February 27, 2013

The Honorable Frank L. Lautenberg
United States Senate
Washington, D.C. 20510

Dear Senator Lautenberg:

On behalf of the U.S. Nuclear Regulatory Commission (NRC), I am responding to your letter of January 25, 2013, in which you raise three specific concerns regarding the safety of the Oyster Creek Nuclear Generating Station (Oyster Creek) following Hurricane Sandy.

Your first concern addressed the operability of emergency sirens in the Oyster Creek vicinity during Hurricane Sandy, when a total of 39 of the plant's 42 emergency sirens were rendered inoperable due to power outages and equipment damage. Exelon Generating Company (Exelon), the operator of Oyster Creek, is responsible for maintaining the reliability of the emergency sirens in accordance with Federal regulations. These require that the sirens be operable or that a Federal Emergency Management Agency (FEMA)-approved backup emergency alert and notification method be available. The approved backup method in place at Oyster Creek is route alerting, in which emergency personnel alert the public by traveling in vehicles along assigned roads and delivering emergency instructions with public address systems. This backup method was available during the storm. In addition to this existing, approved backup method of emergency notification, Exelon has voluntarily committed to the State of New Jersey to install new sirens with battery backup capability by June 1, 2013.

Your second concern addressed the issue of storm surge and flooding potential, and the adequacy of the existing Oyster Creek emergency plan. U.S. nuclear power plants are required to safely handle the most likely floods at their sites, in accordance with NRC regulations. The flooding analyses required for nuclear power plants are more conservative than the FEMA flood maps. Oyster Creek's Final Safety Analysis Report summarizes the results of the plant's flooding analysis, which concluded that the highest flood water level that can be expected on the plant site is 22 feet. This would happen during a "probable maximum hurricane," or the most severe storm that is reasonably expected to occur at the site. By design, such a flood would not enter plant buildings, which are at an elevation of 23.5 feet. The water level from Hurricane Sandy reached just 7.4 feet, so Oyster Creek was not in danger of flooding as a result of the storm. At this time, there is therefore no need to make changes to Oyster Creek's emergency plan to address the flooding issues based on the experience with Hurricane Sandy.

U.S. nuclear power plants are required to safely handle the most likely floods at their sites, in accordance with NRC regulations. As part of our response to the events at Japan's Fukushima Dai-ichi Nuclear Station on March 11, 2011, the NRC is requiring licensees to complete flooding hazard re-evaluations to confirm the appropriateness of the hazards assumed for their plants and their ability to protect against them. Licensees are being required to use updated-methods and information, and the results will determine whether additional regulatory actions are necessary (e.g., ordering plant modifications). Because of the complexity associated with conducting flood hazard evaluations for coastal sites, Oyster Creek's re-evaluation will take time to develop and is due to the NRC in March 2015.

Finally, you expressed concern over a pinhole leak in the Oyster Creek reactor cooling system. Licensees are required to perform various inspections and tests of the reactor coolant system piping during refueling outages. The NRC verifies the licensees' compliance with these requirements by performing a subsequent inspection. The NRC inspected the non-destructive testing and repair activities associated with indications of a small leak that was observed from a reactor head penetration (N7B flange) during the plant operational pressure test. In this case, the NRC inspector verified that the repair, the welding activities, and applicable non-destructive examination activities were completed successfully in accordance with American Society of Mechanical Engineers Code requirements. Based on our inspections, the NRC is confident that the flaws identified in the Oyster Creek reactor coolant system have been repaired successfully, and that the reactor coolant system is not weakened or compromised. These conclusions are documented in the agency's publicly available inspection report, which is enclosed for your reference.

I appreciate the opportunity to address your concerns regarding the impacts of Hurricane Sandy at Oyster Creek. If you have any additional questions, please contact me or Ms. Rebecca Schmidt, Director of the Office of Congressional Affairs, at (301) 415-1776.

Sincerely,

/RA/

Allison M. Macfarlane

Enclosure:
As stated

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

January 31, 2013

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 GENERATING STATION - NRC INTEGRATED INSPECTION REPORT 05000219/2012005

Dear Mr. Pacilio:

On December 31, 2012, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Oyster Creek Generating Station. The enclosed inspection report documents the inspection results, which were discussed on January 22, 2013 with Russell Peak, Oyster Creek Plant Manager, 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.

This report documents one NRC-identified finding and one self-revealing finding of very low safety significance (Green). These findings were determined to involve violations of NRC requirements. However, 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 (NCVs), consistent with Section 2.3.2 of the NRC Enforcement Policy. If you contest any NCVs in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the 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 Generating Station. In addition, if you disagree with the cross-cutting aspect assigned to any finding 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 Generating Station.

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

NRC Public Document Room or from the Publicly Available Records (PARS) component of the NRC's document 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/

Gordon K. Hunegs, Chief
Reactor Projects Branch 6
Division of Reactor Projects

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

Enclosure: Inspection Report 05000219/2012005
w/Attachment: Supplementary Information

cc w/encl: Distribution via ListServ

U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket No.:	50-219
License No.:	DPR-16
Report No.:	05000219/2012005
Licensee:	Exelon Nuclear
Facility:	Oyster Creek Generating Station
Location:	Forked River, New Jersey
Dates:	October 1, 2012 – December 31, 2012
Inspectors:	J. Kulp, Senior Resident Inspector A. Patel, Resident Inspector J. Schoppy, Senior Reactor Inspector T. Hedigan, Operations Engineer S. Hammann, Senior Health Physicist J. Rady, Reactor Inspector B. Dionne, Health Physicist C. Crisden, Reactor Inspector C. Newport, Operations Engineer P. Kaufman, Senior Reactor Inspector T. O'Hara, Reactor Inspector T. Fish, Senior Operations Engineer
Approved By:	Gordon Hunegs, Chief Reactor Projects Branch 6 Division of Reactor Projects

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SUMMARY OF FINDINGS

IR 05000219/2012005, 10/01/2012 – 12/31/2012; Exelon Energy Company, LLC, Oyster Creek Generating Station; Operability Determinations and Functionality Assessments, Other Activities.

