



**UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I**
2100 RENAISSANCE BOULEVARD, SUITE 100
KING OF PRUSSIA, PENNSYLVANIA 19406-2713

January 30, 2014

Mr. Michael J. Pacilio
Senior Vice President, Exelon Generation Company LLC
President and Chief Nuclear Officer, Exelon Nuclear
4300 Winfield Road
Warrenville, IL 60555

**SUBJECT: OYSTER CREEK NUCLEAR GENERATING STATION - NRC INTEGRATED
INSPECTION REPORT 05000219/2013005**

Dear Mr. Pacilio:

On December 31, 2013, 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 January 16, 2014 with Mr. G. Stathes, Site Vice President, and other members of your staff.

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

Based upon the results of this inspection, no findings were identified.

As a result of the Safety Culture Common Language Initiative, the terminology and coding of cross-cutting aspects were revised beginning in calendar year (CY) 2014. New cross-cutting aspects identified in CY 2014 will be coded under the latest revision to IMC 0310. Cross-cutting aspects identified in the last six months of 2013 using the previous terminology will be converted to the latest revision in accordance with the cross-reference in IMC 0310. The revised cross-cutting aspects will be evaluated for cross-cutting themes and potential substantive cross-cutting issues in accordance with IMC 0305 starting with the CY 2014 mid-cycle assessment review.

In accordance with 10 CFR 2.390 of the NRCs "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the

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Sincerely,

/RA/

William A. Cook, Acting Chief
Reactor Projects Branch 6
Division of Reactor Projects

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

Enclosure: Inspection Report 05000219/2013005
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.: 05000219/2013005

Exelon: Exelon Nuclear

Facility: Oyster Creek Nuclear Generating Station

Location: Forked River, New Jersey

Dates: October 1, 2013 – December 31, 2013

Inspectors: J. Kulp, Senior Resident Inspector
A. Patel, Resident Inspector
J. Schoppy, Senior Reactor Inspector
T. O'Hara, Reactor Inspector
B. Dionne, Health Physicists Inspector
E. Burket, Emergency Preparedness Specialist

Approved By: William A. Cook, Acting Chief
Reactor Projects Branch 6
Division of Reactor Projects

Enclosure

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SUMMARY OF FINDINGS

IR 05000219/2013005; 10/01/2013 – 12/31/2013; Exelon Energy Company, LLC, Oyster Creek Generating Station;

This report covered a three-month period of inspection by resident inspectors and announced inspections performed by regional inspectors. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4, dated December 2006.

No findings were identified.

REPORT DETAILS

Summary of Plant Status

Oyster Creek began the inspection period in the 1M30 maintenance outage and commenced reactor startup on October 3, 2013. On October 3, 2013 during power ascension following criticality, an automatic scram occurred due to intermediate range monitor high flux scram signal while withdrawing source range detectors. On October 6, 2013 during power ascension, operators manually scrammed the reactor due to loss of condenser vacuum and Oyster Creek entered a forced outage (1F31). After repairs to the condenser, Oyster Creek commenced startup on October 7 and returned to full power operation on October 11, 2013. On November 3, 2013, Oyster Creek experienced an unexpected trip of the E recirculation pump and reactor power stabilized at 92% power. On November 3, 2013, Oyster Creek achieved 100% power with the four remaining recirculation pumps. On November 16, 2013, operators shutdown the reactor and Oyster Creek entered a planned maintenance outage (1M32) to repair the E recirculation pump. On November 21, 2013, Oyster Creek commenced startup and returned to full power on November 23, 2013. On December 14, 2013 during turbine valve testing, operators manually scrammed the reactor due to high reactor pressure and Oyster Creek entered a forced outage (1F33). After repairs to the turbine control system, Oyster Creek commenced startup on December 18, 2013 and returned to full power operation on December 20, 2013.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01 – 1 sample)

.1 Readiness for Seasonal Extreme Weather Conditions

a. Inspection Scope

The inspectors performed a review of Exelon's readiness for the onset of seasonal cold temperatures. The review focused on the intake structure and the emergency diesel generators (EDGs). 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 cold weather conditions.

b. Findings

No findings were identified.

1R04 Equipment Alignment

.1 Partial System Walkdowns (71111.04Q – 2 samples)

a. Inspection Scope

The inspectors performed partial walkdowns of the following systems:

- Standby gas treatment system #1 on November 5, 2013
- B control rod drive pump on November 25, 2013

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 system performance of their 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.

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

a. Inspection Scope

On October 22 and 23, 2013, the inspectors performed a complete system walkdown of accessible portions of the #1 emergency diesel generator to verify the existing equipment lineup was correct. The inspectors reviewed operating procedures, surveillance tests, drawings, equipment line-up check-off lists, and the UFSAR to verify the system was aligned to perform its required safety functions. The inspectors also reviewed electrical power availability, component lubrication and equipment cooling, hangar and support functionality, and operability of support systems. The inspectors performed field walkdowns of accessible portions of the systems to verify system components and support equipment were aligned correctly and operable. The inspectors examined the material condition of the components and observed operating parameters of equipment to verify that there were no deficiencies. Additionally, the inspectors reviewed a sample of related condition reports and work orders to ensure Exelon appropriately evaluated and resolved any deficiencies.

b. Findings

No findings were identified.

