the summer and winter periods. This is accomplished by verifying or modifying system configurations that can be affected by extreme weather as well as verifying the functionality and settings of supplemental equipment used during extreme weather, such as space heaters. The program is also used to identify conditions that could potentially impact NMPNS's ability to cope with extreme weather and elevate the maintenance and repair efforts so that the equipment is available to perform as necessary prior to the summer and winter readiness dates, June 1 and December 1, respectively.

Historically, Exelon has not completed the tasks by the required dates established by WC-AA-107 or has omitted maintenance activities from the program, both of which could impact extreme weather preparations. Examples of these issues are documented in CR-2011-009905, CR-2011-010119, CR-2011-010120, CR-2012-010242, CR-2012-010243, CR-2012-011576, and CR-2014-005286. Most recently, following the winter readiness date of December 1, 2014, two IRs were issued (IR 02422133 and IR 0242506) that described how work required by the winter readiness program was not completed, or was incorrectly scoped out of the winter readiness program. IR 02422133 also documents the failure to identify degraded turbine building ventilation supply heaters at Unit 1 as required for winter readiness preparations. In this case, only after the inspectors questioned the reason for excluding the heaters from the winter readiness program did Exelon determine the heaters should be functional to meet winter readiness requirements.

Exelon has developed and scheduled a repair plan for the turbine building ventilation supply heaters. Currently, the backup turbine building ventilation supply heaters are providing a source of building heat in conjunction with process heat from a number of different plant equipment. Exelon will also be holding focus meetings to discuss the winter readiness program as well as specific system requirements to ensure compliance with the program in the future. The inspectors noted the failure of NMPNS to meet the seasonal winter readiness requirements outlined in WC-AA-107 has not impacted the operability of the components included in the seasonal readiness program, did not affect operators ability to respond to an event, and compensatory actions were appropriate.

Therefore, the issue was considered minor. The inspectors will continue to follow this adverse trend through daily review of the CAP program.

.3 Annual Sample: Review of NMP1 Reactor Scram Due to Feedwater Level Control System Failure

a. Inspection Scope

The inspectors reviewed the corrective actions taken as a consequence of CR-2012-010039, "NMP1 Reactor Scram Due to Feedwater Level Control System Failure," Revision 2. The inspectors reviewed the results of the report to identify, prioritize, and resolve the root causes of the reactor scram.

The root causes involved a failed transistor on a controller card and a slow closing valve. The corrective actions of transistor testing during card refurbishment and valve controller rebuild and testing were reviewed for their evaluation and disposition of operability and reportability issues, consideration of extent of condition and cause, generic implications, common cause, and previous occurrences. The corrective actions were further reviewed to determine if the classification and prioritization of the problem's resolution was commensurate with the safety significance.

The corrective actions taken for the slow valve closing were also reviewed. As part of the review, the inspectors evaluated the actions taken by Exelon to address the related performance deficiency documented as FIN 50-220/2013002-02 in NRC Inspection Report 50-220/2013002, issued by the NRC on May 9, 2013 (ADAMS No. ML13130A025). The finding was for Exelon's failure to establish appropriate initial conditions during surveillance testing of the degraded valve. The inspectors used NRC Inspection Procedure 71152, Table 1, and "Performance Attributes," to determine the effectiveness of the corrective actions implemented by Exelon staff.

The inspectors interviewed station personnel involved in developing the root causes. The derived information was compared with the corrective action's identification of root and contributing causes of the problem. The inspectors ascertained if the documented information was reported to appropriate levels of management. The inspectors reviewed the corrective actions to determine if the corrective action was appropriately focused to correct the problem (and to address the root and contributing causes for significant conditions adverse to quality).

The inspectors then determined if the completion of corrective actions was in a timely manner commensurate with the safety significance of the issue. The inspectors considered if any delays in implementation were justified based on the safety significance of the issue. The inspectors considered if any permanent corrective actions required significant time to implement and if interim corrective actions and/or compensatory actions were identified and implemented to minimize the problem and/or mitigate its effects until the permanent action could be implemented.

The inspectors reviewed the actions taken to determine if the actions resulted in the correction of the identified problem. In the case of this condition, the inspectors determined if the corrective action taken would preclude repetition. Finally the inspectors reviewed operating experience to determine if it was adequately evaluated for applicability, and applicable lessons learned were communicated to appropriate organizations and implemented.

b. Findings and Observations

No findings were identified.