This report covered a three-month period of inspection by resident inspectors and announced inspections performed by regional inspectors. This report documents one inspector-identified and one self-revealing finding of very low safety significance (Green), both of which are non-cited violations (NCV). The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP). The cross-cutting aspects for the findings were determined using IMC 0310, "Components Within Cross-Cutting Areas." Findings for which the SDP does not apply may be Green, or be assigned a severity level after NRC management review. 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.

Cornerstone: Mitigating Systems

- Green. The inspectors identified a Green non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," because Exelon did not properly implement procedural controls to ensure adequate thread engagement for standby liquid control (SLC) squib valve spool piece flanges. Specifically, SLC squib valve flanges were installed with inadequate thread engagement (stud was not flush with the nut), as required by Exelon's maintenance procedures. Exelon's corrective actions included declaring the system inoperable, entering the issue into the corrective action program (IR 1444861 and 1444862) and immediately replacing the existing bolts with bolts of an appropriate length such that projection through the nut was at least flush.

  The performance deficiency was more than minor because if left uncorrected the inadequate thread engagement would have the potential to lead to a more significant safety concern. Specifically, Exelon's evaluation stated that the SLC squib valve spool piece flanges would not have been able to perform their design function under all seismic conditions when the system was required to be operable. In consultation with the Region I senior reactor analyst, the inspectors reviewed this condition using IMC 0609, Attachment G, "Shutdown Operations Significance Determination Process." As the condition occurred during the refueling outage and was identified and corrected before Exelon started up the Oyster Creek reactor, and only existed during the outage when SLC was not required to be operable (November 16 – 27, 2012), the issue screened to very low safety significance (Green). This finding has a cross-cutting aspect in the area of Problem Identification and Resolution, Corrective Action Program, because Exelon did not take appropriate corrective actions to address safety issues and adverse trends in a timely manner, commensurate with their safety significance and complexity. Specifically, Exelon did not take appropriate corrective actions, such as replacing bolts during the refueling outage with longer bolts, after the NRC identified a similar concern on the same SLC squib valve spool piece flanges in September 2012 (IR 1417726). (P.1(d)) (Section 1R15)

Cornerstone: Barrier Integrity

- Green. A self-revealing NCV of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was identified because Exelon procedures and work orders were not effective in preventing refueling cavity leakage from overflowing onto the exterior surface of the drywell liner during the refueling outage (1R24) in November 2012. The performance deficiencies that contributed to the finding were inadequate oversight of the contractors applying a strippable coating to the reactor cavity liner and a valve configuration control error on a temporarily installed leakage collection system. Upon discovery, Exelon took immediate corrective actions to open the leakage collection system filter inlet valve and restore reactor cavity liner leakage flow to the reactor building equipment drain tank.

  This finding is associated with the barrier integrity cornerstone and is more than minor because, if left uncorrected, this condition would have the potential to lead to a more significant safety concern. Specifically, the continued wetting of the metallic drywell liner surface could provide an environment conducive to corrosion. This finding is not more than very low safety significance because Exelon performs periodic inspections of drywell liner and exterior surface coating to ensure that liner corrosion is monitored and controlled. The inspectors completed the Phase 1 Initial Screening and Characterization of Findings, of Attachment 0609.04 of Inspection Manual Chapter (IMC) 0609, and screened the finding to Green, very low safety significance. Exelon has entered this condition into the corrective action process under IR 1440116. This finding has a cross-cutting aspect in the area of Human Performance, Work Practices, for not ensuring supervisory and management oversight of work activities, including contractors and plant personnel, such that nuclear safety is supported regarding the application of the strippable coating on the reactor cavity liner. (H.4(c)) (Section 1R08)

REPORT DETAILS

Summary of Plant Status

Oyster Creek began the inspection period at 100 percent power and operated at full power until October 22 when operators commenced a shutdown for a planned refueling and maintenance outage (1R24). Following the completion of refueling and maintenance activities, operators commenced a reactor startup on November 29. Operators returned the unit to 100 percent power on December 4, and remained at or near 100 percent power for the remainder of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01 – 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 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's 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.

.2 Readiness for Impending Adverse Weather Conditions

a. Inspection Scope

The inspectors completed one impending adverse weather preparation sample. The inspectors reviewed Exelon's preparations for the onset of Superstorm Sandy on October 28, 2012. The inspectors reviewed the implementation of adverse weather preparation procedures before the onset of and during adverse weather conditions. The inspectors walked down the emergency diesel generators and the intake structure to ensure system availability. The inspectors verified that operator actions defined in Exelon's adverse weather procedure maintained the readiness of essential systems. The inspectors discussed readiness and staff availability for adverse weather response with operations and work control personnel.

b. Findings

No findings were identified.

1R04 Equipment Alignment

.1 Partial System Walkdowns (71111.04Q – 4 samples)

a. Inspection Scope

The inspectors performed partial walkdowns of the following systems:

- Standby gas treatment system (SBGTS) #2 while SBGTS #1 was inoperable for corrective maintenance on October 4, 2012
- Emergency service water (ESW) pump 1-1 while ESW pump 1-3 was inoperable for planned maintenance on October 10, 2012
- Service water (SW) and ESW systems during Superstorm Sandy on October 29, 2012
- Emergency diesel generator (EDG) #1 and EDG #2 during Superstorm Sandy on October 29, 2012

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

From October 10-12, 2012, the inspectors performed a complete system walkdown of accessible portions of the “A” control rod drive system 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 – 3 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.

- Condenser Bay (TB-FZ-11E) on October 23, 2012
- Torus Room (RB-FA-2) on November 8, 2012
- Drywell (RB-FA-2) on November 20, 2012

b. Findings

No findings were identified.

