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

August 12, 2015

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

SUBJECT: OYSTER CREEK NUCLEAR GENERATING STATION - INTEGRATED INSPECTION REPORT 05000219/2015002

Dear Mr. Hanson:

On June 30, 2015, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Oyster Creek Nuclear Generating Station. The enclosed inspection report documents the inspection results, which were discussed on July 10, 2015, with Mr. G. Stathes, Site Vice President, and other members of your staff.

NRC inspectors 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.

The inspectors documented four findings of very low safety significance (Green) in this report. One finding involved a violation of NRC requirements. Because of the very low safety significance, and because they are entered into your corrective action program, the NRC is treating these findings as non-cited violations, consistent with Section 2.3.2.a of the NRC Enforcement Policy.

If you contest the non-cited violations 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 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 Inspector at Oyster Creek Nuclear Generating Station. 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 Inspector at Oyster Creek Nuclear Generating Station.

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

Sincerely,

/RA/

Silas R. Kennedy, Chief
Reactor Projects Branch 6
Division of Reactor Projects

Docket Nos. 50-219
License Nos. DPR-16

Enclosure:
Inspection Report 05000219/2015002
w/Attachment: Supplementary Information

cc w/encl: Distribution via ListServ

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U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket Nos.:	50-219
License Nos.:	DPR-16
Report No.:	05000219/2015002
Licensee:	Exelon Nuclear
Facility:	Oyster Creek Nuclear Generating Station
Location:	Forked River, New Jersey
Dates:	April 1, 2015 – June 30, 2015
Inspectors:	A. Patel, Senior Resident Inspector E. Andrews, Resident Inspector B. Dionne, Health Physicist S. Elkhiamy, Project Engineer T. Fish, Senior Operations Examiner M. Patel, Operations Examiner
Approved By:	Silas R. Kennedy, Chief Reactor Projects Branch 6 Division of Reactor Projects

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SUMMARY OF FINDINGS

IR 05000219/2015002; 04/01/2015 – 06/30/2015; Exelon Energy Company, LLC, Oyster Creek Generating Station; Internal Flooding, Licensed Operator Requalification Program, Follow-Up of Events.

This report covered a three-month period of inspection by resident inspectors and announced inspections performed by regional inspectors. One NRC-identified finding and two self-revealing findings of very low safety significance (Green) were identified during this inspection. Additionally, a self-revealing non-cited violation (NCV) of very low safety significance (Green) was also documented in this report. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP), dated April 29, 2015. The cross-cutting aspects for the findings were determined using IMC 0310, "Aspects Within Cross-Cutting Areas," dated December 4, 2014. All violations of NRC requirements are dispositioned in accordance with the NRC's Enforcement Policy, dated February 4, 2015. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 5.

Cornerstone: Initiating Events

- Green. A self-revealing NCV of Technical Specification 6.8.1(a), "Procedures and Programs," was identified because Exelon did not follow procedure 303, "Reactor Cleanup Demineralizer System," during the system restoration on March 26, 2015. Specifically, during startup from a forced outage (1F36), Exelon did not follow procedure 303, which required correct valve lineups for system restoration of reactor water cleanup (RWCU) after system isolation. This resulted in decreasing reactor water level, which was automatically terminated by a second RWCU isolation. Exelon entered this issue into the corrective action program. Planned corrective actions include enhancing operator training in system knowledge and procedure compliance and revising startup procedures.

  This finding is determined to be more than minor because it is associated with the human performance attribute of the Initiating Events cornerstone and affected the cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, Exelon did not properly lineup the RWCU system after isolation, which resulted in a water level transient and challenging the critical safety function of inventory control. This finding is determined to be of very low safety significance (Green), because it did not cause a reactor trip and the loss of mitigation equipment relied upon to transition the plant from the onset of the trip to a stable shutdown condition. This finding has a cross-cutting aspect in the area of Human Performance, Challenge the Unknown, because Exelon did not recognize and plan for the possibility of mistakes, or implement appropriate error reduction tools. Specifically, the operators did not stop and fully communicate plant condition after the initial RWCU isolation. Consequently, operators opened the RWCU system inlet valve due to the increasing water level without following procedure guidance. [H.11] (Section 4OA3)

- Green. A self-revealing finding was identified because Exelon did not properly screen work in accordance with MA-AA-716-010, "Maintenance Planning." Specifically, on September 12, 2014, Exelon did not screen the automatic voltage regulator's (AVR) human machine interface (HMI) post-maintenance test per the maintenance planning procedure. As a result, on October 12, 2014, Exelon personnel performing the post-maintenance test

did not have a work order, which would have included plant configurations and limitations associated with the test. This led to an automatic reactor scram. Exelon entered this issue into the corrective action program. Planned corrective actions include reinforcing with work planners that a work order is required for similar work activities.

This finding was determined to be more than minor because it is associated with the human performance attribute of the Initiating Events cornerstone and affected the cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during plant operation. Specifically, resetting the three AVR controllers caused an automatic plant scram. This finding is determined to be of very low safety significance (Green), because it did not cause a reactor trip and the loss of mitigation equipment relied upon to transition the plant from the onset of the trip to a stable shutdown condition. This finding has a cross-cutting aspect in the area of Human Performance, Challenge the Unknown, because Exelon did not recognize and plan for the possibility of mistakes, or implement appropriate error reduction tools. Specifically, on October 12, 2014, Exelon personnel did not stop when faced with the uncertain situation of the HMI screen that did not respond as expected. [H.11] (Section 4OA3)

Cornerstone: Mitigating Systems

- Green. The inspectors identified a finding associated with Exelon procedure, OP-AA-108-115, "Operability Determinations," because Exelon did not adequately assess a degraded floor gasket for the 'D' emergency 4 kilovolt (kV) switchgear roll-up door. Specifically, Exelon did not adequately assess the flood and fire functionality of the degraded gasket, which is credited to provide protection to safety-related 'D' emergency 4kV switchgear during a postulated internal flood event and to contain the carbon dioxide (CO_2) gaseous suppression system during a postulated fire within the 'D' switchgear room. Exelon entered this issue into the corrective action program. Planned corrective actions include reinforcing the operability determination procedure and enhancing operator training in fire and flood functionality of gaskets. Additional corrective actions included repairing the gasket and performing a detailed analysis of the ability of degraded gasket to meet its flooding and fire function.

  This finding is more than minor because it is associated with the protection against external factors attribute of the Mitigating Systems cornerstone, and affected the cornerstone objective of ensuring the reliability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the degraded floor gasket could have resulted in increased water level in the 'D' emergency 4kV switchgear room during a postulated internal flood due to a fire water pipe rupture, therefore affecting the reliability of the 'D' emergency 4k switchgear to perform its safety function. In addition, the degraded floor gasket could have resulted in CO_2 leakage out of the 'D' emergency 4k switchgear room during a postulated fire in that room, therefore affecting the reliability of the 'D' emergency 4k switchgear gaseous suppression system to perform its safety function. The inspectors determined that this finding is of very low safety significance (Green) because it is a deficiency that affected the design or qualification of a mitigating structure, system, or component (SSC), where the SSC maintained its operability or functionality. This finding has a cross-cutting aspect in the area of Problem Identification and Resolution, Evaluation, because Exelon did not thoroughly evaluate issues to ensure that resolutions address the causes and extent of conditions commensurate with their safety significance. Specifically, Exelon staff did not thoroughly evaluate the issue associated with the degraded floor gasket for fire and flood functionality. [P.2] (Section 1R06)

- Green. A self-revealing finding was identified associated with inadequate licensed operator performance during licensed operator requalification exams in accordance with TQ-AA-150, "Operator Training Program." Specifically, two of seven crews failed the simulator scenario portion of the requalification examinations. As an immediate corrective action, the crews that failed were restricted from licensed duties. Exelon entered this issue into the corrective action program, and facility training staff remediated the crews (the crews were retrained and successfully retested), and those crews were returned to licensed duties.

  This finding is more than minor because it is associated with the human performance attribute of the Mitigating Systems cornerstone and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, two of seven crews failed to demonstrate a satisfactory understanding of the knowledge and abilities required to safely operate the facility under normal, abnormal, and emergency conditions. The inspectors determined the finding to be of very low safety significance (Green) because it is related to requalification exam results, did not result in a failure rate of greater than forty percent, and the two crews were remediated (i.e., the crews were retrained and successfully retested) prior to returning to shift. This finding has a cross-cutting aspect in the area of Human Performance, Training, because Exelon staff did not provide adequate operator requalification training to maintain a knowledgeable, technically competent workforce. [H.9] (Section 1R11)

REPORT DETAILS

Summary of Plant Status

Oyster Creek began the inspection period at 100 percent power. On May 7, 2015, an automatic reactor scram occurred due to a turbine trip caused by a failure of the main transformer digital protection relay system. After repairs to the digital protection relay system, operators commenced plant startup on May 12 and returned to full power operation on May 15.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01 – 2 samples)

.1 Readiness for Seasonal Extreme Weather Conditions

a. Inspection Scope

The inspectors performed a review of Exelon's readiness for the onset of seasonal high temperatures. The review focused on the emergency service water and the emergency diesel generators. The inspectors reviewed the Updated Final Safety Analysis Report (UFSAR), technical specifications, control room logs, and the corrective action program to determine what temperatures or other seasonal weather could challenge these systems, and to ensure Exelon personnel had adequately prepared for these challenges. The inspectors reviewed station procedures, including Exelon's seasonal weather preparation procedure and applicable operating procedures. The inspectors performed walkdowns of the selected systems to ensure station personnel identified issues that could challenge the operability of the systems during hot weather conditions. Documents reviewed for each section of this inspection report are listed in the Attachment.

b. Findings

No findings were identified.