1R05 Fire Protection

.1 Resident Inspector Quarterly Walkdowns (71111.05Q – 4 samples)

a. Inspection Scope

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

- Motor-generator set room on October 30, 2013
- Emergency diesel generator room #2 on October 30, 2013
- Reactor building 23' elevation on October 30, 2013
- 4160 volt switchgear room and C battery room on October 30, 2013

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12 – 3 samples)

a. Inspection Scope

The inspectors reviewed the samples listed below to assess the effectiveness of maintenance activities on systems, structures and components (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 SSCs classified as (a)(1), the inspectors assessed the adequacy of goals and corrective actions to return these SSCs to (a)(2). Additionally, the inspectors ensured that Exelon staff was identifying and addressing common cause failures that occurred within and across maintenance rule system boundaries.

- Reactor protection system blown fuse issues on October 29, 2013
- Standby liquid control system relief valve as-found lift pressure issues on November 4, 2013
- Main feedwater regulating valve failures root cause evaluation on November 5, 2013

b. Findings

No findings were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13 – 2 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 the station's probabilistic 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.

- Containment spray system #1 and emergency service water system #1 out of service for planned surveillance testing on October 16, 2013
- Planned maintenance on emergency diesel generator #2 from October 21 to 25, 2013

b. Findings

No findings were identified.

1R15 Operability Determinations and Functionality Assessments (71111.15 – 2 samples)

a. Inspection Scope

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

- C emergency service water system piping degradation on November 12, 2013
- Bank 6 startup transformer C phase voltage regulator not in automatic on November 14, 2013

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. Where compensatory measures were required to maintain operability, the inspectors determined whether the measures in place would function as intended and were properly controlled by Exelon. The inspectors determined, where appropriate, compliance with bounding limitations associated with the evaluations.

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing (71111.19 – 6 samples)a. Inspection Scope

The inspectors reviewed the post-maintenance tests for the maintenance activities listed below to verify that procedures and test activities ensured system operability and functional capability. The inspectors reviewed the test procedure to verify that the procedure adequately tested the safety functions that may have been affected by the maintenance activity, that the acceptance criteria in the procedure was consistent with the information in the applicable licensing basis and/or design basis documents, and that the procedure had been properly reviewed and approved. The inspectors also witnessed the test or reviewed test data to verify that the test results adequately demonstrated restoration of the affected safety functions.

- Main turbine overspeed trip device after speed relay replacement (M2337118) on October 10, 2013
- Average power range monitor #4 after power supply replacement (C2030995) on October 15, 2013
- Containment spray system #2 after drywell discharge valve planned maintenance (R2098132) on October 15, 2013
- Emergency diesel generator #2 after planned 24 month overhaul (R2228091) on October 25, 2013
- Standby gas treatment system #2 after filter replacement (R2118737) on November 7, 2013
- Electromatic relief valve (EMRV) temperature monitors after EMRV temperature monitor switch replacement (C2031260) on November 20, 2013

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 planned maintenance outage 1M32. On November 16, 2013, operators shutdown the reactor entered planned maintenance outage 1M32. On November 21, 2013, Oyster Creek commenced startup and returned to full power on November 23, 2013.

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
- Status and configuration of electrical systems and switchyard activities to ensure that technical specifications were met
- Monitoring of decay heat removal operations
- 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
- Identification and resolution of problems related to outage activities

b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22 – 4 samples)

a. Inspection Scope

The inspectors observed performance of surveillance tests and/or reviewed test data of selected risk-significant SSCs to assess whether test results satisfied 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:

- Unidentified leak rate verification on October 16, 2013
- B emergency service water pump in-service test on October 17, 2013
- Emergency diesel generator #1 fast start test on November 11, 2013
- Torus to drywell vacuum breaker operability test on November 14, 2013

b. Findings

No findings were identified.

2. **RADIATION SAFETY**

Cornerstones: Public Radiation Safety and Occupational Radiation Safety

2RS5 Radiation Monitoring Instrumentation (71124.05– 1 sample)

a. Inspection Scope

The inspectors reviewed maintenance records, testing records, source check records, calibration records, alarm setpoint calculations and walked down a sample of various radiation monitors including whole-body counters used to detect workers' surface and

internal contamination to verify proper setup and operation. The inspectors reviewed Exelon and third-party evaluation reports of the radiation monitoring program since the last inspection to look for trends. The inspectors reviewed procedures that govern instrument source checks and calibrations, focusing on instruments used for monitoring transient high radiological conditions, including instruments used for underwater surveys.