1R06 Flood Protection Measures (71111.06 – 1 sample)

.1 Internal Flooding Review

a. Inspection Scope

The inspectors reviewed the updated final safety analysis report, 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 also focused on the control rod drive, core spray and containment spray pump areas to verify the adequacy of internal flooding mitigating strategies and barriers.

b. Findings

No findings were identified.

1R08 In-service Inspection – Oyster Creek (71111.08 – 1 sample)

a. Inspection Scope

From November 5, 2012 to November 9, 2012, from November 13, 2012 to November 15, 2012 and from December 11, 2012 to December 13, 2012, the inspectors conducted a review of Exelon's implementation of in-service inspection (ISI) program activities for monitoring degradation of the reactor coolant system pressure boundary, risk significant piping and components, and containment systems for the Oyster Greek Generating Station. The sample selection was based on the inspection procedure objectives and risk priority of those pressure retaining components in these systems where degradation would result in a significant increase in risk. The inspectors observed in-process non-destructive examinations (NDE), reviewed documentation, and interviewed inspection personnel to verify that the non-destructive examination activities performed as part of Interval 4, Period 3 of the Oyster Creek In-service Inspection during the 1R24 outage were conducted in accordance with the requirements of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code Section XI, 2005 Edition, 2006 Addenda.

Nondestructive Examination and Welding Activities (02.01)

The inspectors performed direct observations of NDE activities in process and reviewed records of nondestructive examinations listed below:

ASME Code Required Examinations

- Direct field observation of visual examination (VT) of drywell sand bed bay #11 for epoxy coating anomalies and for corrosion. This inspection is part of the IWE containment inspection requirements and is performed to meet a license renewal aging management license requirement.

- Inspection documentation review of VT in sand bed bays #1, #3, #5, #7, #9, #13, #15, #17, and #19.

- Additionally, the inspectors reviewed the results of the ultrasonic (UT) thickness measurements taken in the sand bed bays to determine the extent of corrosion of the drywell wall. The inspectors also reviewed the sand bed coating repair records for repairs carried out during the 1R24 outage inspections.

- Record review of NDE examination records of tests performed on reactor vessel nozzle N9 safe-end weld during repair. (See Repair/Replacement Activities below.)

- Record review of NDE examination records of tests performed on a leak on reactor head penetration N7B flange weld during repair. (See Repair/Replacement Activities below.)

The inspectors reviewed a sample of certifications for NDE technicians performing examinations and verified that the inspections were performed in accordance with approved procedures and that the results were reviewed and evaluated by certified Level III NDE personnel.

Other Augmented or Industry Initiative Examinations

The inspectors reviewed inspection records of visual inspections conducted on reactor vessel internals components. These inspections were carried out in accordance with the industry initiative under the Boiling Water Reactor Vessel and Internals Project (BWRVIP), In Vessel Visual Inspection (IVVI) Program. These inspections monitor and record the condition of the reactor vessel internal components. Specifically, the inspectors reviewed VT examination data records and reviewed the disposition of indications noted by the inspectors. The inspectors verified that the activities were performed in accordance with applicable examination procedures and industry guidance. All recorded indications were dispositioned by the NDE examiner and Exelon as acceptable for further service.

Review of Originally Rejectable Indications Accepted by Evaluation

There were no samples available for review during this inspection that involved examinations with recordable indications that had been accepted for continued service from the previous Oyster Creek outage 1R23.

Repair/Replacement Activities Including Welding Activities

During an in-service liquid penetrant (LP) inspection of the nozzle to safe-end weld on reactor vessel control rod drive injection nozzle N9, Exelon identified rejectable surface indications. The inspectors reviewed the LP inspection record and subsequent ultrasonic (UT) examination records conducted on the N9 nozzle to safe-end weld indications. The UT inspection verified that the surface indications were not connected to the inside diameter of the nozzle. Exelon decided to repair the surface indications by installing a full structural weld overlay in accordance with the requirements of ASME Code Case N504-4. The inspectors reviewed the engineering evaluation of the overlay design and the ASME, Section XI repair/replacement plan for the weld overlay. The inspectors reviewed the weld traveler for the overlay and reviewed the pre-service, phased array ultrasonic examination of the completed overlay. Also, the inspectors verified the acceptability of the completed overlay from the successful plant operational pressure test of the nozzle-to safe-end weld. The inspectors verified that the repair, the welding activities and applicable NDE activities were completed successfully in accordance with ASME Code requirements.

During plant startup preparations at the end of the 1R24 outage, a small leak was observed from reactor head penetration N7B flange during the plant operational pressure test. Exelon determined that the leak was the result of a weld defect in a flange to pipe socket weld on the reactor head spray connection. Exelon initiated an ASME, Section XI repair of the defect. The inspectors reviewed the repair replacement program plan, the welding documentation of the repair, the in-process NDE, and the documentation of the final, successful plant operational pressure test of the repair. The leak was repaired in accordance with the ASME Code requirements.

Identification and Resolution of Problems

The inspectors reviewed a sample of Oyster Creek action reports (ARs), which identified NDE indications, deficiencies and other nonconforming conditions since the previous 1R23 outage and during the present 1R24 outage. The inspectors verified that

nonconforming conditions were properly identified, characterized, evaluated, corrective actions identified and dispositioned, and appropriately entered into the Oyster Creek corrective action program.

The inspectors specifically focused on several corrective action reports written in response to the leakage of reactor refueling cavity (pool) water into the drywell sand bed area.

b. Findings

Introduction: A self-revealing non-cited violation of 10 CFR 50, Appendix B, Criterion V, Instructions, Procedures and Drawings, was identified when reactor refueling cavity leakage was not adequately controlled (incorrect strippable coating application and failure to control the position of valve V-18-131) allowing water to contact the exterior surface of the drywell shell in the sand bed areas.