.2 Summer Readiness of Offsite and Alternate Alternating Current (AC) Power Systems

a. Inspection Scope

The inspectors performed a review of plant features and procedures for the operation and continued availability of the offsite and alternate AC power system to evaluate readiness of the systems prior to seasonal high grid loading. The inspectors reviewed Exelon's procedures affecting these areas and the communications protocols between the transmission system operator and Exelon. This review focused on changes to the established program and material condition of the offsite and alternate AC power equipment. The inspectors assessed whether Exelon established and implemented

appropriate procedures and protocols to monitor and maintain availability and reliability of both the offsite AC power system and the onsite alternate AC power system. The inspectors evaluated the material condition of the associated equipment by interviewing the responsible system manager, reviewing condition reports and open work orders, and walking down portions of the offsite and AC power.

b. Findings

No findings were identified.

1R04 Equipment Alignment

.1 Partial System Walkdowns (71111.04Q – 5 samples)

a. Inspection Scope

The inspectors performed partial walkdowns of the following systems:

- Standby liquid control system on April 2, 2015
- 'A,' 'B,' and 'C' emergency service water pumps while 'D' emergency service water pump out of service on April 21, 2015
- Turbine building closed cooling water system on April 28, 2015
- 'A' and 'B' isolation condensers prior to startup from the forced outage (1F37) on May 12, 2015
- No. 1 emergency diesel generator while No. 2 emergency diesel generator out of service on May 18, 2015

The inspectors selected these systems based on their risk-significance relative to the reactor safety cornerstones at the time they were inspected. The inspectors reviewed applicable operating procedures, system diagrams, the UFSAR, technical specifications, work orders, condition reports, and the impact of ongoing work activities on redundant trains of equipment in order to identify conditions that could have impacted the system's performance of its intended safety functions. The inspectors also performed field walkdowns of accessible portions of the systems to 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 corrective action program for resolution with the appropriate significance characterization.

b. Findings

No findings were identified.

1R05 Fire Protection

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

a. Inspection Scope

The inspectors conducted tours of the areas listed below to assess the material condition and operational status of fire protection features. The inspectors verified that Exelon personnel 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.

- Lower cable spreading room on April 8, 2015
- Turbine building basement south on April 8, 2015
- Feed pump room on April 8, 2015
- Emergency diesel generator room No. 2 on April 15, 2015
- Reactor building southeast corner room on April 15, 2015
- Reactor building equipment drain tank room on May 19, 2015

b. Findings

No findings were identified.

1R06 Flood Protection Measures (71111.06 – 3 samples)

.1 Internal Flooding Review

a. Inspection Scope

The inspectors reviewed the UFSAR, the site flooding analysis, and plant procedures to assess susceptibilities involving internal flooding. The inspectors also reviewed the corrective action program to determine if Exelon identified and corrected flooding problems and whether operator actions for coping with flooding were adequate. The inspectors focused on the reactor building southeast corner room area and turbine building switchgear area to verify the adequacy of equipment seals located below the flood line, floor and water penetration seals, watertight door seals, common drain lines and sumps, sump pumps, level alarms, control circuits, and temporary or removable flood barriers.

b. Findings

Introduction. The inspectors identified a Green finding associated with Exelon procedure, OP-AA-108-115, “Operability Determinations,” because Exelon did not adequately assess a degraded floor gasket for the ‘D’ emergency 4kV switchgear roll-up door. Specifically, Exelon did not adequately assess the flood and fire functionality of

the degraded gasket, which is credited to provide protection to the safety-related 'D' emergency 4kV switchgear during a postulated internal flood event and to contain the CO_2 gaseous suppression system during a postulated fire within the 'D' switchgear room.

Description. During a system walk down on May 29, 2015, NRC inspectors identified a degraded floor gasket for the 'D' emergency 4kV switchgear roll-up door and informed Operations. Operations wrote issue report 2507389 to evaluate the degraded floor gasket flood functionality. The inspectors noted that the degraded floor gasket could result in increased water level in the D' emergency 4kV switchgear room during a postulated internal flood event due to a fire water pipe rupture. Specifically, OC-PSA-12, "Internal Flood Evaluation Summary Notebook," states, in part, "The rollup doors have gaskets along the bottom edge that are assumed to preclude water propagation."

The inspectors additionally identified that Operations did not consider the impact on the CO_2 system and, as a result, did not establish a continuous fire watch with backup fire suppression equipment as stated in Exelon procedure 101.2, "Oyster Creek Site Fire Protection Program." Exelon procedure 101.2, states, in part, "an inoperable fire barrier (penetration seals, dampers, doors, breaches in walls/floors/ceilings) could render a gaseous fire suppression system inoperable. In this event, the actions for an inoperable CO_2 system and the actions for an inoperable fire rated assembly must be completed. With the CO_2 system inoperable, within one hour, establish a continuous fire watch with backup fire suppression equipment."

The inspectors noted that Exelon personnel originally identified the degraded floor gasket in December 2014 and documented this issue in issue report 2423574. The inspector reviewed the issue report and noted that Operations did not adequately evaluate the degraded barrier for flooding and fire functionality. The issue report stated that the gasket did not affect the door's integrity or ability to act as a fire door. Also, the issue report did not address the degraded gasket's affect during internal flooding events. The inspectors also reviewed issue report 2423574 to ascertain the corrective actions for the degraded floor gasket. The actions specified Exelon personnel to complete repairs to the floor gasket in work order R2249794. The actions in this work order were stated as complete, although the inspectors identified on May 29, 2015, the degraded floor gasket was not repaired.

The inspectors concluded that the degraded floor gasket was not properly assessed for fire or flooding functionality when Operations first identified the issue in December 2014 (issue report 2423574) and for fire functionality when the inspectors bought this issue to Operations' attention on May 29, 2015. The inspectors determined that this is contrary to the requirements of OP-AA-108-115, "Operability Determinations." This procedure states in part, "Structures may be required to be operable by the Technical Specifications, or they may be related to support functions for system, structure and component (SSC) in the TS. Examples of structural degradation are degradation of door and penetration sealing. If a structure is degraded, the structure's capability of performing its specified function should be assessed." Also, Exelon procedure OP-AA-108-115-1002, "Supplemental Consideration for On-Shift Immediate Operability Determinations," states, in part, the ability of a SSC to meet regulatory requirements, codes, industry standards, (e.g., Fire Protection analysis, Appendix R, Safe Shutdown capability) or non-conformances affecting internal flooding concerns are thoroughly assessed.

Immediate corrective actions, following identification by the inspectors, included placing a sandbag in the area of the degraded gasket. As additional corrective actions, Exelon conducted a detailed analysis of the degraded gasket to determine if the flooding and fire functions were affected. Exelon determined that the increase of water level in the 'D' switchgear room due to the degraded gasket was below the level that would impact the 'D' switchgear during the postulated fire water pipe break. Exelon determined that the CO_2 system could compensate for leakage through the degraded gasket and would still be capable of extinguishing a postulated fire within the 'D' switchgear room. Also, corrective actions included reinforcing the operability determination procedure, enhancing operator training in fire and flood functionality of gaskets, and repairing the gasket.

Analysis. The inspectors determined that inadequate assessment for fire or flooding functionality of the 'D' switchgear roll-up door degraded floor gasket, in accordance with OP-AA-108-115, is a performance deficiency that was within Exelon's ability to foresee and correct. The finding is more than minor because it is associated with the protection against external factors attribute of the Mitigating Systems cornerstone and affected the cornerstone objective to ensure the reliability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the degraded floor gasket could have resulted in increased water level in the 'D' emergency 4k switchgear room during a postulated internal flood due to a fire water pipe rupture, therefore affecting the reliability of the 'D' emergency 4k switchgear to perform its safety function. In addition, the degraded floor gasket could have resulted in CO_2 leakage out of the 'D' emergency 4k switchgear room during a postulated fire in that room, therefore affecting the reliability of the 'D' emergency 4k switchgear gaseous suppression system to perform its safety function.

The inspectors evaluated the finding using 0609.04, "Initial Characterization of Findings," and IMC 0609, Appendix A, Exhibit 2, "Mitigating System Screening Questions." The inspectors determined that this finding is a deficiency that affected the design or qualification of a mitigating SSC, where the SSC maintained its operability or functionality. Therefore, inspectors determined the finding to be of very low safety significance (Green).