The inspectors walked down a representative sample of Exelon's effluent radiation monitoring systems and observed Exelon personnel conducting source checks to verify proper operation of the monitors. The inspectors walked down area radiation monitors and continuous air monitors to determine whether they are appropriately positioned relative to the radiation sources or areas they were intended to monitor.

The inspectors reviewed daily performance checks and calibration data to show that the frequency of the calibrations is adequate and there were no indications of degraded performance of laboratory analytical instruments used for radiological analyses.

b. Findings

No findings were identified.

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

a. Inspection Scope

The inspectors verified that gaseous and liquid effluent processing systems are maintained so radiological discharges are properly reduced, monitored, and released. The inspectors also verified the accuracy of the calculations for effluent releases and resultant public doses. The inspectors reviewed Licensee Event Reports, event reports, and/or special reports related to the effluent program to identify any additional focus areas for the inspection based on the scope/breadth of problems described in these reports. The inspectors reviewed Standby Gas Treatment System surveillance test data and walked down portions of the system to assess the material condition and to verify that there were no conditions, improper alignment, or system installation issues that would impact the performance of the system. The inspectors reviewed the methodology Exelon used to determine the effluent stack and vent flow rates.

The inspectors verified that the calculated monthly, quarterly, and annual doses were within the 10 CFR Part 50, Appendix I, and Technical Specification dose criteria. Additionally, the inspectors reviewed records of abnormal discharges to ensure that an evaluation was made of the discharge to satisfy 10 CFR 20.1501, and account for the source term and projected doses to the public.

The inspectors reviewed reported groundwater monitoring results, remediation efforts, changes to the program for identifying and controlling contaminated spills/leaks to groundwater and walked down the remediation facility.

b. Findings

No findings were identified.

2RS7 Radiological Environmental Monitoring Program (REMP) (71124.07– 1 sample)

a. Inspection Scope

The inspectors reviewed the annual radiological environmental and effluent operating reports and the results of Exelon assessments since the last inspection, to verify that the REMP was implemented in accordance with technical specifications and the Offsite Dose Calculation Manual (ODCM). This review included, monitoring and measurement frequencies, land use census, inter-laboratory comparison program, and analysis of environmental sampling data including reporting the cause of any positive radioactivity detected and any elevated environmental dosimeter results. The inspectors walked down one air sampling station to determine whether it was located as described in the Oyster Creek ODCM, whether it provided a representative sample, and to determine the equipment material condition. The inspectors reviewed the results of Exelon's inter-laboratory and intra-laboratory comparison program to verify the adequacy of environmental sample analyses performed by Exelon. The inspectors reviewed Exelon's determination of any bias to the data and the overall effect on the REMP.

b. Findings

No findings were identified.

4. **OTHER ACTIVITIES**

4OA1 Performance Indicator Verification (71151)

.1 Mitigating Systems Performance Index (5 samples)

a. Inspection Scope

The inspectors reviewed Exelon's submittal of the Mitigating Systems Performance Index for the following systems for the period of October 1, 2012 through September 30, 2013:

- Emergency AC Power System
- High Pressure Injection System
- Heat Removal – Isolation Condensers
- RHR - Containment Spray
- Cooling Water System

To determine the accuracy of the performance indicator data reported during those periods, the inspectors used definitions and guidance contained in Nuclear Energy Institute (NEI) Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7. The inspectors also reviewed Exelon's operator narrative logs, condition reports, mitigating systems performance index derivation reports, event reports, and NRC integrated inspection reports to validate the accuracy of the submittals.

b. Findings

No findings were identified.

.2 Emergency Preparedness Performance Indicators (3 Samples)

a. Inspection Scope

The inspectors reviewed data for the following three emergency preparedness Performance Indicators (PI): (1) drill and exercise performance; (2) emergency response organization drill participation; and, (3) alert and notification system reliability. The last NRC emergency preparedness inspection at Oyster Creek Nuclear Power Station was conducted in the fourth calendar quarter of 2012. Therefore, the inspectors reviewed supporting documentation from emergency preparedness drills and equipment tests from the fourth calendar quarter of 2012 through the third calendar quarter of 2013 to verify the accuracy of the reported PI data. The review of the PIs was conducted in accordance with NRC Inspection Procedure 71151. The acceptance criteria documented in NEI 99-02, was used as reference criteria.

b. Findings

No findings were identified.

.3 Occupational Exposure Control Effectiveness (1 sample)

a. Inspection Scope

The inspectors reviewed implementation of the Occupational Exposure Control Effectiveness performance indicator program. The inspectors reviewed corrective action program records for occurrences involving high radiation areas, very high radiation areas, and unplanned personnel radiation exposures since the last inspection in this area. The review was against the applicable criteria specified in NEI 99-02. The purpose of this review was to verify that occurrences that met NEI criteria were recognized and identified as performance indicators.

b. Findings

No findings were identified.