Description: During the refueling outage (1R24), a strippable coating was applied to the refueling cavity liner as a radiological contamination prevention measure which had a secondary benefit of minimizing reactor pool leakage. During installation of the coating, the contractor did not properly follow the work order instructions, resulting in parts of the pool liner not being properly coated. This deficiency of not coating the liner contributed to an increase in the refueling pool leakage when the refuel pool was filled for refueling operations on November 2, 2012. The increased pool leakage continued until November 20, 2012 when refueling operations were completed and the refuel pool was drained.

A temporary system had been installed to capture the refueling pool leakage and direct it to the reactor building equipment drain tank (RBEDT) for processing. The leakage was directed via an overflow drain trough, through a filter with isolation valves, to the RBEDT. After a short period of operation, the filter became clogged, reducing the flow to the RBEDT. The clogged filter caused the refuel pool drain trough to overflow and water flowed over the exterior surface of the drywell shell into the sand beds and onto the torus room floor. The leakage on the torus room floor was diverted to the reactor building drain system and collected in the normal plant liquid radiological waste disposal system. To address the clogged filter, Exelon revised work order R2076388, to close the filter inlet valve and removed the filter cartridge. However, the work order failed to appropriately direct operators to return the filter inlet valve (V-18-131) to the open position. As a result, for a period of approximately 11 hours, the leakage continued.

Analysis: Exelon did not provide adequate instructions, procedures and drawings to properly apply the strippable coating to the refueling cavity liner to minimize known liner leakage and to control the position of the leakage collection system filter inlet valve. The two issues are being grouped together in accordance with the guidance provided in NRC IMC 0612, Appendix B, Block 2, Item (3). These issues are performance deficiencies because providing appropriate instructions was within Exelon's ability to foresee and correct and should have prevented water leakage onto the exterior of the drywell liner. This finding is more than minor because, if left uncorrected, this condition would have the potential to lead to a more significant safety concern. Specifically, the continued wetting of the metallic drywell liner surface could provide an environment conducive to corrosion in the sand bed areas.

This finding affects the barrier integrity cornerstone and the inspectors completed the Phase 1 Initial Screening and Characterization of Findings, of Table 2 and Table 3 of Attachment 0609.04 of Inspection Manual Chapter (IMC) 0609. The inspectors completed the screening of Exhibit 3, of IMC 0609, Appendix A and screened the finding to Green, very low safety significance, because "… the finding does not represent an actual open pathway in the physical integrity of the reactor containment …", and, "... the finding does not involve an actual reduction in function of hydrogen igniters in the reactor containment". This finding is not more than very low safety significance because Exelon removed the sand from the sand bed areas and coated the liner exterior with an epoxy coating in 1992, to further reduce the likelihood of liner corrosion. Additionally, Exelon performs periodic inspections of the drywell liner and exterior surface coating to ensure that liner corrosion is monitored and controlled.

This issue is of very low safety significance because Exelon completed significant corrective actions to reduce the corrosion of the drywell liner in the sand bed bays in 1992 when the sand was removed from the sand beds. Also, the drywell liner in the sand bed bays was coated with an epoxy coating in 1992, to further prevent the likelihood of corrosion.

The inspectors determined that the finding has a cross-cutting aspect in the area of Human Performance, Work Practices, H.4(c) for not ensuring supervisory and management oversight of work activities, including contractors and plant personnel, such that nuclear safety is supported regarding the application of the strippable coating on the reactor cavity liner.

Enforcement: 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures and Drawings" requires, in part, that, "Activities affecting quality shall be prescribed by documented instructions, procedures and drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures or drawings. Instructions, procedures, or drawings shall include appropriate quantitative or qualitative acceptance criteria for determining that important activities have been satisfactorily accomplished." Contrary to the above, Exelon did not implement effective instructions, procedures, or drawings to ensure that leaking portions of the refueling cavity liner were coated with a strippable coating to minimize leakage and did not provide effective procedures to preclude water from contacting the exterior surface for the drywell liner during refueling outage 1R24, in November 2012. This condition resulted in an environment that was conducive to an increased potential for drywell liner corrosion. Upon discovery, Exelon took immediate corrective actions to open the filter inlet valve and restore reactor cavity liner leakage flow to the reactor building equipment drain tank and entered this condition into the corrective action process under IR 1440116. This violation is being treated as an NCV, consistent with Section 2.3.2. of the Enforcement Policy because it was of very low significance and was documented in Exelon's corrective action program. (**NCV 05000219/2012005-02, Inadequate Application of Strippable Coating to the Refueling Cavity Liner and the Failure to Configure a Valve in the Leakage Collection System Resulting in Increased Potential for Corrosion on the Exterior of the Drywell Liner Surface in the Sand Beds)**

1R11 Licensed Operator Requalification Program (71111.11 – 3 samples)

.1 Quarterly Review of Licensed Operator Requalification Testing and Training

a. Inspection Scope

The inspectors observed licensed operator simulator on October 3, 2012 and just in time training for unit startup on December 3, 2012. 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

a. Inspection Scope

On October 21, 2012, the inspectors observed the control room operators shutdown the unit for refueling outage 24 and turbine overspeed trip test. The inspectors observed the pre-evolution brief and reviewed the post-evolution critique to ensure that the crew was ready to perform the evolution and were self-critical in their appraisal of their performance. Additionally, the inspectors observed the crew during the evolution to verify that procedure use, crew communications, and coordination of activities in the control room met established expectations and standards.

b. Findings

No findings were identified.

.3 Licensed Operator Requalification Program

a. Inspection Scope

On August 2, 2012, region-based inspectors conducted an in-office review of results of the licensee-administered annual operating tests (comprehensive written exams were previously administered in May and June 2011). The inspection assessed whether pass rates were consistent with the guidance of NRC Manual Chapter 0609, Appendix I, "Operator Requalification Human Performance Significance Determination Process (SDP)". The inspectors verified that:

- Crew pass rate was greater than 80 percent. (Pass rate was 100 percent.)
- Individual pass rate on the dynamic simulator test was greater than 80 percent. (Pass rate was 96 percent.)
- Individual pass rate on the job performance measures (JPMs) of the operating exam was greater than 80 percent. (Pass rate was 100 percent.)