This finding has a cross-cutting aspect in the area of Problem Identification and Resolution, Evaluation, because Exelon did not thoroughly evaluate issues to ensure that resolutions address the causes and extent of conditions commensurate with their safety significance. Specifically, Exelon staff did not thoroughly evaluate the issue associated with the degraded floor gasket for fire and flood functionality. [P.2]

Enforcement. This finding does not involve enforcement action because no violation of regulatory requirements was identified. Exelon entered this issue into their corrective action program as issue report 2507389. Because this issue did not involve a violation and has very low safety significance, it is identified as a finding. (**FIN 05000219/2015002-01, Inadequate Assessment of 4kV Emergency Switchgear Roll-Up Door Degraded Floor Gasket).**

.2 Annual Review of Cables Located in Underground Bunkers/Manholes

a. Inspection Scope

The inspectors conducted an inspection of underground bunkers/manholes subject to flooding that contain cables whose failure could disable risk-significant equipment. The inspectors performed walkdowns of risk-significant areas, including the SBO3 (MH-743-3), containing 13.8kV cables from the combusting turbine, and the intake area manhole (MH-731-1), containing 4160V cables from the emergency service water pumps, to verify that the cables were not submerged in water, that cables and/or splices appeared intact, and to observe the condition of cable support structures. When applicable, 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. The inspectors also ensured that drainage was provided and functioning properly in areas where dewatering devices were not installed.

b. Findings

No findings were identified.

1R07 Heat Sink Performance (711111.07A – 1 sample)

a. Inspection Scope

The inspectors reviewed the 1-1 reactor building closed cooling water heat exchanger to determine its readiness and availability to perform its safety functions. The inspectors reviewed the design basis for the component and verified Exelon's commitments to NRC Generic Letter 89-13. The inspectors reviewed the cleaning and inspection of the heat exchanger, discussed the results of the most recent inspection with engineering staff, and reviewed pictures of the as-found and as-left conditions. The inspectors verified that Exelon initiated appropriate corrective actions for identified deficiencies. The inspectors also verified that the number of tubes plugged within the heat exchanger did not exceed the maximum amount allowed.

b. Findings

No findings were identified.

1R11 Licensed Operator Requalification Program

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

a. Inspection Scope

The inspectors observed licensed operator simulator training on April 14, 2015, which included a control rod drive pump trip, hydraulic anticipated transient without scram, and isolation condenser steam leak. 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 classification made by the shift manager and the technical specification action statements entered by the shift technical advisor. Additionally, the inspectors assessed the ability of the crew and training staff to identify and document crew performance problems.

b. Findings

No findings were identified.

.2 Quarterly Review of Licensed Operator Performance in the Main Control Room (71111.11Q – 1 sample)

a. Inspection Scope

The inspectors observed control room operator performance as they entered cold shutdown to start a forced outage (1F37) on May 8, 2015. The inspectors observed infrequently performed test or evolution briefings, shift turnover briefings, and alarm response. Additionally, the inspectors observed control room operator performance to verify that procedure use, crew communications, and coordination of activities between work groups similarly met established expectations and standards.

b. Findings

No findings were identified.

.3 Licensed Operator Requalification (71111.11B - 1 sample)

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.” The inspection assessed whether pass rates were consistent with the guidance of NRC Manual Chapter 0609, Appendix I, and “Operator Requalification Human Performance Significance Determination Process (SDP).”

Examination Results

On July 1, 2015, the results of the comprehensive written and annual operating tests were reviewed to determine if pass/fail rates were consistent with the guidance of NUREG-1021, Revision 9, Supplement 1 and NRC IMC 0609, Appendix I, “Operator Requalification Human Performance Significance Determination Process (SDP).” The review determined that the individual operator failure rate was less than 20 percent, however, the crew failure rate exceeded 20 percent.

b. Findings

Introduction: A self-revealing Green finding was identified associated with inadequate licensed operator performance during licensed operator requalification exams in accordance with TQ-AA-150, “Operator Training Program.” Specifically, two of seven crews failed the simulator scenario portion of the requalification examinations.

Description: During the week of June 8, 2015, Exelon’s training staff administered requalification examinations to licensed operators. Exelon staff evaluated crew performance during dynamic simulator scenarios and individual operator performance during job performance measures and on the written examination. Exelon evaluation of the requalification examination showed that two of seven crews (which represents a failure rate of 28.6 percent) failed the simulator scenario portion of the examination. This failure rate exceeded the threshold failure rate of 20 percent as specified in TQ-AA-150, “Operator Training Program.” Specifically, Attachment F25, “LORT Annual Exam Status Report” states, in part, that simulator crew failure rate greater than 20 percent but less than 40 percent constitutes as a Green finding.

Exelon initiated issue report 2513013 to address the high failure rate on the annual requalification examinations, restricted the failed crews from licensed duties, conducted crew and individual operator remediation, and began conducting a root cause evaluation to develop long-term corrective actions.

Analysis: The inspectors determined that the crew failure rate of greater than 20 percent, as specified in TQ-AA-150, is a performance deficiency that was reasonably within Exelon’s ability to foresee and correct. This finding is more than minor because it is associated with the Mitigating Systems cornerstone attribute of human performance and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, two of seven crews failed to demonstrate a satisfactory understanding of the knowledge and abilities required to safely operate the facility under normal, abnormal, and emergency conditions. Licensed operators are expected to operate the plant within acceptable standards of knowledge and abilities demonstrated through periodic testing. The inspectors evaluated this performance deficiency using Inspection Manual Chapter 0609.04, "Initial Characterization of Findings," Appendix I, "Licensed Operator Requalification Significance Determination Process." This finding is of very low safety significance (Green) because the finding is related to requalification exam results, did not result in a failure rate of greater than 40 percent, and the two crews were remediated (i.e., the licensed operators were retrained and successfully retested) prior to returning to shift.

This finding has a cross-cutting aspect in the area of Human Performance, Training, because Exelon did not initially provide adequate operator requalification training to maintain a knowledgeable, technically competent workforce. [H.9]

Enforcement: This finding does not involve enforcement action because no violation of regulatory requirements was identified. Exelon entered this issue into their corrective action program as issue report 2513013. Because this issue did not involve a violation and has very low safety significance (Green), it is identified as a finding.
(**FIN 05000219/2015002-02, Failure Rates Exceed Twenty Percent for Annual Requalification Exam).**

1R12 Maintenance Effectiveness (71111.12 – 2 samples)

a. Inspection Scope

The inspectors reviewed the samples listed below to assess the effectiveness of maintenance activities on SSC performance and reliability. The inspectors reviewed system health reports, corrective action program documents, maintenance work orders, and maintenance rule basis documents to ensure that Exelon was identifying and properly evaluating performance problems within the scope of the maintenance rule. For each sample selected, the inspectors verified that the SSC was properly scoped into the maintenance rule in accordance with 10 CFR 50.65 and verified that the (a)(2) performance criteria established by Exelon staff was reasonable. As applicable, for a SSC classified as (a)(1), the inspectors assessed the adequacy of goals and corrective actions to return the SSC 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.

- Core spray system on June 2, 2015
- Main transformers digital protection relay system on May 20, 2015

b. Findings

No findings were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13 – 5 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 for work. 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 Exelon's risk analyst to verify plant conditions were consistent with the risk assessment. The inspectors also reviewed the technical specification requirements and inspected portions of redundant safety systems, when applicable, to verify risk analysis assumptions were valid and applicable requirements were met.

- 'A' isolation condenser out of service for planned maintenance on April 1, 2015
- 'B' reactor building closed loop cooling water pump out for planned maintenance on April 21, 2015
- 1-2 service water pump out of service for planned maintenance on May 4, 2015
- Forced outage yellow shutdown risk due to decay heat removal on May 8, 2015
- No. 2 emergency diesel generator out of service for planned maintenance on May 18, 2015

b. Findings

No findings were identified.

1R15 Operability Determinations and Functionality Assessments (71111.15 – 6 samples)

a. Inspection Scope

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

- Standby liquid control accumulator (Y-19-101) at 0 psig on April 1, 2015
- Core spray booster pump (NZ03A) due to high differential pressure on June 2, 2015
- Spent fuel pool boraflex fuel racks on June 3, 2015
- Containment spray 51A breaker loose arc chutes on June 19, 2015
- Emergency service water system I while spectacle flange in orifice position on June 22, 2015
- Electromatic relief valve cutout switch part 21 on June 23, 2015

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 technical specification 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 technical specifications and UFSAR to Exelon's evaluations to determine whether the components or systems were operable. The inspectors determined, where appropriate, compliance with bounding limitations associated with the evaluations. Where compensatory measures were required to maintain operability, the inspectors determined whether the measures in place would function as intended and were properly controlled by Exelon.

b. Findings

No findings were identified.

1R18 Plant Modifications (71111.18 – 3 samples)

.1 Temporary Modifications

a. Inspection Scope

The inspectors reviewed the temporary modifications listed below to determine whether the modifications affected the safety functions of systems that are important to safety. The inspectors reviewed 10 CFR 50.59 documentation and post-modification testing results, and conducted field walkdowns of the modifications to verify that the temporary modifications did not degrade the design bases, licensing bases, and performance capability of the affected systems.

- Temporary configuration change TCC-1504-532-RO-22 – Emergency service water system I to service water cross connect by rotating a spectacle flange on May 29, 2015

b. Findings

No findings were identified.

.2 Permanent Modifications

a. Inspection Scope

The inspectors evaluated a modification to the automatic scram contactors surveillance test frequency by surveillance test interval evaluation form OC-15-01, "Automatic SCRAM Contactor Surveillance Extension." The inspectors also evaluated a modification to the main transformer digital protection relay system by engineering change request 15-00197, "ECR to Remove the Output Trip Functions from the Digital Protection Relay System." The inspectors verified that the design bases, licensing bases, and performance capability of the affected systems were not degraded by the modification. In addition, the inspectors reviewed modification documents associated with the upgrade and design changes. The inspectors also reviewed revisions to the control room alarm response procedures and interviewed engineering and operations personnel to ensure the procedure could be reasonably performed.