The inspectors determined the actions taken resulted in the correction of the identified problem and the corrective action taken will preclude repetition.

.4 Annual Sample: Review Corrective Actions for 10 CFR 50.72 and 50.73 Reporting Failures

a. Inspection Scope

The inspectors assessed Exelon's problem identification threshold, associated analyses and evaluations, and prioritization and timeliness of corrective actions to evaluate whether Exelon was appropriately identifying, characterizing, and correcting problems associated with failure to report degraded conditions or events to the NRC as identified in NUREG-1022, "Event Reporting Guidelines: 10 CFR 50.72 and 50.73," Revision 3.

The inspectors selected three separate occasions of reporting failures over the last 3 years to review. For each of these events, the inspectors reviewed CRs and apparent cause evaluations, as well as conducted interviews with various Exelon staff to assess the adequacy, effectiveness, and timeliness of implemented corrective actions. The inspectors compared the actions taken to the requirements of Exelon's CAP, and 10 CFR 50, Appendix B.

b. Findings and Observations

No findings were identified.

CR-2012-009540 documented NMPNS' discovery of a reportable condition that occurred on September 22, 2012, when operators performed a step in a shutdown cooling operation procedure that defeated the automatic isolation capability of valves in the shutdown cooling system. NMPNS determined that an edit in the procedure prevented the automatic isolation of shutdown cooling which, when implemented, resulted in the shutdown cooling isolation valves not being able to perform their safety function and being declared inoperable. Corrective actions included suspending the procedure and conducting additional licensed operator training regarding application of the reportability criteria of 10 CFR 50.72 and 50.73. The inspectors also documented review of this event in Inspection Report 50-220 & 50-410/2013002 (ADAMS No. ML13130A025) Section 4OA3 and also documented a Severity Level IV violation for failure to perform a written 50.59 evaluation for the revision to the shutdown cooling system procedure (NCV 50-220/2013002-05).

CR-2013-001859 documented an inappropriate retraction on December 17, 2012, of a 10 CFR 50.72 report regarding a Unit 1 high pressure coolant injection system initiation that occurred on November 6, 2012. The apparent cause that investigated this event determined that inappropriate use of assumptions among NMPNS staff when deciding whether the original 10 CFR 50.72 submittal was suitable was the cause of the event. Corrective actions for this event included resubmitting the 10 CFR 50.72 notification, editing the reportability requirement procedures to avoid assumptions, and training plant staff to recognize reportable conditions. The inspectors also documented review of this event in Inspection Report 50-220/2013002, Section 4OA3 and also documented a

Severity Level IV violation for improper retraction and failure to submit a licensee event report (LER) within 60 days of discovery of the actuation (NCV 50-220/2013002-03).

The third event documented in CR-2013-010111 described NMPNS' inconsistency with reporting inoperable conditions regarding secondary containment with NUREG 1022, Revision 3. On five occasions since the NUREG became effective on July 1, 2013, secondary containment was declared inoperable for unplanned reasons and NMPNS did not submit notifications per 10 CFR 50.72. A review of the apparent cause showed a failure to recognize the conditions as reportable due to a lack of detailed understanding of the reportability requirements. Corrective actions included additional training of operators on both units on the differences between NUREG-1022 revisions, development of a site-specific reportability manual consistent with the Exelon format, and performing biannual effectiveness evaluations to ensure reportable events are identified. The inspectors also documented review of these events in Inspection Report 2014003, Section 4OA3 with no additional enforcement action.

Since these events, NMPNS has transitioned to Exelon reportability procedures, which have eliminated the legacy issues associated with the above events. The inspectors determined that Exelon adequately evaluated the reporting failures, identified reasonable primary and contributing causes, established and implemented adequate corrective actions, and effectively communicated the results to the plant staff.

.5 Annual Sample: Review Performance Improvement Program

a. Inspection Scope

The inspection focused on the performance improvement program progress at NMPNS. In the fourth quarter of 2012, Unit 1's performance indicator for unplanned scrams per 7,000 critical hours crossed the Green/White threshold. In November 2013, the NRC performed a 95001 inspection (Supplemental Inspection Report 05000220/2013009), which determined that Constellation Energy Nuclear Group, LLC (CENG), Exelon at that time, had completed or planned corrective actions that were reasonable to address the issues which led to the degraded performance.