- More than 75 percent of the individuals passed all portions of the operating exam. (Pass rate was 96 percent.)

The facility staff previously administered the comprehensive written exams in May and June 2011.

b. Findings

No findings were identified.

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 system, structure and component (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. Additionally, the inspectors ensured that Exelon staff was identifying and addressing common cause failures that occurred within and across maintenance rule system boundaries.

- Secondary containment building low pressure (IR 1425935) on October 13, 2012
- Forked River combustion turbine #2 failure to start (IR 1439089) on October 29, 2012

b. Findings

No findings were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13 – 4 samples)

a. Inspection Scope

The inspectors reviewed station evaluation and management of plant risk for the maintenance and emergent work activities listed below to verify that Exelon performed the appropriate risk assessments prior to removing equipment 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.

- Standby gas treatment system #1 unavailable for corrective maintenance on October 4, 2012
- Containment spray and emergency service water system 2 out for planned maintenance on October 10, 2012
- Red shutdown risk after loss of offsite power on October 29, 2012
- Orange shutdown risk due to one offsite power source being unavailable on October 30, 2012

b. Findings

No findings were identified.

1R15 Operability Determinations and Functionality Assessments (71111.15 – 3 samples)

a. Inspection Scope

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

- Service water system operability during high intake water levels on October 29, 2012
- Emergency service water system operability during high intake water levels on October 30, 2012
- Standby liquid control pump operability due to inadequate thread engagement on pump discharge flanges on November 28, 2012

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

Introduction: The inspectors identified a Green, non-cited violation of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," because Exelon did not properly implement procedural controls to ensure adequate threaded fastener engagement when reinstalling the standby liquid control (SLC) squib valve spool piece following squib valve replacement. Specifically, the SLC squib valve spool pieces were installed with inadequate thread engagement (studs were not flush with the nuts), as required by station maintenance procedures.

Description: On November 27, 2012, during a walkdown of the SLC system, the inspectors identified that following the replacement of both squib valves, all the fasteners securing the squib valve spool pieces to the system piping were two to three threads short of being flush with the nut and were not in compliance with Exelon procedure

2400-GMM-3900.52, “Inspection and Torquing of Bolted Connections.” Specifically, 2400-GMM-3900.52, precaution step 3.1.2 states, in part, “minimum projection of a bolt through a nut shall be flush.” Contrary to this procedure, the inspectors identified the spool piece flange fasteners for both SLC systems, each having four studs per flange, did not project any stud flush with the fastening nuts.

Exelon reviewed the as-found condition and determined that there was not a reasonable assurance that the fasteners for the spool pieces would be able to perform their design function under all seismic conditions, and determined SLC to be inoperable. At the time of identification, technical specification actions did not apply because SLC was not required to operable because Oyster Creek was in a refueling outage (reactor temperature < 212 F). Additionally, Exelon determined that the condition concerning the flange fasteners that were installed did not exist when SLC was required to operable because the spool pieces were removed and reinstalled during the refueling outage on November 16, 2012. Exelon’s corrective actions included entering the issue into the corrective action program (IR 1444861 and 1444862) and immediately replacing the inadequate studs with studs of an appropriate length, such that projection through the nut was at least flush.

The inspectors also identified previous thread engagement issues with the SLC spool piece flange fasteners in September 2012. The inspectors observed at that time two of the discharge flange bolts were one thread short of being flush with the nut. Exelon’s corrective actions included entering that issue into the corrective action program (IR 1417726) and determined the as-found condition had no impact on the operability of SLC because enough thread engagement was maintained by other 2 fasteners and engineering evaluation stated the 2 fasteners short of being flush had adequate thread engagement to maintain structural integrity. The inspectors also observed that the corrective actions for IR 1417726 determined longer bolts were required but was not implemented during the removal and reinstallation during the refueling on November 16, 2012.

Analysis: The inspectors determined that Exelon’s failure to control adequate thread engagement of the SLC squib valve spool piece flanges in accordance with the prescribed procedure was a performance deficiency that was reasonably within Exelon’s ability to foresee and prevent. This performance deficiency was associated with the Mitigating Systems cornerstone. The performance deficiency was more than minor because if left uncorrected the inadequate thread engagement would have the potential to lead to a more significant safety concern. Specifically, Exelon’s evaluation stated that the SLC squib valve spool piece flanges would not have been able to perform their design function under all seismic conditions when the system was required to be operable. In consultation with the Region I senior reactor analyst, the inspectors reviewed this condition using IMC 0609, Attachment G, “Shutdown Operations Significance Determination Process.” As the condition occurred during the refueling outage and was identified and corrected before Exelon started up the Oyster Creek reactor, and only existed during the outage when SLC was not required to be operable (November 16 – 27, 2012), the issue screened to very low safety significance (Green).

This finding has a cross-cutting aspect in the area of Problem Identification and Resolution, Corrective Action Program because Exelon did not take appropriate corrective actions to address safety issues and adverse trends in a timely manner, commensurate with their safety significance and complexity. Specifically, Exelon did not take appropriate corrective actions, such as replacing bolts during the refueling outage

with longer bolts, after the NRC identified a similar concern on the same SLC squib valve spool piece flanges in September 2012 (IR 1417726). (P.1(d))

Enforcement: 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," requires, in part, that activities affecting quality shall be prescribed by documented instructions, procedures, or drawings of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings. Contrary to the above, Exelon did not adequately implement procedure 2400-GMM-3900.52, "Inspection and Torquing of Bolted Connections," for adequate thread engagement of the standby liquid control squib valve spool piece flanges on November 16, 2012. Specifically, the SLC squib valve spool piece flange bolts were two to three threads from being flush with the nut, therefore it did not meet thread engagement requirements specified in the procedure and engineering did not have reasonably assurance that SLC would have performed its design function in a seismic event. Because this violation was of very low safety significance (Green) and has been entered into Exelon's CAP as issue reports 1444861 and 1444862, this violation is being treated as a non-cited violation, consistent with the NRC Enforcement Policy. **(NCV 05000219/2012005-01, Failure to Follow Inspection and Torquing of Bolted Connection Procedure)**

1R18 Plant Modifications (71111.18 – 1 sample)

.1 Permanent Modifications

a. Inspection Scope

The inspectors evaluated a procedure change to ABN-32, "Abnormal Intake Level." 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 change and performed a walk down of the system and intake structure to ensure the procedure change was reasonable and could be reasonably performed.