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing (71111.19 – 4 samples)

a. Inspection Scope

The inspectors reviewed the post-maintenance tests for the maintenance activities listed below to verify that procedures and test activities adequately tested the safety functions that may have been affected by the maintenance activity, that the acceptance criteria in the procedure was consistent with the information in the applicable licensing basis and/or design basis documents, and that the test results were properly reviewed and accepted and problems were appropriately documented. The inspectors also walked down the affected job site, observed the pre-job brief and post-job critique where possible, confirmed work site cleanliness was maintained, and witnessed the test or reviewed test data to verify quality control hold point were performed and checked, and that results adequately demonstrated restoration of the affected safety functions.

- Hydraulic control unit 46-39 following cooling water check valve (V-305-138) replacement on April 6, 2015
- 'D' emergency service water pump following 'D' emergency service water pump motor replacement on April 22, 2015
- Main transformers after sudden pressure relay addition on May 18, 2015
- Emergency diesel generator No. 2 following battery replacement on May 19, 2015

b. Findings

No findings were identified.

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

a. Inspection Scope

The inspectors reviewed the station's work schedule and outage risk plan for Oyster Creek forced outage (1F37), which was conducted May 7 through May 14, 2015**.** The inspectors reviewed Exelon's development and implementation of outage plans and schedules to verify that risk, industry experience, previous site-specific problems, and defense-in-depth were considered. During the outage, the inspectors observed portions of the shutdown and cooldown processes and monitored controls associated with the following outage activities:

- Configuration management, including maintenance of defense-in-depth, commensurate with the outage plan for the key safety functions and compliance with the applicable technical specifications when taking equipment out of service
- Implementation of clearance activities and confirmation that tags were properly hung and that equipment was appropriately configured to safely support the associated work or testing
- Installation and configuration of reactor coolant pressure, level, and temperature instruments to provide accurate indication and instrument error accounting
- Status and configuration of electrical systems and switchyard activities to ensure that technical specifications were met
- Monitoring of decay heat removal operations
- Impact of outage work on the ability of the operators to operate the spent fuel pool cooling system
- Reactor water inventory controls, including flow paths, configurations, alternative means for inventory additions, and controls to prevent inventory loss
- Activities that could affect reactivity
- Maintenance of secondary containment as required by technical specifications
- Fatigue management
- Identification and resolution of problems related to refueling outage activities

b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22 – 5 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 technical specifications, 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:

- 'A' isolation condenser test and calibration on April 1, 2015
- 'B' isolation condenser valve operability and in-service test (IST) on April 7, 2015 (IST)
- Unidentified reactor coolant system (RCS) leak rate verification on May 7, 2015 (RCS)
- 'B' isolation condenser sensor test and calibration on May 8, 2015
- Core spray system II valve operability and IST on May 19, 2015

b. Findings

No findings were identified.

Cornerstone: Emergency Preparedness

1EP6 Drill Evaluation (71114.06 – 1 sample)

.1 Training Observations

a. Inspection Scope

The inspectors observed a simulator training evolution for licensed operators on April 14, 2015, which required emergency plan implementation by an operations crew. Exelon planned for this evolution to be evaluated and included in performance indicator data regarding drill and exercise performance. The inspectors observed event classification and notification activities performed by the crew. The inspectors also attended the post-evolution critique for the scenario. The focus of the inspectors' activities was to note any weaknesses and deficiencies in the crew's performance and ensure that Exelon evaluators noted the same issues and entered them into the corrective action program.

b. Findings

No findings were identified.

2. RADIATION SAFETY

Cornerstone: Occupational and Public Radiation Safety

2RS5 Radiation Monitoring Instrumentation (71124.05 – 1 sample)

a. Inspection Scope

The inspectors reviewed performance in assuring the accuracy and operability of radiation monitoring instruments used to protect occupational workers and for effluent monitoring and analysis. The inspectors used the requirements in 10 CFR 20; 10 CFR 50, Appendix I; technical specifications; Offsite Dose Calculation Manual (ODCM);

regulatory guides; applicable industry standards; and procedures required by technical specifications as criteria for determining compliance.

Calibration and Testing Program

For the gaseous and liquid effluent radiation monitor instrumentation, the inspectors reviewed the current detector and electronic channel calibrations, functional testing results and alarm set-points.

b. Findings

No findings were identified.

2RS6 Radioactive Gaseous and Liquid Effluent Treatment (71124.06 – 1 sample)

a. Inspection Scope

The inspectors reviewed the treatment, monitoring, and control of radioactive gaseous and liquid effluents. The inspectors used the requirements in 10 CFR 20; 10 CFR 50, Appendix I; technical specifications; ODCM; applicable industry standards; and procedures required by technical specifications as criteria for determining compliance.

Inspection Planning

The inspectors conducted in-office review of the Oyster Creek 2013 and 2014 annual radioactive effluent release reports, radioactive effluent program documents, UFSAR, ODCM, and applicable event reports.

Walk-downs and Observations

The inspectors walked down the gaseous and liquid radioactive effluent monitoring systems to assess the material condition and verify proper alignment according to plant design. The inspectors also observed potential unmonitored release points and reviewed radiation monitoring system surveillance records and the routine processing and discharge of gaseous and liquid radioactive wastes.

Sampling and Analyses

The inspectors reviewed: radioactive effluent sampling activities, representative sampling, compensatory sampling during effluent discharges with inoperable effluent radiation monitoring instrumentation, and the results of the inter-laboratory and intra-laboratory comparison program including scaling of hard-to-detect isotopes.

Effluent Flow Measuring Instruments

The inspectors reviewed the methodology used to determine the radioactive effluent stack and vent flow rates to verify that the flow rates were consistent with technical specification, ODCM, and UFSAR values.

Air Cleaning Systems

The inspectors reviewed radioactive effluent discharge system surveillance test results based on technical specification acceptance criteria.

Dose Calculations

The inspectors reviewed: changes in reported dose values from the previous annual radioactive effluent release reports, the scaling method for hard-to-detect radionuclides, ODCM changes, land use census changes, public dose calculations (monthly, quarterly, annual), and records of abnormal gaseous or liquid radioactive releases.

Groundwater Protection Initiative (GPI) Implementation

The inspectors reviewed: groundwater monitoring results, changes to the GPI program since the last inspection, anomalous results or missed groundwater samples, leakage or spill events including entries made into the decommissioning files (10 CFR 50.75(g)), and Exelon's evaluation of any positive groundwater sample results including appropriate stakeholder notifications and effluent reporting requirements.

Problem Identification and Resolution

The inspectors evaluated whether problems associated with the radioactive effluent monitoring and control program were identified at an appropriate threshold and properly addressed in the Exelon's corrective action program.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (71151)

.1 Unplanned Scrams, Unplanned Power Changes, and Unplanned Scrams with Complications (3 samples)

a. Inspection Scope

The inspectors reviewed Exelon's submittals for the following Initiating Events cornerstone performance indicators for the period of April 1, 2014, through March 31, 2015.

- Unplanned Scrams
- Unplanned Power Changes
- Unplanned Scrams with Complications

To determine the accuracy of the performance indicator data reported during those periods, inspectors used definitions and guidance contained in Nuclear Energy Institute (NEI) Document 99-02, "Regulatory Assessment Performance Indicator Guideline,"

Revision 7. The inspectors reviewed Exelon's operator narrative logs, maintenance planning schedules, condition reports, event reports, and NRC integrated inspection reports to validate the accuracy of the submittals.

b. Findings

No findings were identified.

.2 Safety System Functional Failures (1 sample)

c. Inspection Scope

The inspectors sampled Exelon's submittals for the Safety System Functional Failures performance indicator for the period of April 1, 2014, through March 31, 2015. To determine the accuracy of the performance indicator data reported during those periods, inspectors used definitions and guidance contained in the NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, and NUREG-1022, "Event Reporting Guidelines 10 CFR 50.72 and 10 CFR 50.73." The inspectors reviewed Exelon's operator narrative logs, operability assessments, maintenance rule records, maintenance work orders, condition reports, event reports and NRC integrated inspection reports to validate the accuracy of the submittals.

d. Findings

No findings were identified.

4OA2 Problem Identification and Resolution (71152 – 1 sample)

.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 corrective action program 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 corrective action program and periodically attended condition report screening meetings. The inspectors also confirmed, on a sampling basis, that, as applicable, for identified defects and non-conformances, Exelon personnel performed an evaluation in accordance with 10 CFR Part 21.

b. Findings

No findings were identified.

.2 Semi-Annual Trend Review

a. Inspection Scope

The inspectors performed a semi-annual review of site issues to identify trends that might indicate the existence of more significant safety concerns. As part of this review, the inspectors included repetitive or closely-related issues that may have been documented by Exelon in trend reports, site performance indicators, major equipment problem lists, system health reports, and maintenance rule assessments, and maintenance or corrective action program backlogs. The inspectors also reviewed Exelon's corrective action program database for the first and second quarters of 2015 to assess condition reports written in various subject areas (equipment problems, human performance issues, etc.), as well as individual issues identified during the NRCs daily condition report review.

b. Findings and Observations

No findings were identified.

The inspectors evaluated a sample of corrective maintenance backlogs, control room deficiency tags, open operability evaluations, and operator work-arounds. The inspectors verified that these issues were addressed within the scope of the corrective action program.