.4 Radiological Effluent Technical Specification/Offsite Dose Calculation Manual Radiological Effluent Occurrences (1 sample)

a. Inspection Scope

The inspectors reviewed the implementation of the Radiological Effluents Technical Specification/Offsite Dose Calculation Manual (RETS/ODCM) performance indicator program. The inspectors reviewed corrective action program records and projected monthly and quarterly dose assessment results due to radioactive liquid and gaseous effluent releases for the past four complete quarters. The review was against the applicable criteria specified in NEI 99-02. The purpose of this review was to verify that occurrences that met NEI criteria were recognized and identified as performance indicators.

As part of this review, the inspectors also reviewed Exelon's evaluations and public dose assessments associated with identification of localized ground water contamination within the restricted area.

b. Findings

No findings were identified.

4OA2 Problem Identification and Resolution (71152 – 3 samples)

.1 Routine Review of Problem Identification and Resolution Activities

a. Inspection Scope

As required by Inspection Procedure 71152, "Problem Identification and Resolution," the inspectors routinely reviewed issues during baseline inspection activities and plant status reviews to verify that Exelon entered issues into the 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.

b. Findings

No findings were identified.

.2 Semi-Annual Trend Review

a. Inspection Scope

The inspectors performed a semi-annual review of site issues, as required by Inspection Procedure 71152, "Problem Identification and Resolution," to identify trends that might indicate the existence of more significant safety issues. The inspectors performed a focused review on issue reports screened as human performance issues to determine if there were trends or precursors and to review the effectiveness of corrective actions. The inspectors reviewed issue reports generated during the third and fourth quarter of 2013 to determine if the issue reports were screened and investigated in accordance with Exelon procedures. The inspectors also reviewed issue reports for the third and fourth quarters of 2013 to assess if trends exist in various subject areas (equipment problems, human performance issues, etc.), as well as individual issues identified during the NRC daily condition report review (Section 4OA2.1).

b. Findings and Observations

No findings were identified.

The inspectors noted that Oyster Creek is generating issue reports at an appropriate rate and threshold. No discernable new trends were identified.

The inspectors noted that issues were generally screened appropriately and investigations were assigned in accordance with Exelon corrective action program procedures.

The inspectors noted that issue reports pertaining to the feed and condensate systems were properly screened and evaluated resulting in this system being placed in a(1) monitoring status in accordance with the maintenance rule.

The inspectors noted that human performance issues were generally self-identified by the department effected by the issue. The inspectors also noted that for the operations department, approximately 40 percent of the issues were identified by oversight organizations, which was at a higher percentage when compared to other departments. The issues identified by the oversight organizations tended to be more insightful than those that were self-identified. For example, oversight organizations were responsible for identification of all the human performance issues related to operability and functionality determinations. The inspectors discussed with plant management that operations department could be more self-critical when reviewing their performance.

.3 Annual Sample: Review of the Operator Work-Around Program

a. Inspection Scope

The inspectors reviewed the cumulative effects of the existing operator workarounds, operator burdens, existing operator aids and disabled alarms, and open main control room deficiencies to identify any effect on emergency operating procedure operator actions, and any impact on possible initiating events and mitigating systems. The inspectors evaluated whether station personnel had identified, assessed, and reviewed operator workarounds as specified in Exelon procedure OP-AA-102-103, Operator Work-Around Program.

The inspectors reviewed Exelon's process to identify, prioritize and resolve main control room distractions to minimize operator burdens. The inspectors reviewed the system used to track these operator workarounds and recent Exelon self-assessments of the program. The inspectors also toured the control room and discussed the current operator workarounds with the operators to ensure the items were being addressed on a schedule consistent with their relative safety significance.

b. Findings and Observations

No findings were identified.

The inspectors determined that the issues reviewed did not adversely affect the capability of the operators to implement abnormal or emergency operating procedures. The inspectors also verified that Exelon entered operator workarounds and burdens into the corrective action program at an appropriate threshold and planned or implemented corrective actions commensurate with their safety significance.

4OA3 Follow-Up of Events and Notices of Enforcement Discretion (71153 – 2 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.

- Loss of vacuum scram during startup from maintenance outage on October 6, 2013
- High pressure manual scram during turbine valve testing on December 14, 2013.

b. Findings

No findings were identified.

4OA5 Other Activities

.1 Buried Piping, TI-2515/182, Phase 2 (1 sample)

a. Inspection Scope

The licensee's buried piping and underground piping and tanks program was inspected in accordance with paragraphs 03.02.a of the Temporary Instruction (TI) 2515/182, and it was confirmed that activities which correspond to the completion dates, specified in the program, which have passed since the Phase 1 inspection was conducted, have been completed.

The licensee's buried piping and underground piping and tanks program was inspected in accordance with paragraph 03.02.b of the TI and responses to specific questions found in www.nrc.gov/reactors/operating/ops-experience/buried-pipe-ti-phase-2-insp-req-2011-11-16.pdf were submitted to the NRC headquarters staff.

b. Findings

No findings were identified.