In the third quarter of 2012, four NRC Green inspection findings, across multiple cornerstones, were identified as having common cross-cutting aspects in the area of Human Performance, Resources, because CENG did not provide complete, accurate, and up-to-date procedures that were adequate to assure nuclear safety. In the fourth quarter of 2012 and again in the second quarter of 2013 (NRC Integrated Inspection Reports 05000220/2012005, 05000410/2012005 and 2013003, respectively), the NRC conducted annual problem identification and resolution inspection samples to assess CENG's progress in addressing this issue. The inspectors were not able to determine whether corrective actions to address the issue were effective as they had only recently been fully implemented at the time.

The inspectors selected the review of the performance improvement program to determine Exelon's progress to improve overall site performance since taking over CENG. The inspectors reviewed Exelon's site performance improvement integrated matrix, departmental performance improvement integrated matrixes, and associated action plans; attended a departmental performance improvement integrated matrix review, daily production, and plan-of-the-day meetings; and interviewed plant personnel.

b. Findings and Observations

No findings were identified.

Following Unit 1 reactor scrams in 2012, CENG developed a 2013 excellence strategy to improve performance at the site. This plan focused on the areas of equipment reliability, the CAP, workforce development and engagement, and human performance. During implementation, CENG observed improvement in the four focus areas. Following the transition to Exelon in mid-2014, opportunities for improvement continued to be observed while also identifying an area of weakness in operations focus. Exelon re-organized the excellence plan strategy to incorporate the weakness in operational focus.

Exelon uses a performance improvement integrated matrix computer program as a tool to organize and track performance improvement goals, and progress for the site as well as individual departments. Exelon implemented the performance improvement integrated matrix at NMPNS at the end of August 2014. The performance improvement integrated matrix displayed the focus areas or performance gaps for the site or department, the methods used for performance monitoring (benchmarking, training, etc.), analysis, solution implementation, as well as due dates. The associated action plans showed the individual tasks to be performed to address the issue. In this process, the site focus areas have remained the same.

The inspectors determined that the performance improvement integrated matrix provided an effective overview of the issues and the methods by which they were being addressed. The focus areas appeared to be appropriate and the action plans utilized a variety of methods to identify and correct performance gaps. Through discussion with plant personnel, the inspectors found that corporate and fleet support had aided the site in identifying not only performance gaps but also recovery strategies for continued improvement.

The inspectors observed a variety of actions that Exelon implemented to communicate performance expectations at NMPNS and reward improved performance. For example, large signs were staged at various locations onsite to communicate some of the station goals with due dates that were updated to show whether the milestones were met. Following the accomplishment of one of the milestones, employees were recognized by the NMPNS leadership team through receipt of a non-monetary reward. At several meetings observed by the inspectors, management and staff appropriately communicated the need to perform tasks in accordance with the approved programs and to coach personnel to the appropriate standards to drive improved performance.

The inspectors determined that Exelon had identified site performance issues at an appropriate level and incorporated them into the site and departmental performance improvement plans. Although all departmental action plans had not yet been fully incorporated into the performance improvement integrated matrix, the site and departmental action plans identified appropriate short- and long-term actions with adequate due dates.

.6 Annual Sample: Electromatic Relief Valve Operating Experience Review

a. Inspection Scope

The inspectors conducted an in-depth review of the design, operation, and maintenance of the Unit 1 electromatic relief valves (EMRVs) based upon recent operating experience involving the failure of two EMRVs at the Oyster Creek Nuclear Operating Station, identified in June 2014. The EMRV failures at Oyster Creek were identified during bench testing at a vendor facility as part of routine refurbishment activities. The EMRVs at NMPNS Unit 1 are the same make and model (Dresser Valve and Controls Division, 6-inch Type 1525-VX), as the Oyster Creek EMRVs.

Exelon's failure analysis of the Oyster Creek relief valves determined that the main valves failed to open due to binding of the solenoid-operated pilot valve actuator. Specifically, in-service steam flow induced vibration caused fretting and wear of the solenoid operator posts, springs and guide bushings. The resultant wear caused sufficient degradation to these actuator components, which included binding of the springs between the posts and guide bushings resulting in the solenoid actuator plunger binding and preventing movement (opening) of the pilot valve.