In addition, the inspectors reviewed a sampling of instrument out-of-tolerances within the last six months. The inspectors noted an apparent increase in the number of relay calibration drifts (i.e., did not meet as left condition). While a sample review by the inspectors indicated similar causal factors could not be identified, the increase in relay drifts should have warranted a more focused evaluation under station adverse rule procedures. In particular, other monitoring programs that complement the trending process, such as the instrument out-of-tolerance program, ER-AA-520, did not identify these relay malfunctions for further assessment. Exelon entered this issue into the corrective action program as issue report 2502999 for further review. The inspectors considered this a minor issue because there was not a trend of relay drifts beyond the as-found requirement specified in Technical Specifications.

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

.1 Plant Events

a. Inspection Scope

For the plant events listed below, the inspectors reviewed and/or observed plant parameters, reviewed personnel performance, and evaluated performance of mitigating systems. The inspectors communicated the plant events to appropriate regional personnel, and compared the event details with criteria contained in IMC 0309, "Reactive Inspection Decision Basis for Reactors," for consideration of potential reactive inspection activities. As applicable, the inspectors verified that Exelon made appropriate emergency classification assessments and properly reported the event in accordance

with 10 CFR Parts 50.72 and 50.73. The inspectors reviewed Exelon's follow-up actions related to the events to assure that Exelon implemented appropriate corrective actions commensurate with their safety significance.

- RWCU system isolation due to operator error on March 26, 2015
- Reactor scram caused by main transformer digital protection relay system actuation on May 7, 2015

b. Findings

Introduction: A Green self-revealing NCV of Technical Specification 6.8.1(a), "Procedures and Programs," was identified because Exelon did not follow procedure 303, "Reactor Cleanup Demineralizer System," during system restoration on March 26, 2015. Specifically, during startup from a forced outage (1F36), Exelon did not follow procedure 303, which required correct valve lineups for system restoration of RWCU after system isolation. This resulted in decreasing reactor water level, which was automatically terminated by a second RWCU isolation.

Description: During shutdown and startup conditions, the RWCU system maintains water level in the reactor vessel to accommodate water inputs from the control rod drive system. During reactor startup and heatup activities on March 26, 2015, the RWCU system automatically isolated on high steam pressure of 136 psig (setpoint is 130 psig). The operating crew was in the process of securing the auxiliary cleanup pump and placing the main cleanup recirculating pump in service as required by procedure 201, "Plant Startup," and procedure 303, "Reactor Cleanup Demineralizer System." The operators did not complete the procedure steps in time to prevent automatic system isolation as system pressure and reactor pressure increased due to the ongoing plant startup. The inspectors determined this automatic system isolation was not more than minor because vessel level increased as a result, which was in the conservative direction. Downstream of pressure control valve (PCV) ND-11, non-regenerative heat exchanger outlet pressure control valve, system piping is rated for 150 psig and system isolations are a protective feature to prevent piping failure and draining of the reactor water through the pipe failure. With the PCV ND-11 valve full open and the increase in reactor pressure due to startup activities, the system isolated as designed. As a result of the isolation, reactor level rose from 158" to 172" due to loss of letdown flow.

After the automatic RWCU isolation, operators implemented procedure 303, section 33, "Restoring RWCU after an isolation with reactor pressure greater than 125 psig," to restore letdown flow. The procedure required verification of the correct system lineup, which included: confirming PCV ND-11 was in manual mode and closed and confirming that the system inlet valve, V-16-14, was in the closed position. However, the operators did not assure PCV ND-11 was closed prior to opening V-16-14 and, as a result, drained a portion of reactor water to the condensate suction header. Reactor level dropped from approximately 172" to 153" in a short period of time, and a second automatic isolation of RWCU occurred due to the system sensing high pressure. The automatic isolation terminated the level transient.

Exelon completed an apparent cause evaluation, under issue report 2474619, and determined that the Operations' shift manager and unit supervisor shifted priority to immediately restore cleanup after the first automatic system isolation and the operators subsequently opened the V-16-14, which was not in accordance with procedure 303,

section 33. The guidance in the procedure would have ensured that both V-16-14 and PCV ND-11 were in their correct lineup for the evolution and would have prevented the decrease in reactor vessel level. Exelon's corrective actions included enhancing operator training in system knowledge and procedure compliance and revising startup procedures.

Analysis: The failure to follow procedure 303 for restoration of RWCU after system isolation during plant startup is a performance deficiency that was reasonably within Exelon's ability to foresee and correct. This finding is determined to be more than minor because it is associated with the human performance attribute of the Initiating Events cornerstone, and adversely affected the cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, Exelon did not properly lineup the RWCU system after isolation, which resulted in a water level transient and challenging the critical safety function of inventory control.

The inspectors evaluated the finding using IMC 0609.04, "Initial Characterization of Findings," and IMC 0609, Appendix A, Exhibit 1, Initiating Events Screening Questions." The inspectors determined that this finding is a transient initiator that did not cause a reactor trip and loss of mitigation equipment relied upon to transition the plant from the onset of the trip to a stable shutdown condition. Therefore, the inspectors determined the finding to be of very low safety significance (Green).

This finding has a cross-cutting aspect in the area of Human Performance, Challenge the Unknown, because Exelon did not recognize and plan for the possibility of mistakes, or implement appropriate error reduction tools. Specifically, the operators did not stop and fully communicate plant condition after the initial RWCU isolation. Consequently, operators opened the RWCU system inlet valve due to the increasing water level without following procedure guidance. [H.11]

Enforcement: Technical Specification 6.8.1(a), "Procedures and Programs," states, in part, that written procedures shall be established, implemented and maintained covering the applicable procedures recommended in Appendix A of Regulatory Guide 1.33, Revision 2. Regulatory Guide 1.33, Appendix A, requires that safety related activities listed be covered in written procedures such as the reactor cleanup system. Contrary to the above, on March 26, 2015, Exelon did not properly implement the reactor cleanup system procedure. Specifically, Exelon did not follow procedure 303, section 33, "Restoring RWCU after isolation with reactor pressure greater than 125 psig." As a result, reactor water level decreased approximately twenty inches in a short period of time. Exelon's corrective actions included enhancing operator training in system knowledge and procedure compliance and revising startup procedures. Because this violation is of very low safety significance (Green) and was entered into Exelon's corrective action program as issue report 2474619, this violation is being treated as an NCV, consistent with Section 2.3.2 of the NRC Enforcement Policy. **(NCV 05000219/2015002-03, Reactor Water Cleanup Procedure Not Followed Resulting in a Level Transient)**

.2 (Closed) Licensee Event Report (LER) 05000219/2014-006-00: Reactor SCRAM due to Decreasing Water Level

On October 12, 2014, during a plant startup from a refueling outage (1R25), and reactor power ascension at approximately 1 percent of rated thermal power, reactor water level began to lower. An automatic reactor scram occurred moments before operators inserted a manual scram in accordance with station procedures. Following the reactor scram, all systems operated as expected. At the time of the event, Exelon personnel were performing a post-maintenance test on the AVR's HMI. Exelon personnel reset the AVR controllers, which triggered logic to trip the turbine.

Exelon performed a root cause analysis on the event and determined station leadership inconsistently reinforced human performance error reduction, tool use, and procedure use and adherence. Exelon has taken steps to reduce these weaknesses in the future, which included the establishment of a performance improvement action plan focused on the human performance fundamentals.

The inspectors determined there was a self-revealing finding during the review of the LER (see below). This LER is closed.

a. Findings.

Introduction. A self-revealing Green finding was identified because Exelon did not properly screen work in accordance with MA-AA-716-010, "Maintenance Planning." Specifically, on September 12, 2014, Exelon did not screen the AVR's HMI post-maintenance test per the maintenance planning procedure. As a result, on October 12, 2014, Exelon personnel performing the post-maintenance test did not have a work order, which would have included plant configurations and limitations associated with the test. This led to an automatic reactor scram.

Description. On October 12, 2014, while the plant was at approximately 1 percent power during plant startup following refueling outage (1R25), a reactor scram occurred due to low level in the reactor vessel.

A portion of the outage scope was to troubleshoot and repair the AVR's HMI computer following issues with the software. The purpose of the AVR is to regulate main generator output voltage. A contractor was tasked to perform a post-maintenance test following the troubleshooting to ensure the HMI was properly communicating with the AVR controllers per Exelon procedure 421, "EX2100e HMI, Trouble and Fault Alarms." During the post-maintenance test, the contractor recognized that the HMI was communicating with the M2 controller but not the M1 controller. At this point, the contractor should have stopped work and noted the deviation from the expected result as a failed post-maintenance test. However, the contractor directed the electrical technician to continue work and reset the M1 controller. This action did not restore communication between the AVR and HMI. The contractor then directed the electrical technician to reset all three AVR controllers: M1, M2, and C. The reset of the three AVR controllers triggered the logic to trip the turbine. The reactor protection system received a reactor low level signal, which caused an automatic reactor scram. The plant responded as expected.