4OA6 Meetings, Including Exit

On January 16, 2014, 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
R. Peak, Plant Manager
M. Ford, Director, Operations
G. Malone, Director, Engineering
J. Dostal, Director, Maintenance
C. Symonds, Director, Training
D. DiCello, Director, Work Management
M. McAllister, Engineering Programs
J. McCarthy, Certified Health Physicist
M. McKenna, Manager, Regulatory Assurance
M. Nixon, Chemistry Specialist
M. Chanda, Emergency Preparedness Manager
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
H. Ray, Manager Engineering Programs
E. Swain, Shift Operations Superintendent
J. Chrisley, Regulatory Assurance Specialist
D. Moore, Regulatory Assurance Specialist
K. Paez, Regulatory Assurance Specialist
K. Wolf, Radiological Engineering Supervisor
J. Bills, Chemistry Supervisor
J. Murphy, Radiological Engineer

LIST OF ITEMS OPENED, CLOSED, DISCUSSED, AND UPDATED

None

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

Procedures

WC-AA-107, Seasonal Readiness, Revision 12
OP-OC-108-109-1002, Cold Weather Freeze Inspection, Revision 4
322, Service Water System, Revision 83
341, Emergency Diesel Generator Operation, Revision 105

Condition Reports (IRs)

1161509 1169462

Maintenance Orders/Work Orders

C2029675 A2326235 A2238096 A2321889

Miscellaneous

Oyster Creek Winter Execution Morning Plant Status Report, dated December 13, 2013

Oyster Creek Certification of 2013-2014 Winter Readiness, dated November 15, 2013

Section 1R04: Equipment AlignmentProcedures

341, Emergency Diesel Generator Operation, Revision 105

330, Standby Gas Treatment System, Revision 56

302.1, Control Rod Drive System, Revision 114

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3E-862-21-1000, Emergency Diesel Generator Diesel Fuel Oil Start and Transfer System, Revision 24

3E-861-21-1000, Emergency Diesel Generator Air Cooling System, Revision 11

3E-861-21-1001, Emergency Diesel Generator Water Cooling System, Revision 11

3E-861-21-1002, Emergency Diesel Generator Lube Oil System, Revision 12

Section 1R05: Fire ProtectionProcedures

CC-AA-211, Fire Protection Program, Revision 3

101.2, Oyster Creek Site Fire Protection Program, Revision 69

OP-OC-201-008-1014, MG Set Room/Mechanical Equipment room, Revision 0

OP-OC-201-008-1036, Emergency Diesel Generator Room #2, Revision 2

OP-OC-201-008-1005, Reactor Building (23' Elevation), Revision 1

OP-OC-201-008-1024, 4160V Switchgear Room, "C" Battery Room, Revision 2

Section 1R12: Maintenance EffectivenessProcedures

612.4.002, Standby Liquid Control System Functional Test, Revision 35

ER-AA-310, Implementation of the Maintenance Rule, Revision 9

ER-AA-310-1001, Maintenance Rule Scoping, Revision 4

ER-AA-310-1003, Maintenance Rule – Performance Criteria Selection, Revision 4

ER-AA-310-1005, Maintenance Rule – Dispositioning between (A1) and (A2), Revision 6

ABN-17, Feedwater System Abnormal Conditions, Revision 15

Condition Reports (IRs)

1545751	1487564	1574025	1575781	1430006	1537985
1549410	1550330	1550576	1549950	1551933	1555619
1530337	1394422	1518353	1520090	1520128	1521234

Maintenance Orders/Work Orders

R2179280 R2179273 R2179400 C2030411 A2331315 A2330990

Miscellaneous

Maintenance Rule Scoping Document, Revision 28
Reactor Protection System Health Report, Q2-2013

Section 1R13: Maintenance Risk Assessments and Emergent Work Control

Procedures

OP-OC-108-117-1000, Oyster Creek Protected Equipment Program, Revision 4
310, Containment Spray System Operation, Revision 106
341, Emergency Diesel Generator Operation, Revision 105

Condition Reports (IRs)

AR-01574410
AR-01574497

Miscellaneous

Plant Status/Integrated Work Schedule for October 21, 2013

Section 1R15: Operability Determinations and Functionality Assessments

Procedures

337, 4160 Volt Electrical System, Revision 97
681.4.005, Substation Tour Sheet, Revision 33

Calculations

C-1302-532-E310-050, ESW Elbow Minwall Assessment for the First Elbow off of Pump P-3-3A
on the intake structure, Revision 0

Condition Reports (IRs)

1581863 1584415

Maintenance Orders/Work Orders

C2022271

Miscellaneous

VM-OC-5134, JFR Distribution Step Voltage Regulator and MJ-XL Voltage Regulator Control
Panel, Revision 4