The inspectors reviewed the Unit 1 EMRV design documents and associated drawings, PM and test procedures, completed WOs, CRs, and available electrical and mechanical maintenance staff training documents. The inspectors also interviewed the responsible systems engineer, maintenance engineering supervisor, and responsible electrical and mechanical maintenance technicians who completed PM on the EMRVs during the last refueling outage. In addition, the inspectors reviewed a technical report, completed in November 1970, resulting in the implementation of a design change to improve the operation and reliability of the EMRVs, and License Amendment No. 210 (reference ML 102800415 and ML112500067), dated September 28, 2011, that authorized the implementation of alternative means for testing the EMRVs.

b. Findings and Observations

No findings were identified.

The inspectors observed that the EMRVs at Unit 1 have not experienced any of the in-service, steam flow induced vibration related degradation that the Oyster Creek EMRVs have exhibited. A review of the EMRV maintenance history determined that the solenoid actuator posts, springs, and guide bushings have only been replaced on the C, D, E and F valves, since initial installation and power operations in December 1969. The inspectors learned that examinations completed by the responsible system engineer during Refueling Outage RF20 in 2009, identified some minor wear on the posts on four of the six EMRVs. Maintenance WOs (C09048-2400, 2500, 2600, and 2700) were initiated and completed during Refueling Outage RF21 in April 2011 to replace these worn actuator components.

The inspectors determined that a number of plant specific design attributes likely contribute to the absence of any appreciable in-service wear of the NMPNS Unit 1 EMRV solenoid actuators, as compared to the Oyster Creek EMRV installation. Principally, the Unit 1 EMRVs were modified in 1972 to install a valve enclosure. The purpose of the valve enclosure is to provide direct physical separation of the valve discharge bellows assembly from the relief valve body. The enclosure was designed to

eliminate the adverse effects of differential thermal expansion between the valve body and discharge bellows that was determined to have contributed to main valve seat leakage (due to warping) and inadvertent valve lifts. The enclosure successfully remedied the main valve seat leakage issue, and as an added benefit increased the mass of the EMRV assembly, helping to dampen any flow induced vibration from the main steam lines. A secondary benefit of the massive enclosure design is a more robust coupling for the cantilevered solenoid-operated pilot actuator assembly. This cantilevered design naturally amplifies any vibration, but as historically proven, has not been a significant operational concern for Unit 1. Lastly, another plant design attribute that differentiates the two facilities is that the Unit 1 EMRVs have upstream manual isolation valves, whereas, the Oyster Creek EMRVs have no upstream isolation valves. The added mass of the Unit 1 isolation valves further assists in dampening any flow induced vibration from the main steam lines. One additional difference between Oyster Creek and NMPNS Unit 1, identified by the Exelon staff, is a slightly lower steam flow velocity. A fleet-wide review conducted by NMPNS identified that the steam flow velocity at Unit 1 is approximately 173 feet per second, as compared to Oyster Creek which is 181 feet per second.

Based upon the above review, the inspectors concluded that the flow induced vibration conditions that contributed to the Oyster Creek EMRV failures do not pose a similar operational concern at NMPNS Unit 1. Exelon also committed in IR 02434860-01 to revise N1-EPM-GEN-124, "Electromatic Solenoid Inspection," Revision 00500, to include "as-found" testing of the EMRV solenoid during the spring 2015 refueling outage to verify proper operation of the EMRVs prior to maintenance.

4OA3 Follow-Up of Events and Notices of Enforcement Discretion (71153 – 6 samples)

.1 (Closed) LER 05000410/2014-002-00: High Pressure Core Spray System Inoperability Due to Inoperable High Pressure Core Spray Diesel Generator

On February 24, 2014, Unit 2 Division III EDG was declared inoperable for planned maintenance. Before starting post-maintenance testing on February 27, operators observed erratic voltage regulator operation due to a degraded motor-operated potentiometer. Due to the status of the EDG, the HPCS system was declared inoperable. The combination of the two pieces of equipment being out of service prevented Unit 2 from exceeding a TS limiting condition for operation action statement associated with EDG inoperability. This event was reportable to the NRC in accordance with 10 CFR 50.72(b)(3)(v)(D) and 10 CFR 50.73(a)(2)(v)(D) for any event or condition that, at the time of discovery, could have prevented the fulfillment of the safety function of structures needed to mitigate the consequences of an accident.