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing (71111.19 – 7 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.

- Containment spray system #2 after V-21-13 preventive maintenance (R2116444) on October 11, 2012
- Emergency service water (ESW) pump 1-3 after ESW pump motor cable replacement (R2208902) on October 15, 2012
- Main steam isolation valve (MSIV) mechanical snubbers 211-0058A, 211-0025A, 411-0004, and 411-0026 after snubber replacements (C2028734) from November 7-11, 2012
- Inboard MSIV, V-1-7, after valve stem repacking (C2027126) on November 10, 2012
- ESW system 2 after discharge piping replacement (C2026522) on November 14, 2012
- "C" electromatic relief valve after pilot valve replacement (R2136093) on November 15, 2012
- Outboard MSIV, V-1-9, after valve rebuild (C2028595) on November 15, 2012

b. Findings

No findings were identified.

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

a. Inspection Scope

The inspectors reviewed Exelon's work schedule and outage risk plan for the maintenance and refueling outage (1R24), which was conducted from October 22, 2012 through December 3, 2012. 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
- Refueling activities, including fuel handling and fuel receipt inspections
- Fatigue management
- Identification and resolution of problems related to refueling 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 systems, structures and components 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:

- Main steam isolation valve, V-1-7, closure test on October 22, 2012
- Automatic depressurization system actuation circuit test on November 13, 2012
- Emergency diesel generator #2 loss of offsite power and loss of coolant accident test on November 16, 2012
- Core spray system #1 in-service test on November 16, 2012

b. Findings

No findings were identified.

Cornerstones: Emergency Preparedness (EP)

1EP2 Alert and Notification System Evaluation

a. Inspection Scope (71114.02 - 1 Sample)

An onsite review was conducted to assess the maintenance and testing of the Alert and Notification System (ANS). During this inspection, the inspectors conducted a review of the ANS testing and maintenance programs. The inspectors reviewed the associated ANS procedure and the Federal Emergency Management Agency (FEMA) approved ANS Design Report to ensure compliance with design report commitments for system maintenance and testing. The inspection was conducted in accordance with NRC Inspection Procedure 71114, Attachment 2. Title 10 of the *Code of Federal Regulations* (10 CFR) 50.47(b)(5) and the related requirements of 10 CFR Part 50, Appendix E, were used as reference criteria.

b. Findings

No findings were identified.

1EP3 Emergency Response Organization Staffing and Augmentation System

a. Inspection Scope (71114.03 - 1 Sample)

The inspectors conducted a review of the Oyster Creek Emergency Response Organization (ERO) augmentation staffing requirements and the process for notifying and augmenting the ERO. The review was performed to verify the readiness of key Exelon staff to respond to an emergency event and to verify Exelon's ability to activate their emergency response facilities (ERF) in a timely manner. The inspectors reviewed the Exelon Nuclear Standardized Emergency Plan and the Oyster Creek Emergency Plan Annex for ERF activation and ERO staffing requirements, the ERO duty roster, applicable station procedures, augmentation test reports, the most recent drive-in drill report, and condition reports (CR) related to this inspection area. The inspectors also reviewed a sample of ERO responder training records to verify training and qualifications were up to date. The inspection was conducted in accordance with NRC Inspection Procedure 71114, Attachment 3. Title 10 CFR 50.47(b)(2) and related requirements of 10 CFR Part 50, Appendix E, were used as reference criteria.

b. Findings

No findings were identified.

1EP5 Maintaining Emergency Preparedness

a. Inspection Scope (71114.05 - 1 Sample)

The inspectors reviewed a number of activities to evaluate the efficacy of Exelon's efforts to maintain the Oyster Creek emergency preparedness program. The inspectors reviewed: Letters of Agreement and/or Memorandums of Understanding with offsite agencies; the 10 CFR 50.54(q) Emergency Plan change process and practice; licensee maintenance of equipment important to EP; records of evacuation time estimate population evaluation; and provisions for, and implementation of, primary, backup, and alternate emergency response facility (ERF) maintenance. The inspectors also verified Exelon's compliance at Oyster Creek with new NRC EP regulations regarding: emergency action levels for hostile action events and protective actions for on-site personnel during events.

The inspectors further evaluated Exelon's ability to maintain their EP program through their identification and correction of EP weaknesses, by reviewing a sample of drill reports, actual event reports, self-assessments, 10 CFR 50.54(t) audits, and EP-related CRs. The inspectors reviewed a sample of EP-related CRs initiated at Oyster Creek from July 2010 through October 2012. The inspection was conducted in accordance with NRC Inspection Procedure 71114.05. Title 10 CFR 50.47(b) and the related requirements of 10 CFR Part 50, Appendix E, were used as reference criteria.

b. Findings

No findings were identified.