On September 12, 2014, when Exelon added this activity into the scope of the outage, Exelon personnel did not properly screen the work activity to determine if the post-maintenance test required a work order per MA-AA-716-010, “Maintenance Planning.” Instead, the activity was performed under an action request, which did not include requirements for precautions and limitations, and a pre-job brief was not performed. Per MA-AA-716-010, the work was required to be a Level 1 activity due to the location and work to be performed. Specifically, table 2 in MA-AA-716-010 “Work Package Usage Based on Type of Work Activity and Location,” states, in part, a post-maintenance testing work activity performed in the power block requires a Level 1 or Level 2 work package. MA-AA-716-010, Attachment 6, “Graded Approach to Planning Decision Tree for Work Package Level Determination,” states in part, post-maintenance testing in the power block that is complex or infrequently performed requires a Level 1 work package. MA-AA-716-010 defines infrequent as “greater than 12 months.” Had the post-maintenance test been properly categorized as an infrequent activity, according to MA-AA-716-010, a Level 1 activity would require a detailed work package. Per MA-AA-716-010, Attachment 6, a detailed work package states minimum expected content to include, in part, precautions and limitations and a pre-job brief. Exelon completed a root cause evaluation, which stated, in part, “Per MA-AA-716-010, ‘Maintenance Planning,’ and MA-AA-716-235, ‘Control of Critical Digital Asset Portable Media and Portable Devices,’ a work order was required for this activity.”

Per HU-AA-1211, “Pre-job Briefings,” standard pre-job briefings are conducted for low risk, infrequent activities and include contingencies and stop-work criteria. If a pre-job brief had been performed, it should have discussed Exelon personnel actions if the HMI failed to respond as expected. A proper work package should have provided barriers to prevent Exelon from working beyond the scope of the post-maintenance test such as following a stop-work criteria.

HU-AA-101, “Human Performance Tools and Verification Practices,” Step 4.1.3 states, in part, personnel should stop if they find themselves outside of procedures, parameters, or processes when unexpected post-maintenance test results are received. Attachment 4 of HU-AA-101 defines one example of stop-work criteria as a work performance issues, specifically equipment that does not respond as expected. Had HU-AA-101 been implemented, Exelon personnel should have stopped the post-maintenance test when the HMI screen did not respond as expected, thus preventing the automatic reactor scram.

Analysis. The failure to properly screen the HMI work per MA-AA-716-010 is a performance deficiency that was within Exelon’s ability to foresee and correct. This finding is determined to be more than minor because it is associated with the human performance attribute of the Initiating Events cornerstone and affected the cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during power operation. Specifically, resetting the three AVR controllers caused an automatic reactor scram. The inspectors evaluated the finding using IMC 0609.04, “Initial Characterization of Findings,” and IMC 0609, Appendix A, Exhibit 1, “Initiating Events Screening Questions.” The inspectors determined that this finding was a transient initiator that did not cause a reactor trip and loss of mitigation equipment relied upon to transition the plant from the onset of the trip to a stable shutdown condition. Therefore, the inspectors determined the finding to be of very low safety significance (Green).

This finding has a cross cutting aspect in the area of Human Performance associated with Challenge the Unknown, because Exelon personnel did not stop when faced with uncertain situations. Specifically, on October 12, 2014, Exelon personnel did not stop when faced with the uncertain situation of the HMI screen not responding as expected. [H.11]

Enforcement. This finding does not involve enforcement action because no violation of regulatory requirements violation was identified. Exelon entered this issue into their corrective action program as issue report 2394374. Because this issue does not involve a violation and has very low safety significance, it is identified as a finding. (**FIN 05000219/2015002-04, Reset of the Automatic Voltage Regulator Controllers Led to an Automatic Reactor Scram)**

4OA6 Meetings, Including Exit

On July 10, 2015, the inspectors presented the inspection results to Mr. G. Stathes, Site Vice President, and other members of the Oyster Creek staff. The inspectors verified that no proprietary information was retained by the inspectors or documented in this report.

ATTACHMENT: SUPPLEMENTARY INFORMATION

SUPPLEMENTARY INFORMATION

KEY POINTS OF CONTACT

Exelon Personnel

G. Stathes, Site Vice President
J. Dostal, Plant Manager
M. Ford, Director, Operations
J. Stanley, Director, Engineering
D. Chernesky, Director, Maintenance
C. Symonds, Director, Training
D. DiCello, Director, Work Management
M. McKenna, Manager, Regulatory Assurance
T. Farenga, Radiation Protection Manager
J. Renda, Manager, Environmental/Chemistry
T. Keenan, Manager, Site Security
P. Bloss, Senior Manager, Plant Engineering
H. Ray, Senior Manager, Design Engineering
E. Swain, Shift Operations Superintendent
T. Cappuccino, Senior Regulatory Assurance Specialist
K. Wolfe, Manager, Health Physics
J. McCarthy, Senior Radiological Engineer
M. Nixon, Chemist – RETS/REMP
J. Eagan, Manager, Operations Training
G. Young, LORT Exam Author
J. Gessner, LORT Exam Author
M. Rossi, LORT Lead

LIST OF ITEMS OPENED, CLOSED, DISCUSSED, AND UPDATED

Opened/Closed

05000219/2015002-01	FIN	Inadequate Assessment of 4k Emergency Switchgear Roll-Up Door Degraded Floor Gasket (Section 1R06)
05000219/2015002-02	FIN	Failure Rates Exceed Twenty Percent for Annual Requalification Exam (Section 1R11)
05000219/2015002-03	NCV	Reactor Water Cleanup Procedure Not Followed Resulting in a Level Transient (Section 4OA3)
05000219/2015002-04	FIN	Reset of the Automatic Voltage Regulator Controller Led to an Automatic Reactor Scram (Section 4OA3)

Closed

05000219/2014-006-00	LER	Reactor SCRAM Due to Decreasing Water Level (Section 4OA3)

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

Procedures
ABN 60, Grid Emergency, Revision 15
310, Containment Spray System Operation, Revision 110
341, Emergency Diesel Generator Operation, Revision 109
EN-OC-402-0005, Extreme Heat Implementation Plan, Revision 0
OP-OC-108-109-1001, Severe Weather Preparation T&RM for Oyster Creek, Revision 30
OP-AA-108-111-1001, Severe Weather and Natural Disaster Guidelines, Revision 12

Condition Reports

2505124	2505007	2503374	2493587	2490313	2479505
2485242	2485345	1462889	1250934	1650001	1673984
1697151	2426971	1619952	1649628	1674151	1681139
2438931	2448636	2457139	2439068	2438853	

Maintenance Orders/Work Orders
C2033397 R2234027

Section 1R04: Equipment Alignment

Procedures
304, Standby Liquid Control System Operation, Revision 48
309.1, Turbine Building Closed Cooling Water System, Revision 57
322, Service Water System, Revision 80
307, Isolation Condenser System, Revision 124
341, Emergency Diesel Generator Operation, Revision 108

Drawings
BR 2005, Emergency Service Water System Flow Diagram, Revision 86
BR 2006, Turbine Building Closed Cooling Water Flow Diagram, Sheet 5, Revision 59

Section 1R05: Fire Protection

Procedures
OP-OC-201-008, Oyster Creek Pre-Fire Plans, Revision 18
OP-OC-201-012-1001, On-Line Fire Risk Management, Revision 3
OP-AA-201-012-1001, Operations On-Line Fire Risk Management, Revision 1
OP-AA-108-117, Protected Equipment Program, Revision 4
WC-AA-101-1006, On-Line Risk Management and Assessment, Revision 1
ER-AA-600-1069, High Risk Fire Area Identification, Revision 1
OP-OC-201-008-1029, Feed Pump Room, Revision 1

OP-OC-201-008-1027, Turbine Building Basement South, Revision 2
OP-OC-201-008-1020, Cable Spreading Room, Revision 1
RAP-LFAP5 (2-d), Alarm Silence, Revision 0
RAP-LFAP5 (6-b), LFAPS Battery Trouble, Revision 1
OP-OC-201-008-1036, Emergency Diesel Generator Room #2, Revision 2
OP-OC-201-008-1008, Reactor Building (-19' Elevation) Southeast Corner Room, Revision 0
OP-OC-201-008-1009, Reactor Building (-19' Elevation) RBEDT Room, Revision 0

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OP-AA-108-115-1002, Supplemental Consideration for On-Shift Immediate Operability Determinations, Revision 3
101.2, Oyster Creek Site Fire Protection Program, Revision 73
ER-AA-300-150, Cable Condition Monitoring Program, Revision 0
MA-OC-773-001, Testing/Condition Monitoring of Inaccessible Medium Voltage Cables Not Subject to 10 CFR 50.49 Environmental Qualification, Revision 1
2400-SMM-3572.01, Reactor Building Sump Isolation Valve Leak Rate Test, Revision 2
EMG 3200.11, Secondary Containment Control, Revision 8
RAP-RB1C (1-7), 1-7 Sump Reactor Building Floor Drain Sump High Level, Revision 1

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GE 157B6350, Reactor Building Floor and Equipment Drains Electrical Elementary Diagram, Sheet 55D, Revision 5
3C-572-17-1000, Reactor Building Floor and Equipment Drains Electrical Elementary Diagram, Sheet 0, Revision 0
JC 147434, Sumps and Waste Collection System, Sheet 3, Revision 68

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2484452	2484454	1503499	1430624	2383723	2493515
2411241	2491855	2491672	2492094	1537101	1537254
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Maintenance Orders/Work Orders