Exelon's corrective actions included replacing the defective potentiometers. After satisfactory completion of the EDG post-maintenance test, the HPCS and EDG were declared operable. The inspectors reviewed the LER and determined that no findings or violations of NRC requirements were identified. This LER is closed.

.2 (Closed) LER 05000410/2014-003-00: Uninterruptible Power Supply Failure and Subsequent Manual Scram

On March 4, 2014, control room operators manually scrammed Unit 2 because of rising reactor recirculation pump seal and motor temperatures. Prior to the scram, a malfunction of the uninterruptible power supply (UPS) occurred, which caused the primary containment cooling water isolation valves to close and a reactor protection system (RPS) half scram. The malfunction of the UPS was due to a degraded material condition within the system. This event was reportable to the NRC in accordance with 10 CFR 50.73(a)(2)(iv)(A) as a condition that resulted in manual or automatic actuation of any of the systems listed in 10 CFR 50.73(a)(2)(iv)(B).

Exelon's corrective actions included replacing the degraded components and implementation of new processes for repairs and refurbishment for subcomponents with the UPS system. The inspectors reviewed the LER and root cause report associated with the event and determined that the corrective actions outlined in the root cause investigation did not reflect information regarding the UPS components that Exelon learned during subsequent troubleshooting activities. Exelon documented this observation in IR 2416757. This issue has been opened as an unresolved item (URI) that is discussed below. No other findings or violations of NRC requirements were identified. This LER is closed.

Introduction. A URI was identified pending Exelon's revision and approval of their root cause report associated with the failure of UPS3B that caused a Unit 2 reactor scram on March 4, 2014.

Description. Unit 2 is equipped with two 10-kVA UPS's (2VBB-UPS3A and 2VBB-UPS3B) that feed RPS logic trip channel loads and main steam line isolation valves control solenoids through their associated distribution panels. 2VBB-UPS3B feeds the RPS trip system 'B'. The loads are normally energized from 600 volts alternating current (VAC) non-safety-related power. In the case of the loss of normal supply power, an inverter allows the loads to receive power from its backup direct current source. In the case of an inverter failure, the UPS can be fed from an alternate non-safety-related 600 VAC source. Each UPS is connected to its associated distribution panel through two redundant electric protective assemblies connected in series. The electric protective assemblies provide redundant protection to the RPS system and other associated essential circuits against overvoltage, undervoltage, and under frequency conditions in the non-safety-related power sources.

On March 4, 2014, 2VBB-UPS3B experienced a capacitor failure on an associated circuit card. This failure prevented the UPS from transferring to its alternate source of power causing the electrical protective assemblies to trip, a loss of cooling water to the reactor recirculation pumps, and a subsequent reactor trip. Exelon staff documented the issue in CR-2014-001725 and performed a root cause analysis. Using investigative root cause techniques outlined in procedure CNG-CA-1.01-1004, "Root Cause Analysis," Revision 00801, Exelon staff determined the root cause to be a lack of vendor and industry guidance and internal/external operating experience resulting in lack of PM task to preclude backplane failure. The corrective actions to prevent recurrence involved revising the PM strategy in the IQ Review and Maximo database to include replacement of all single-point vulnerable components in 2VBA*UPS2A/2B and 2VBB-UPS3A/3B.

During inspection of Unit 2 LER 2014-003-00, "Uninterruptible Power Supply Failure and Subsequent Manual Scram," the inspectors reviewed the root cause report associated with this event. The inspectors discovered that, although the root cause postulated that warping/cracking of the backplane contributed to UPS3B failure, when new information regarding the backplane that contradicted this root cause was discovered, Exelon personnel did not properly enter this new information into the CAP or elevate the concern to Exelon plant management. Specifically, the engineering staff and a vendor representative had examined the UPS3B backplane during the Unit 2 refueling outage and found no indication of cracking or warping. This examination occurred following management review committee approval of the root cause.

This information, along with other testing performed on the UPS3B during the refueling outage, showed that the theory for potential backplane warping/cracking likely was not the actual root cause and that the corrective actions developed for backplane replacement may not prevent recurrence of the UPS failure. Exelon documented the inspectors' observation in IR 2416757 and plans to evaluate the issue further and to reopen and update the root cause report.