Section 1R19: Post-Maintenance Testing

Procedures

625.4.001, Turbine Over Speed Test and Calibration, Revision 19
SP-13-001, Test of the Turbine Controls Load Limit at Power, Revision 0
636.4.013, Diesel Generator #2 Load Test, Revision 38
MA-OC-741-101, Diesel Generator Inspection (24 Month) - Electrical, Revision 11
MA-AA-716-012, Post Maintenance Testing, Revision 19
MA-OC-741-103, EDG #2 24 Month Inspection SU and T and Operation, Revision 7
651.4.003, Standby Gas Treatment System – 10 hour run System 2, Revision 9

Drawings

233R309, Steam Turbine, Revision 0

Condition Reports (IRs)

1568421	1567079	1553363	1568276	1561274	1575340
1575045	1576907	1576883	1576790	1577001	1580976
1588078	1587785				

Maintenance Orders/Work Orders

M2337118	C2030995	R2098132	R2191838	R2068964	R2119244
R2119244	R2151725	R2195797	R2190697	R2190622	R2228091
R2228332	C2031260				

Section 1R20: Refueling and Other Outage ActivitiesProcedures

201, Plant Startup, Revision 86

SP-13-002, Reactor Recirc Pump Seal Leakage Assessment, Revision 0

OP-AA-108-108, Unit Restart Review, Revision 15

OU-OC-103-1001, Shutdown Safety Management Program, Revision 8

Condition Reports (IRs)

1587785	1580321	1588576	1588580	1588468	1588459
1588396	1588093	1588086	1588078	1588010	1587785
1587944	1587951	1588008	1586470	1500241	1586480
1586473	1586521	1586564	1586547	1586484	1586475
1586474	1586436	1586431	1586430	1586417	1586372
1586364	1586355				

Miscellaneous

Adverse Condition Monitoring Plan, "C" Recirc Seal Degradation, Revision 2

Departmental Startup Checklists, dated December 17, 2013

Section 1R22: Surveillance TestingProcedures

312.9, Primary Containment Control, Revision 58

ER-AB-331-1006, BWR Reactor Coolant System Leakage Monitoring and Action Plan,
Revision 2

604.4.016, Torus to Drywell Vacuum Breaker Operability and In-Service Test, Revision 1

636.4.015, Diesel Generator #1 Fast Start Test, Revision 20

CalculationsC-1302-243-5310-047, OCNGS 18" Torus-to-Drywell Vacuum Breaker – Verification of Test
Procedure # 604.4.016, Revision 0Work Orders

R2228005 R2223664

Condition Reports (IRs)

1585233	1585230	1585224	1585222	1585214
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Miscellaneous

Technical Specification Log Sheet, dated October 16, 2013

Process Plant Computer Unidentified Leak Rate Trending Data, dated October 16, 2013

Adverse Condition Monitoring and Contingency Plan, Drywell Leakage Monitoring, Revision 4
1-8 Sump Chemical and Radiochemical Analysis data from December 2012 through October 2013

Section 2RSO5: Radiation Monitoring InstrumentationProcedures

CY-AA-170-200, Radioactive Effluent Control Program, Revision 1

CY-AA-130-201, Radiochemistry Quality Control, Revision 2

CY-AA-170-301, Offsite Dose Calculation Manual, Revision 5

CY-AA-170-1100, Quality Assurance for Radiological Monitoring Program, Revision 1

CY-AA-170-3010, Cross Reference of Technical Specification, ODCM Requirements and Compliance Requirements, Revision 3

ER-AA-310, Implementation of Maintenance Rule, Revision 9

ER-AA-310-1001, Maintenance Rule – Scoping, Revision 4

ER-AA-310-1004, Maintenance Rule – Performance Monitoring, Revision 11

Audits, Self-Assessments, and Surveillances

Attachment 3, ER-AA-310-1005 (a)(1) Determination Issue Report Number 1425606; 661 Area Radiation Monitoring, TB and Stack RAGEMS, dated May 3, 2013

Condition Reports (IRs)

1425606	1580366	1580369	1509752	1582324
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Miscellaneous

Oyster Creek Generating Station Updated Final Safety Analysis Report

Section 2RSO6: Radioactive Gaseous and Liquid Effluent TreatmentProcedures

OP-831.10, Operation of the G.E. Post-accident Sampling System. Post-accident Contingency Procedure, Revision 30

OP -420, Instrumentation Setpoints, Revision 12

CY-AA-170-000, Radioactive Effluent and Environmental Monitoring Program, Revision 5

CY-AA-170-200, Radioactive Effluent Control Program, Revision 1

CY-AA-170-301, Offsite Dose Calculation Manual, Revision 5

EN-AA-408-4000, Radiological Ground Water Protection Program Implementation, Revision 0