Cornerstones: Public Radiation Safety and Occupational Radiation Safety

2RS1 Radiological Hazard Assessment and Exposure Controls (71124.01)

a. Inspection Scope

The inspectors reviewed radiation measurement devices, area radiation surveys, radiation work permits, contamination and radiation material controls, high and very high radiation areas, radiation worker performance, and radiation protection personnel qualifications. These areas were inspected to review and evaluate Exelon's performance in assessing the radiological hazards in the workplace associated with licensed activities and the implementation of appropriate radiation monitoring and exposure control measures for both individual and collective exposures. The inspectors evaluated whether problems associated with radiation monitoring and exposure control were being identified by Exelon at an appropriate threshold and were properly addressed for resolution in Exelon's corrective action program.

b. Findings

No findings were identified.

2RS2 Occupational ALARA Planning and Controls (71124.02)

a. Inspection Scope

The inspectors reviewed the as low as is reasonable achievable (ALARA) work activity evaluations, exposure estimates, exposure reduction requirements and measures taken by Exelon to track, trend and reduce occupational doses for ongoing work activities to assess performance with respect to maintaining individual and collective radiation exposures ALARA. The inspectors also reviewed Exelon's records to determine the historical trends and current status of plant source term known to contribute to elevated facility collective exposure. The inspectors observed the performance of radiation workers and radiation protection technicians during refueling outage activities in radiation areas, airborne radioactivity areas, and high radiation areas. The inspectors verified Exelon's ALARA program, including administrative, operational, and engineering controls, is effectively maintaining occupational exposure ALARA. The inspectors evaluated whether problems associated with ALARA planning and controls are being identified by Exelon at an appropriate threshold and were properly addressed for resolution in Exelon's corrective action program.

b. Findings

No findings were identified.

2RS3 In-Plant Airborne Radioactivity Control and Mitigation (71124.03)

a. Inspection Scope

The inspectors reviewed the updated final safety analysis report, technical specification, air sample test results, equipment maintenance and test records, inspection and maintenance procedures, and system operational procedures. The inspectors reviewed procedural guidance for use of installed plant systems to reduce dose and assessed

whether the systems are used, to the extent practicable, during high-risk activities. The inspectors reviewed instrument setpoints to verify that in-plant airborne concentrations are being controlled consistent with ALARA to the extent necessary to validate plant operations as reported by the performance indicators and to verify that the practices and use of respiratory protection devices on site do not pose an undue risk to the wearer. The inspectors reviewed a sample of training and medical records to verify that employees were properly qualified to use respiratory protection devices. The inspectors monitored several employees as they demonstrated the use of respiratory protection devices. The inspectors spot check several respiratory protection devices and verified that they were in acceptable material condition and maintained properly.

b. Findings

No findings were identified.

2RS4 Occupational Dose Assessment (71124.04)

a. Inspection Scope

The inspectors reviewed Exelon's procedures associated with dosimetry operations, including issuance/use of external dosimetry, assessment of internal dose, and evaluation of and dose assessment for radiological incidents. The inspectors evaluated whether Exelon had established procedural requirements for determining when external dosimetry and internal dose assessments are required. The inspectors walked down and evaluated the onsite storage of dosimeters before issuance, during use, and before processing/reading. The inspectors also reviewed the guidance provided to radiation workers with respect to care and storage of dosimeters. The inspectors reviewed dosimetry occurrence reports or corrective action program documents for adverse trends related to electronic pocket dosimeters. The inspectors reviewed procedures used to assess the dose from internally deposited radionuclides using whole body counting equipment. The inspectors reviewed the documentation for two individuals who had declared pregnancy during the current assessment period and evaluated whether Exelon's radiological monitoring program (internal and external) for declared pregnant workers is technically adequate to assess the dose to the embryo/fetus. The inspectors reviewed exposure results and monitoring controls implemented by Exelon. The inspectors evaluated Exelon's neutron dosimetry program, including dosimeter types and/or radiation survey instrumentation.

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, 2011 through September 30, 2012:

- 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 6. 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 EP Performance Indicators (PI) (3 samples)

a. Inspection Scope

The inspectors reviewed data for the three EP Performance Indicators (PI), which are: (1) Drill and Exercise Performance; (2) ERO Drill Participation; and, (3) ANS Reliability. The last NRC EP inspection at Oyster Creek was conducted in the third calendar quarter of 2011. Therefore, the inspectors reviewed supporting documentation from EP drills and equipment tests from the third calendar quarter of 2011 through the third calendar quarter of 2012 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, "Regulatory Assessment Performance Indicator Guidelines," Revision 6, 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 PI 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, Regulatory Assessment Performance Indicator Guideline, Rev. 6. 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 RETS/ODCM 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) PI 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, Regulatory Assessment Performance Indicator Guideline, Rev. 6. 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. In this review, the inspectors included repetitive or closely-related issues that may have been documented by Exelon outside of the corrective action program, such as trend reports, performance indicators, major equipment problem lists, system health reports, 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 2012 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 (Section 4OA2.1).

a. Findings and Observations

No findings were identified.

The inspectors evaluated a sample of equipment material condition improvement lists. This review included a sample of condition reports of those systems on the list to determine equipment availability, reliability and operability. The inspectors also verified the appropriate disposition of equipment material condition trends and that they were addressed within the scope of the corrective action program and documented in condition reports.

Examples of systems in Exelon's equipment material condition improvement list include electrical penetrations, fuel pool cooling heat exchangers, and standby gas treatment systems. The inspectors determined that Exelon appropriately identified equipment material conditions improvements and appropriately documented those systems in the corrective action program. The inspectors concluded that Exelon was implementing appropriate actions to address any adverse trend in equipment material condition.

.3 Annual Sample: Review of the Operator Workaround 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.

.4 Annual Sample: Failure of Agastat Relays in the Isolation Condenser System (ICS)

a. Inspection Scope

The inspectors performed an in-depth review of Exelon's failure analysis and corrective actions associated with condition report CR 01350115 that documented occurrences where Agastat electro-pneumatic time delay relay contacts within the isolation condenser system (ICS) failed to change state when the relay de-energized. The relay de-energized as expected during the surveillance testing procedure when the direct current (DC) circuit was opened by simulating a high Reactor Pressure Vessel (RPV) pressure condition. However, relay contacts did not actuate to reposition the 'B' isolation condenser condensate return valves. There has been a high frequency of failures of these Agastat electro-pneumatic time delay relays within the ICS. Most of the failures have been identified during surveillance activities that simulated high RPV pressure or low-low RPV water level conditions into the ICS logic to verify that the ICS actuation signals initiated.