C2029700	R2219628	R2121522	R2136655	R2181319	R0803021
R2245139	R2215948	R2249794			

Miscellaneous
HVA TD Report Summary: 86-71 Left Conduit, dated September 19, 2014
HVA TD Report Summary: 86-71 Right Conduit, dated September 19, 2014
Design and Licensing Bases for Flooding at OCGS, dated August 29, 2007
Oyster Creek Nuclear Generating Station Updated Final Safety Analysis Report Section 9.3, Process Auxiliaries, Revision 16
OC-PSA-012, Internal Flood Evaluation Summary Notebook, Revision 1

Section 1R07: Heat Sink Performance

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ER-OC-340-1001, Oyster Creek Generic Letter 89-13 Program Basis Document, Revision 4
ER-AA-340-1002, SW Heat Exchanger and Component Inspection Guide, Revision 6
309.2, Reactor Building Closed Cooling Water System, Revision 93

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VM-OM-0354, Installation, Operation, and Maintenance for the Reactor Building Closed Cooling Water Heat Exchanger, Revision 1

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203, Plant Shutdown, Revision 85
203.4, Plant Cooldown Following Reactor Scram, Revision 55
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TQ-AA-150, Operator Training Programs, Revision 11
TQ-AA-155, Conduct of Simulator Training and Evaluation, Revision 4
TQ-AA-155, Conduct of Simulator Training and Evaluation, Revision 4
TQ-AA-201, Examination Security and Administration, Revision 16
TQ-AA-224, Implementation Phase, Revision 8

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2477483 2497537 2474619 2513013

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ER-AA-310-1003, Maintenance Rule – Performance Criteria Selection, Revision 4
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ER-AA-321, Administrative Requirements for Inservice Testing, Revision 12
HU-AA-104-101, Procedure Use and Adherence, Revision 5

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BR2005, Emergency Service Water System Flow Diagram, Revision 86
GE148F723, Liquid Poison System Flow Diagram, Revision 40

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C-1302-212-E540-100, OCNGS: LPCS Single Pump Operability Criteria, Revision 1
C-1302-212-5310-091, OCNGS: LPCS Operability Criteria, Revision 1
C-1302-241-E540-096, OCNGS Containment Spray/Emergency Service Water System Hydraulic Models, Revision 2

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1421400	2476604	2386417	2456720	1336412	0698203
1122927	1083669	2452480	1352614	1466639	1422090
2489885	2514081				

Maintenance Orders/Work Orders

R2251968	R2221605	R2215329	A2185795	M2371508

Miscellaneous

Operability Evaluation OC-2005-OE-0002, Revision 1
VM-OC-2036, Installation, Operation & Maintenance for Bladder Accumulator (Liquid Poison System), Revision 2
Oyster Creek Nuclear Generating Station Updated Final Safety Analysis Report Section 9.3, Process Auxiliaries, Revision 18
Oyster Creek Nuclear Generating Station Technical Specifications Section 3.2, Reactivity Control, Amendment 262
P-20-2A (NZ3A) & P-20-2C (NZ3C) IST Pump Evaluation Form, Dated May 27, 2015
Safety Evaluation 000212-036, Core Spray System Operability Criteria Review, Revision 0
Safety Evaluation 000212-046, Core Spray System Main Pump Operability Criteria, Revision 0
Oyster Creek Nuclear Generating Station Updated Final Safety Analysis Report Section 6.3, Emergency Core Cooling System, Revision 18
OC 01-00621, Crosstie ESW to Service Water to Allow Repairs, Revision 0
OC 08-00037, UFSAR Update for ESW Cross-Connect to SW for RBCCW, Revision 0
OC 09-00433, Service Water Cross Connect from RBCCW Ht Exch to ESW sys 1, Revision 0
VM-OC-2773, Wafer Sphere Valves for Service Water/ESW Crosstie, Revision 0
OC-2008-E-0001, Technical Evaluation A2185795-02, Revision 0

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619.4.025, Automatic Scram Contactor Test, Revision 13
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ER-AA-425-1000, Selecting a Candidate to be Evaluated for a Proposed Surveillance Test Interval (STI) Change, Revision 1
ER-AA-4225-1001, Surveillance Test Interval (STI) Evaluation Form, Revision 0
ER-AA-425-1002, Engineering Evaluation of Proposed Surveillance Test Interval Changes, Revision 1
ER-AA-600-1051, Risk Assessment of Surveillance Test Frequency Changes, Revision 0
LS-AA-1000, Surveillance Frequency Control Program List of Surveillance Frequencies Change Process, Revision 0
LS-AA-104-1000, 50.59 Resource Manual, Revision 9
LS-AA-104, Exelon 50.59 Review Process, Revision 10
LS-AA-104-1003, 50.59 Screening Form, Revision 4

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1619815	1685273	1473196	1494974

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STI OC-15-01, Automatic Scram Contactor Surveillance Extension, Revision 0
TCC-1504-532-RO-22, ESW I/SW Cross Connect Restriction Orifice, Revision 0
OC 01-00621, Crosstie ESW to Service Water to Allow Repairs, Revision 0
OC 08-00037, UFSAR Update for ESW Cross-Connect to SW for RBCCW, Revision 0
OC 09-00433, Service Water Cross Connect from RBCCW Ht Exch to ESW sys 1, Revision 0
VM-OC-2773, Wafer Sphere Valves for Service Water/ESW Crosstie, Revision 0
OC-2008-E-0001, Technical Evaluation A2185795-02, Revision 0
OC 15-00197, ECR to Remove the Output Trip Functions from the Digital Protection Relay System, Revision 0

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MA-AA-716-012, Post Maintenance Testing, Revision 20
WC-AA-101, On-Line Work Control Process, Revision 24
MA-AA-716-011, Work Execution & Close Out, Revision 19
2400-GMM-3225.52, Control Rod Drive Hydraulic Control Unit, Revision 34
235, Determination and Correction of Control Rod Drive System Problems, Revision 65
607.4.005, Containment Spray and Emergency Service Water Pump System 2 Operability and Comprehensive/Preservice/Post Maintenance Inservice Test, Revision 78
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GE 197E871, Scram Discharge Volume System Control Rod Drive Hydraulic System, Sheet 1, Revision 30
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GE 991D0217, Main Generator Electrical Elementary Diagram Relaying and Metering Three Line, Revision 35

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C-1302-532-E540-036, ESW System Performance with Keepfill Line Failure, Revision 2

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C2034201 C2033513 R2226691 R2256758

Miscellaneous
Oyster Creek Nuclear Generating Station Updated Final Safety Analysis Report Section 4.6, Functional Design of Reactivity Control Systems, Revision 14
OC 15-00197, ECR to Remove the Output Trip Functions from the Digital Protection Relay System, Revision 0

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OP-AA-108-108, Unit Restart Review, Revision 16
201, Plant Startup, Revision 97
ABN-1, Reactor Scram, Revision 13
ABN-2, Recirculation System Failures, Revision 24
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2500906	2500895	2500776	2500586	2500426	2500401
2500317	2499907	2499810	2499768	2497537	

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Oyster Creek Nuclear Generating Station Updated Final Safety Analysis Report, Section 10.2, Turbine Generator, Revision 19
ECR 15-00197, ECR to Remove the Main Transformer Differential Current Trip from the Digital Protection Relay System (DPRS), Revision 0
ODM – 1F37 Startup Without Identifying Cause of Main Transformer Differential
PTR – 2497537, Post Transient Review, Revision 0

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307, Isolation Condenser System, Revision 121
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312.9, Primary Containment Control, Revision 58
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610.4.003, Core Spray Valve Operability and In-Service Test, Revision 44
EN-OC-300-1001, Oyster Creek MOV GL 89-10 Scoping Document, Revision 3

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GE 148F262, Emergency Condenser Flow Diagram, Sheet 1, Revision 51

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C-1302-730-5350-017, Stroke Time Calculation for GL 89-10 MOV's, Revision 0

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2478140	2494991	2495022	2494966	2492268	2477387
2476241	2475784	2476241	2475490	2478172	2475658
2508916	2511400	2513941	2509739	2497353	2478140
1497655	2498892				

Maintenance Orders/Work Orders

R2247065	R2241124	R2253286	R2254595	C2034491	C2034492

Miscellaneous

VM-OC-0285, ITT Barton Model 580 A-0 DPIS, Revision 5
VM-OC-5001, Care and Operation of Isolation Condensers, Revision 3
Oyster Creek Nuclear Generating Station Technical Specifications Section 3.8, Isolation Condenser, Amendment 241
Oyster Creek Nuclear Generating Station Updated Final Safety Analysis Report Section 6.3, Isolation Condenser System, Revision 18
SE-328312-003, GL 89-10 Motor Operated Valve Modification, Revision 1
SE-315403-031, Justification for Revised C Hi Flow Trip Time Delay, Revision 1
Adverse Condition Monitoring and Contingency Plan for Increase in Unidentified Leak Rate, dated April 17, 2015
1-8 Sump Chemistry Sample, dated April 24, 2015

Section 1EP6: Drill Evaluation

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EP-AA-112-100, Control Room Operations, Revision 13
EP-AA-112-100-F-01, Shift Emergency Director Checklist, Revision U
EP-AA-112-100-F-06, ERO Notification or Augmentation, Revision Q
EP-AA-114-F-02, BWR Release In Progress Determination Guidance, Revision A

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681.4.004, Technical Specification Log sheets for Daily Source Checks, Revision 30