RP-AA-228, 10CFR 50.75(g) and 10CFR 72.30 (d), Revision 1

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EPRI Groundwater Protection Program: Groundwater Protection Initiative Self-assessment
Exelon Oyster Creek Generating Station, October 2013

Oyster Creek NEI-07-07 Groundwater Protection Initiative- NEI PEIR Assessment Report, dated February 10, 2010

Condition Reports (IRs)

1312660	1443464	1469681	1468818	1453970	1479674
1555060	1542396	1581846			

Miscellaneous

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RP-AA-228, Rev 1 Attachment 1 Item 33 Isolation Condenser Actuation, dated July 23, 2012
OC-12-06 Radiation Protection Calculation and Position Paper – 2012 to 2013 10 CFR 61
Waste Stream Analysis, dated September 17, 2012
RP-AA-228, List of 10 CFR 50.75(g) Decommissioning Records, dated April 9, 2013

Section 2RSO7: Radiological Environmental Monitoring Program

Procedures

CY-AA-170-000, Radioactive Effluent and Environmental Monitoring Program, Revision 5
CY-AA-170-100, Radiological Environmental Monitoring Program, Revision 2
CY-AA-170-1000, Radiological Environmental Monitoring Program and Meteorological Program
Implementation, Revision 7
CY-AA-170-301, Offsite Dose Calculation Manual, Revision 5

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LS-AA-126-1005 Check-in Self-Assessments 1134291-02 Radiological Environmental
Monitoring Program, dated May 18, 2011

Condition Reports (IRs)

1581832 1557078 1534600

Miscellaneous

Oyster Creek Generating Station Updated Final Safety Analysis Report, Revision 18

Section 4OA1: Performance Indicator Verification

Procedures

LS-AA-2001, Collecting and Reporting of NRC Performance Indicator Data, Revision 14
LS-AA-2200, Mitigating System Performance Index Data Acquisition and Reporting, Revision 5
LS-AA-2150, Monthly Data Elements for RETS/ODCM Radiological Effluent Occurrences,
Revision 5
LS-AA-2140, Monthly Data Elements for NRC Occupational Exposure Control Effectiveness,
Revision 5
EP-AA-125-1001, EP Performance Indicator Guidance, Revision 7
EP-AA-125-1002, ERO Performance – Performance Indicators Guidance, Revision 9
LS-AA-2110, Monthly Data Elements for NRC Emergency Response Organization (ERO) Drill
Participation, Revision 6
LS-AA-2130, Monthly Data Elements for NRC Alert and Notification System (ANS) Reliability,
Revision 5

Condition Reports (IRs)

1436174

Miscellaneous

Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator
Guideline," Revision 7, dated August 31, 2013
Oyster Creek MSPI Basis Document
Oyster Creek Unit 1 - 4Q2012 – 3Q2012 MSPI Data, dated December 11, 2013
MSPI Margin Monthly Reports – 4Q2012 – 3Q2012

Section 40A2: Problem Identification and ResolutionProcedures

307, Isolation Condenser System, Revision 123
 308, Emergency Core Cooling System Operation, Revision 92
 337, 4160 Volt Electrical System, Revision 97
 341, Emergency Diesel Generator Operation, Revision 105
 ABN-32, Abnormal Intake Level, Revision 24
 OP-AA-102-103, Operator Work-Around Program, Revision 3
 OP-AA-102-103-1001, Operator Burden and Plant Significant Decisions Impact Assessment Program, Revision 4
 OP-AA-108-101, Control of Equipment and System Status, Revision 11
 OP-AA-115-101, Operator Aid Postings, Revision 2
 OP-OC-102-106-1001, Control of Time Critical Operator Actions at Oyster Creek, Revision 0
 LS-AA-125, Corrective Action Program (CAP) Procedure, Revision 17
 OP-AA-108-105, Equipment Deficiency Identification and Documentation, Revision 10
 OP-AA-101-113-1001, Station Event Free Clock, (EFC) Program, Revision 16
 LS-AA-120, Issue Identification and Screening Process, Revision 15

Condition Reports (IRs)

0565487	1273243	1344380	1461904	1463788	1466576
1474941	1485213	1488156	1513542	1535091	1553363
1574846	1574924	1575324	1575369	1576211	1598442
1567320	1568481	1597924	1569381	1581832	1563637
1544687	1544688	1567320	1567196	1568503	1586470
1565753	1597041	1480587	1487918	1589698	1594080
1595362	1596853	1597328	1598669	1575333	1477563
1213021	1339099	1484402	1521677	1544060	