This issue will be opened as a URI pending Exelon revision of the root cause report; and NRC review of the root cause report to determine whether the issue contains a performance deficiency, whether or not that performance deficiency is more than minor, and whether a violation exists. Exelon is tracking this issue through their CAP database with a date to determine root cause revision requirements by December 19, 2014.

(URI 05000410/2014005-04, Assessment of UPS3B Failure Which Resulted in a Reactor Scram)

.3 (Closed) LER 05000410/2014-004-00: Actuation of the Alternate Rod Insertion System and Subsequent Reactor Scram

On March 10, 2014, while Unit 2 was at 99.2 percent power, the plant experienced an automatic reactor scram due to instrument perturbation that occurred while technicians were performing a maintenance activity on the reactor level transmitter instrument drain valves. Specifically, the work performed caused an inadvertent low level signal to be received, which resulted in the actuation of the alternate rod insertion system, reactor recirculation pump trip, and reactor scram. This event was reportable in accordance with 10 CFR 50.73(a)(2)(iv)(A) as a condition that resulted in manual or automatic actuation of any of the systems listed in 10 CFR 50.73(a)(2)(iv)(B).

The root cause of this event was station personnel did not adequately recognize the level of risk, therefore, did not implement rigorous processes and behavioral barriers to mitigate the vulnerabilities associated with work on or near trip-sensitive equipment. Exelon's corrective actions included protection of the trip-sensitive equipment and implementation of new fleet procedures and processes for work around trip-sensitive equipment. The enforcement aspects of this issue are discussed in NRC Integrated Inspection Report 05000410/2014002 (ADAMS ML14119A104), Section 4OA3, and NCV 50-410/2014002-02 was issued. The inspectors did not identify any new issues during the review of the LER. This LER is closed.

.4 (Closed) LER 05000220/2014-004-00, (Closed) LER 05000220/2014-005-00, (Closed) LER 05000220/2014-006-00: Secondary Containment Inoperable Due to Simultaneous Opening of Airlock Doors

LER 05000220/2014-004-00 reported that on August 13, 2014, Unit 1 operators declared secondary containment inoperable when workers inadvertently, momentarily, and simultaneously opened RB airlock doors D-052 and D-053. Both doors were open for a period of approximately 5 seconds. Since the requirement of SR 4.4.3.b.1 that at least one door in each access to the secondary containment be closed was not met, operators entered TS 3.4.3 and promptly exited when the inner door was verified to be closed. The cause of the event was determined to be less than adequate physical barriers to prevent the simultaneous opening of the airlock doors. Specifically, Exelon found that an interlock that magnetically prevents both doors from being open at the same time was bypassed possibly through inadvertent momentary contact with an override button that is located in the airlock passageway in a heavily traversed area. The bypass function is available only to be used during security events. Immediate corrective actions following this event included installing enclosures around the bypass pushbuttons and improve visibility of when the interlock is bypassed. Long term corrective actions included installing cameras and monitors on either side of the airlocks to show personnel the other door to avoid opening the doors at the same time. This event was entered into Exelon's CAP as IR 01700957.

LER 05000220/2014-005-00 and LER 05000220/2014-006-00 reported that on October 16, 2014 and October 20, 2014, respectively, Unit 1 operators declared secondary containment inoperable when RB airlock doors D-052 and D-053 were again opened simultaneously similar to what was reported in LER 05000220/2014-004-00. In both instances the doors were both open for a period of about 5 seconds. In these events, the operators entered and promptly exited TS 3.4.3 when the inner door was verified closed. During the investigation into the cause of these incidents, it was discovered the magnetic interlock that was meant to prevent both doors from being open at the same time could have as much as a 0.5 second time delay before initializing the locking mechanism. This delay could allow both airlock doors to be opened simultaneously even with the locking mechanism functional. If this occurred, Exelon concluded there was no mechanical interlock, visual cue, or human performance tool that would have prevented occurrence of the events.

Initial corrective action for the events included installing temporary cameras and monitors on either side of the airlock doors that would allow personnel to verify at least one airlock door is closed prior to opening the first door. These events were entered into Exelon's CAP as IR 02396495 and IR 02398224.

For the three instances stated above, inspector review of the RB DP as recorded by the plant process computer for the times that both doors were open indicated that the actual DP remained negative and was unaffected by the brief simultaneous opening of the airlock doors. Additionally, Exelon personnel had physical control of the doors at all times and were capable of shutting the doors manually. 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 these events.