Documents

Oyster Creek System Health Report, 661 – Radiation Monitoring System, Q4-2014
Oyster Creek System Health Report, 661 – Radiation Monitoring System, Q1-2015
WO R2248776, Surveillance 621.3.005, High Radiation Monitor - RX. Building, Isolation – Calibration, January 8, 2015
WO R2253509, Surveillance 621.3.005, High Radiation Monitor - RX. Building, Isolation – Calibration, April 29, 2015
WO R2155453, Surveillance 621.3.025, Stack RAGEMS Noble Gas monitor Calibration, March 7, 2012
WO R2204250, Surveillance 621.3.025, Stack RAGEMS Noble Gas Monitor Calibration, April 26, 2014
WO 2250803, Surveillance 621.3.026, Stack RAGEMS Noble Gas Monitor – Functional Test, February 10, 2015
WO 2254601, Surveillance 621.3.026, Stack RAGEMS Noble Gas Monitor – Functional Test, May 12, 2015

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2458935	1632490	2486056	2466905	2464332	2453176
2434407	1628653	1620160	1613493	1603392	

Section 2RS6: Radioactive Gaseous and Liquid Effluent Treatment

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CY-OC-170-201, Compliance with Technical Specification 6.8.4 Radioactive Effluent Control, Revision 2
CY-OC-170-3010, Cross Reference of Technical Specifications, ODCM Requirement and Compliance Requirements, Revision 3
CY-AA-170-000, Radioactive Effluent and Environmental Monitoring Programs, Revision 6
CY-AA-170-200, Radioactive Effluents Control Program, Revision 2
CY-OC-170-302, Chemistry Surveillance Test Program, Revision 4
CY-OC-120-900, Stack Effluent Sampling and Analysis, Revision 21
CY-OC-120-910, Turbine Building Ventilation System Sampling, Revision 12
CY-OC-120-920, AOG Building Effluent Sampling and Analysis, Revision 16
CY-OC-120-921, AOG Building Process Gas and Water Sampling and Analysis, Revision 0
CY-OC-170-2020, Radiological Abnormal Gaseous and Liquid Release Assessment, Revision 1
CY-OC-170-3001, Stack Alternate Sampling, Revision 1
CY-OC-120-9000, Monthly RAGEMS Particulate Filter Composite, Revision 7
CY-AA-130-320, Packard 2900TR/3100TR Liquid Scintillation Counter, Revision 3
CY-OC-130-530, Tritium Analysis Liquid Samples, Revision 8
CY-AA-170-2000, Annual Radioactive Effluent Release Report, Revision 7
CY-AA-170-210, Potentially Contaminated System Control Program, Revision 1
RP-AA-303, Soil Sampling for Radiological Analysis, Revision 0
EN-OC-402-100, NJPDES Sampling and Analysis, Revision 15
406.8, Operations of Stack RAGEMS, Revision 43
406.9, Operation of the Turbine Building RAGEMS, Revision 26
420, Instrumentation Setpoints, Revision 14
EN-A-408-4000, Radiological Groundwater Protection Program Implementation, Revision 5
EN-OC-408-4001, RGPP Onsite and Offsite Sample Results Comparison, Revision 0
EN-OC-408-4160, RGPP Reference Material for Oyster Creek Generating Station, Revision 6
CY-OC-120-706, Groundwater Remediation Process Sample Collection, Revision 5
CY-AA-130-201, Radiochemistry Quality Control, Revision 3

CY-AA-170-1100, Quality Assurance for Radiological Monitoring Programs, Revision 2
CY-AA-170-2100, Estimated Errors of Effluent Measurements, Revision 1
CY-OC-170-2001, Quality Control for Radioactive Effluents, Revision 1
CY-AA-130-201-F-02, Regulatory Position for Regulatory Guide 4.15, Revision 1

Documents
RA-13-055, Oyster Creek Nuclear Generating Station Annual Radioactive Effluent Release Report for 2013, April 30, 2014
RA-14-002, Oyster Creek Nuclear Generating Station Annual Radioactive Effluent Release Report for 2014, April 30, 2015
Oyster Creek Offsite Dose Calculation Manual, Revision 6
LS-AA-126-1005 Attachment 2 Check-In Self-assessment Report AR 1657492, ANI 07-01 Potential for Unmonitored and Unplanned Off-site Release of Radioactive Material, July 24, 2014
L020311.164, American Nuclear Insurers Liability Insurance Inspection, February 1 – 3, 2011
EPRI Groundwater Protection Program, Groundwater Protection Initiative Self-assessment – Oyster Creek Nuclear Generating Station, October 2013
W.O. R2229067, Surveillance 651.1.003 Standby Gas Treatment System #1 – Charcoal Filter In-Place Leak Test, March 17, 2015
W.O. R2224329, Surveillance 651.3.103 Standby Gas Treatment System #2 –In place Leak Test, July 30, 2014
W.O. R2226085, Surveillance 651.1.002 Standby Gas Treatment System #1–Particulate Filter In-Place Leak Test, March 18, 2015
W.O. R2221718 Surveillance 651.3.102 Standby Gas Treatment System #2 – Particulate Filter In-Place Leak Test, May 6, 2014
NUCON International Lab ID W429, OCGS Sample Charcoal F-28-3 SGTS #1, April 1, 2015
NUCON International Lab ID W509, OCGS Sample Charcoal 1690-09 SGTS #2, May 6, 2015
WO R2147672, Surveillance 621.3.034 Turbine Building RAGEMS Sample and Effluent Flow - Calibration, February 18, 2011
WO R2231218, Surveillance 621.3.034 Turbine Building RAGEMS Sample and Effluent Flow - Calibration, November 12, 2014
WO2251965, Surveillance 621.3.045 Turbine Building RAGEMS Sample and Effluent Flow-Functional Test, February 11, 2015
WO2254898, Surveillance 621.3.045 Turbine Building RAGEMS Sample and Effluent Flow-Functional Test, May 18, 2015
WO R2211228, Surveillance 621.3.023 Stack RAGEMS Sample and Effluent Flow Calibration, November 6, 2013
WO R2234210, Surveillance 621.3.023 Stack RAGEMS Sample and Effluent Flow Calibration, December 18, 2014
Calculation No. OCGS-007, Service Water Radiation Monitor Setpoints, April 13, 2011
Radiation Protection Calculation and Position Paper OC-14-002, 2013 – 2014 10CFR61 Waste Stream Analysis, February 6, 2014
Conestoga Rovers Associates, Hydrological Investigation Report - Revision 2, April 2011
Conestoga Rovers Associates, Oyster Creek Monitoring Well Inspection, May 13, 2015
Normandeau, Groundwater Well Inspection/Maintenance Log, April 13, 2015
Normandeau, Groundwater Well Inspection/Maintenance Log, January 12, 2015
Tech Eval 01617346-30 Oyster Creek Engineering Evaluation of Buried Piping Inspections for Reasonable Assurance, October 23, 2014
UCC Report No. RCN-005 Condensate Storage Tank Underwater Cleaning and VT-3 Inspection, May 2009

SRRS 2B.135, Oyster Creek List Required by RP-AA-228 for 10 CFR 50.75(g) Decommissioning Records, March 26, 2015
SRRS 5C.101, Oyster Creek Buried Pipe Mitigation Project 10 CFR 50.75(g)2. Record, April 14, 2014
Eckert & Ziegler Analytical Results of Radiochemistry Cross Check Program EXELON Oyster Creek 3rd Quarter October 7, 2014
Teledyne Brown Engineering Environmental Services 2014 Quality Assurance Report, December 22, 2014
Normandeau Associates, Inc. letter from Dennis Fillman to Mathew Nixon RE: 2013 Land Use Census Report Oyster Creek Generating Station, August 2013

Condition Reports
2501639 2431211 2411074 1548306 1547234 1500072

Section 4OA1: Performance Indicator Verification

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ABN-1, Reactor Scram, Revision 11

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2500776

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NUREG 1022, Reporting Requirements, Revision 3
Various Operator Logs from April 1, 2014 to March 31, 2015
NEI 99-02, Regulatory Assessment Performance Indicator Guideline, Revision 7

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PI-AA-120, Issue Identification and Screening Process, Revision 1
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MA-AA-716-010, Maintenance Planning, Revision 22
MA-AA-716-235, Control of Critical Digital Asset (CDA) Portable Media and Portable Devices, Revision 3
MA-AA-716-012, Post Maintenance Testing, Revision 20
MA-MA-716-010-1005, Work Order (W/O) Planning Process, Revision 18
MA-MA-716-010-1008, Work Order (W/O) Work Performance, Revision 5
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2394374 2394357 2402030 2504265 2474619

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A2362493

LIST OF ACRONYMS

AC	alternating current
ADAMS	Agencywide Documents Access and Management System
AVR	automatic voltage regulator
CFR	Code of Federal Regulations
CO_2	carbon dioxide
FIN	Finding
GPI	groundwater protection initiative
HMI	human machine interface
IMC	Inspection Manual Chapter
IST	in-service test
kV	kilovolt
LER	Licensee Event Report
NCV	non-cited violation
NEI	Nuclear Energy Institute
NRC	Nuclear Regulatory Commission
ODCM	Offsite Dose Calculation Manual
PCV	pressure control valve
RCS	reactor coolant system
RWCU	reactor water cleanup
SDP	significance determination process
SSC	structure, system, or component
UFSAR	Updated Final Safety Analysis Report