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Abnormal Component Position Notebook, dated 10/22/13
 AR 01431041-01, Recurring Quarterly Operations Burden Review, dated January 17, 2013
 AR 01466172-01, Recurring Quarterly Operations Burden Review, dated March 26, 2013
 AR 01505813-01, Recurring Quarterly Operations Burden Review, dated July 22, 2013
 Control Room Degraded Components Database, dated October 24, 2013
 Control Room Narrative Log, dated October 14, 2013 through October 25, 2013
 Disabled Alarms Database, dated October 24, 2013
 Post 1R24 Elevated Off gas Flow Rates Adverse Condition Monitoring and Contingency Plan, Revision 1
 MWe Indication in the MCR Adverse Condition Monitoring and Contingency Plan, Revision 3
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 CWP 1-4 FAP Elevated Temperature Adverse Condition Monitoring and Contingency Plan, Revision 1
 'C' Recirc Seal Degradation Adverse Condition Monitoring and Contingency Plan, Revision 2
 Main Control Room Deficiencies Database, dated October 24, 2013
 Main Control Room Distractions Database, dated October 24, 2013
 OP-AA-102-103-1001 Attachment 1, Operator Burden Aggregate Assessment, dated August 20, 2013
 OP-AA-106-101-1006, Operational and Technical Decision Making Process Notebook, dated October 23, 2013
 OP-AA-108-115-1001, Operability Determination Notebook, dated October 23, 2013
 OP-AA-108-101, Temporary Configuration Change Notebook, dated October 23, 2013

Operator Aids Notebook, dated October 23, 2013
 Operator Challenge Database, dated October 24, 2013
 Operator Work-Around Database, dated October 24, 2013

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

Procedures

ABN-9, Electric Pressure Regulator Malfunction, Revision 8
 EMG-SP11, Alternate Pressure Control Systems – Isolation Condensers, Revision 1
 EMG-SP3, CRD System Operation, Revision 0
 EMG-SP2, Feed and Condensate System Operation, Revision 0
 AD-OC-103, EOP/SAM Program Control, Revision 7
 ABN-1, Reactor Scram, Revision 11
 2000-BAS-3200.1, EOP User's Guide, Revision 8
 ABN-10, Turbine Generator Trip, Revision 13
 625.4.002, Main Turbine Surveillances, Revision 91
 RAP-J2b, Cond Vac Lo/Turb Trip II, Revision 0
 EP-AA-1010, Radiological Emergency Plan Annex for Oyster Creek Station, Revision 7

Drawings

233R309, Turbine Control System, Revision 13

Condition Reports (IRs)

1597207	1597206	1597572	1597041	1597144	1597136
1597234	1597215	1597278			

Miscellaneous

Post Transient Review Package for IR1597041
 Post Transient Walkdown for Feedwater System, dated December 14, 2013
 Post Transient Walkdown for Condensate System, dated December 14, 2013
 Post Transient Walkdown for Isolation Condenser System, dated December 14, 2013
 Reactor Coolant Temperature Heatup/Cooldown Plot, dated December 14, 2013
 Oyster Creek Operations Logs for December 14, 2013
 NEI 99-02, Regulatory Assessment Performance Indicator Guideline, Revision 7
 Prompt Investigation for IR 1597041
 Event Notice 49633
 NUREG-1022, Event Report Guidelines 10CFR50.72 and 50.73, Revision 3

Section 40A5: Other Activities

Procedure

ER-AA-5400, Exelon Nuclear Buried Piping and RAW Water Corrosion Program Guide,
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 ER-AA-5400-1003, BPRWCP Performance Indicators, Revision 4

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NRC Temporary Instruction 2515/182, 08/08/13; Review of the Implementation of the Industry Initiative to Control Degradation of Underground Piping and Tanks
 EPRI document, Recommendations for an Effective Program to Control the Degradation of Buried Pipe, December 2008
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NEI 09-14 (Initial Issue), November 2009 Guideline for the Management of Underground Piping and Tank Integrity
NEI 09-14 (Rev 1), December 2010 Guideline for the Management of Underground Piping and Tank Integrity
EPRI-2010-409, Inspection Methodologies for Buried Piping and Tanks
Exelon, Oyster Creek Check-In Self-Assessment 1459515, 8/28/13, Buried Piping and Tanks Program
Exelon Oyster Creek Buried Pipe Mitigation, Tritiated Piping Systems Project Status January 2011 (Power Point Presentation)
Ultrasonic Thickness Measurement Data Sheet #ESW1-3, 10/22/12
Long-Range Guided Wave Inspection Report, Oyster Creek LRUT Inspection, 10/20/09; FBS Inc. 3340 West College Avenue, State College, PA 16801; IR 01469669, 1/31/13 confirm Guided Wave indication during 2014 Refueling Outage; IR 01469664, 1/13/31 confirm Guided Wave indication during 2014 Refueling Outage
Topical Report 116, Rev 7, Oyster Creek Underground Piping Program Description and Status 3/3/13
NEI Proposed Buried Piping Integrity Initiative, 11/18/2009, AdamsML093350035
NEI 09-14, Revision 3; Guideline For The Management of Underground Piping and Tank Integrity, April 2013
Exelon Nuclear Buried Piping Inspection Plan Template, Oyster Creek, 12/13/12, Revision 3
Underground Piping and Tank Examination Guide