The inspectors reviewed the LERs 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.

These LERs are closed.

4OA6 Meetings, Including Exit

On January 8, 2014, the inspectors presented the inspection results to Mr. Christopher Costanzo, 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.

ATTACHMENT: SUPPLEMENTARY INFORMATION

SUPPLEMENTARY INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

C. Costanzo, Site Vice President
P. Orphanos, Plant Manager
A. Armstrong, General Supervisor, Operations Training
M. Busch, Assistant Operations Director, Operations
K. Clark, Manager, Site Security
J. Dean, Supervisor, Nuclear Oversight
L. Doolittle, Nurse, Occupational Safety & Health
M. Khan, Senior Manager, Engineering
M. Kunzwiler, Manager, Site Security Operations
D. Moore, Manager, Chemistry
B. Scaglione, Manager, Engineering
M. Shanbhag, Senior Regulatory Engineer
A. Sterio, Director, Site Maintenance
T. Syrell, Manager, Regulatory Assurance
T. Tanguay, Shift Operations Superintendent (Unit 2)
J. Thompson, Manager, Mechanical Maintenance
W. Trafton, Director, Operations
J. Tsardakas, Shift Operations Superintendent (Unit 1)
J. Westermann, Manager, Emergency Preparedness

LIST OF ITEMS OPENED, CLOSED, DISCUSSED, AND UPDATEDOpened/Closed

05000220, 05000410/ 2014005-01	AV	Incomplete and Inaccurate Medical Information Provided by Exelon Which Impacted Issuance of Initial and Renewal Licenses (Section 1R11)
05000220, 05000410/ 2014005-02	AV	Failure to Make Timely Reports of Changes in Licensed Operator Medical Status Which Impacted Issuance of Initial and Renewal Licenses (Section 1R11)
05000410/2014005-03	NCV	Missed Surveillance Test of Alternate Decay Heat Removal Secondary Containment Isolation Valves (Section 1R12)

Opened

05000410/2014005-04	URI	Assessment of UPS3B Failure Which Resulted in a Reactor Scram (Section 4OA3)
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Closed

05000410/2014-002-00	LER	High-Pressure Core Spray System Inoperability Due to Inoperable High-Pressure Core Spray Diesel Generator (Section 4OA3)
05000410/2014-003-00	LER	Uninterruptible Power Supply Failure and Subsequent Manual Scram (Section 4OA3)
05000410/2014/004-00	LER	Actuation of the Alternate Rod Insertion System and Subsequent Reactor Scram (Section 4OA3)
05000220/2014/004-00	LER	Secondary Containment Inoperable Due to Simultaneous Opening of Airlock Doors (Section 4OA3)
05000220/2014/005-00	LER	Secondary Containment Inoperable Due to Simultaneous Opening of Airlock Doors (Section 4OA3)
05000220/2014/006-00	LER	Secondary Containment Inoperable Due to Simultaneous Opening of Airlock Doors (Section 4OA3)

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

Procedures

WC-AA-107, Seasonal Readiness, Revision 014
N1-OP-64, Meteorological Monitoring, Revision 00801
N1-OP-64, Attachment 3, Cold Weather Preparation Checklist, Revision 00801
N1-OP-64, Attachment 4, Space Heater Setting Checklist, Revision 00801
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N2-OP-70, Station Electrical Feed and 115 kV Switchyard, Revision 01500

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C-18005-C, Feedwater Flow High-Pressure P&ID, Revision 39, Sheet 2

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N2-FPI-PFP-0201, Unit 2 Pre-Fire Plans, Revision 3

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WO C92369045

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

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NMP-TR-1.01-102, Licensed Operator Requalification Training Program, Revision 01800
NMP-TR-1.01-60, Simulator Operation and Testing, Revision 01000
N1-EOP-2, RPV Control – Flowchart, Revision 01500
N1-EOP-4, Primary Containment Control – Flowchart, Revision 01500
N1-OP-58, RPV Level Backfill Injection System, Revision 00601

N1-SOP-33A.1, Loss of 115KV, Revision 00502
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OP-AA-20, Conduct of Operations Process Description, Revision 000
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Sim Reactivity Manipulations/ Model Accuracy Verification, September 19, 2014
Sim vs Plant Comparison, 4/13/14, EC Initiation at Power, July 3, 2013
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SBT AT-2 Scenario #5, October 5, 2014
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N2-OSP-GTS-R001, Secondary Containment Integrity Test, Revision 011000, Performed on
April 2, 2010, April 8, 2012, and April 25, 2014

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EP-73A-4, ISO DWG Reactor Building Alternate Decay Heat Removal System, Revision 4
EP-73B, ISO DWG Outdoor Alternate Decay Heat Removal System, Revision 3
EP-73C, ISO DWG Outdoor Alternate Decay Heat Removal System, Revision 4
EP-73D-2, ISO DWG Outdoor Alternate Decay Heat Removal System, Revision 2
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Procedures

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N1-ST-M9, Control Room Air Treatment Operability Test, Revision 02200, performed on November 5, 2014
N2-MSP-EGS-R001, Diesel Generator Inspection Division I and II, Revision 02100, performed on November 2, 2014
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N2-PM-@026, Diesel Generator Start Following Maintenance – Division I and II, Revision 00201, performed on November 2, 2014, at 1:00 p.m.

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IR 02405107
IR 02406712

Work Orders

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CR-2012-000739

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N1-ST-Q16A, Emergency Diesel Generator 102 Quarterly Test, Revision 00300
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 Calibration Datasheet for AMS-4 #1746-9, March 4, 2014
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 Calibration Datasheet for Argos 5 #4, January 9, 2014
 Calibration Datasheet for Frisk #A756X, March 3, 2014
 Calibration Datasheet for Portal Monitor #630, September 9, 2014
 Calibration Datasheet for SAM #57, August 25, 2014
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 Calibration Datasheet for Sirius Hand and Foot Monitor #1012-006, March 21, 2014
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 Unit 1 Instrument Channel Calibration of Emergency Condenser Vent Radiation Monitor #112, September 30, 2013
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 Unit 1 Stack Radiation Monitor Calibration Check and Channel Test, November 28, 2012
 Unit 1 Stack Radiation Monitor Calibration Check and Channel Test, January 3, 2014
 Unit 2 Calibration of the Service Water Discharge Monitor, August 14, 2014
 Unit 2 Channel Calibration Test of the Service Water Effluent Line Process Radiation Monitors 2SWP*CAB146A and 2SWP*CAB146B
 Unit 2 Channel Calibration Test of the Main Control Room Ventilation Process Radiation Monitors 18B, August 26, 2014
 Unit 2 Channel Calibration Test of the Main Control Room Ventilation Process Radiation Monitors 18C, June 19, 2014

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IR 2411540	IR 1673665	

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WO C92780353

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

Procedures

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N2-EPM-GEN-635, UPS Inverter Cleaning and Inspection, Revision 00500

N2-EPM-GEN-V624, UPS Inverter Functional Checks, Cleaning and Inspection, Revision 01600

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AR 02389341

AR 02396495

AR 02398224

CR-2012-009540

CR-2013-001859

CR-2013-010111

CR-2014-001623

CR-2014-001725

CR-2014-001963

Work Orders

WO C92265942

WO C92593793

LIST OF ACRONYMS

10 CFR	Title 10 of the <i>Code of Federal Regulations</i>
ADH	alternate decay heat
ANSI/ANS	American National Standards Institute/American Nuclear Society
AR	action request
AV	apparent violation
CAP	corrective action program
CENG	Constellation Energy Nuclear Group, LLC
CR	condition report
DP	differential pressure
EAL	emergency action level
EDG	emergency diesel generator
EMRV	electromatic relief valve
Exelon	Exelon Generation Company, LLC
FA	fire area
HPCS	high-pressure core spray
HX	heat exchanger
IMC	Inspection Manual Chapter
IR	issue report
JPM	job performance measure
KV	kilovolt
LER	licensee event report
MRO	medical review officer
NCV	non-cited violation
NMPNS	Nine Mile Point Nuclear Station, LLC.
NOS	nuclear oversight
NRC	Nuclear Regulatory Commission, U.S.
ODCM	offsite dose calculation manual
P&ID	pipng and instrumentation diagram
PM	preventive maintenance
RB	reactor building
RPS	reactor protection system
SFP	spent fuel pool
SR	surveillance requirement
SSC	structure, system, and component
TS	technical specification
UFSAR	Updated Final Safety Analysis Report
UPS	uninterruptible power supply
URI	unresolved item
WO	work order
VAC	volts alternating current