The inspectors assessed Exelon's problem identification threshold, causal analyses, extent of condition reviews, compensatory actions, and the prioritization and timeliness of corrective actions to determine whether Exelon was appropriately identifying, characterizing, and correcting problems associated with this issue. The inspectors compared the actions taken to the requirements of Exelon's corrective action program and Title 10 of the Code of Federal Regulations (10 CFR) Part 50, Appendix B, Criterion XVI, Corrective Action. In addition, the inspectors reviewed documentation associated with this issue, including condition and failure analysis reports, and interviewed engineering personnel to assess the effectiveness of the implemented corrective actions and the actions planned to complete full resolution of the issue.

b. Findings and Observations

No findings were identified.

Because of repetitive failures of the Agastat electro-pneumatic time delay relays over the last several years within the ICS, Exelon implemented ECR OC 12-00438 to replace the existing Agastat relays with Allen-Bradley electronic time delay relays. Exelon also uses this type of Allen-Bradley relay within the ICS High Energy Line Break circuitry and these relays have been very reliable. Also, an Electric Power Research Institute (EPRI) Control Relays Aging Management Guideline Technical Report was published in 2011 that acknowledged the high failure frequency for this type of Agastat relay and provided a suitable replacement relay. Exelon used this guidance to install the recommended replacement relay into the ICS during their 2012 refueling outage.
The inspectors determined that Exelon's overall response to the issue was commensurate with the safety significance, was timely, and the actions taken and planned were reasonable to resolve the relay failures within the ICS.

4OA3 Follow-Up of Events and Notices of Enforcement Discretion (71153 – 1 sample)

.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. The inspectors verified that Exelon 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 event to assure that Exelon implemented appropriate corrective actions commensurate with their safety significance.

- Oyster Creek declared alert due to high intake level during Superstorm Sandy on October 29, 2012

Inspectors were stationed onsite for Superstorm Sandy from Sunday, October 28, 2012 through Tuesday, October 30, 2012. While onsite, inspectors provided continuous monitoring and evaluation of environmental conditions and Exelon's actions in response to the storm. The inspectors responded to the control room as warranted to provide event response and to monitor operator response to rising intake levels and restoration of equipment following a loss of offsite power. During the loss of offsite power, both of Exelon's self-contained air cooled emergency diesel generators, which are not cooled by service water, started as designed and provided power to vital equipment. At the height of the storm, a total of 39 of Oyster Creek's 42 emergency sirens were rendered inoperable due to power outages and storm damage. During the time that the sirens were not available, the route alerting method of emergency notification was available, if necessary. The inspectors noted that Exelon has committed to the State of New Jersey, to install new sirens with battery backup capability by June 1, 2013. Following testing and acceptance by the Federal Emergency Management Agency (FEMA), the sirens will be placed in service and the old sirens will be removed. Located at approximately 23 feet above sea level, the independent spent fuel storage facility was unaffected by the 7.4 foot storm surge. Reports and observations from the inspectors were a factor in the decision to dispatch a special inspection team to review Exelon's response to Superstorm Sandy. The special inspection was conducted from November 13 to 27, 2012. The results of the inspection are documented in Inspection Report 05000219/2012009 (ML13010A47).

b. Findings

No findings were identified.

4OA5 Other Activities

.1 Temporary Instruction 2515/187 – Inspection of Near-Term Task Force Recommendation 2.3 – Flooding Walkdowns

a. Inspection Scope

The inspectors verified that Exelon's walkdown packages contained the elements as specified in NEI 12-07 Walkdown Guidance document:

The inspectors accompanied Exelon on their walkdown of the turbine building basement and condenser bay and verified that Exelon confirmed the following flood protection features:

- Visual inspection of the wall penetrations
- Available Physical margin
- Flood protection feature functionality was determined using visual observation

The inspectors independently performed their walkdown and verified that the following flood protection feature was in place:

- Emergency diesel generator building asphalt dike

The inspectors verified that noncompliances with current licensing requirements, and issues identified in accordance with the 10 CFR 50.54(f) letter, Item 2.g of Enclosure 4, were entered into Exelon's corrective action program. In addition issues identified in response to Item 2.g that could challenge risk significant equipment and Exelon's ability to mitigate the consequences will be subject to additional NRC evaluation.

b. Findings

No findings or self-revealing findings were identified.

.2 Temporary Instruction 2515/188 – Inspection of Near-Term Task Force Recommendation 2.3 – Seismic Walkdowns

a. Inspection Scope

The inspectors accompanied Exelon on their seismic walkdowns of the 23 ft and 45 ft level of the Drywell on November 5, 2012 and verified that Exelon confirmed that the following seismic features associated with the inboard main steam isolation valve (V-1-7) and A, C, and E electromatic relief valves were free of potential adverse seismic conditions (list the applicable seismic features which were verified):

- Anchorage was free of bent, broken, missing or loose hardware
- Anchorage was free of corrosion that is more than mild surface oxidation
- Anchorage was free of visible cracks in the concrete near the anchors
- Anchorage configuration was consistent with plant documentation
- SSCs will not be damaged from impact by nearby equipment or structures
- Overhead equipment, distribution systems, ceiling tiles and lighting, and masonry block walls are secure and not likely to collapse onto the equipment
- Attached lines have adequate flexibility to avoid damage
- The area appears to be free of potentially adverse seismic interactions that could cause flooding or spray in the area
- The area appears to be free of potentially adverse seismic interactions that could cause a fire in the area

- The area appears to be free of potentially adverse seismic interactions associated with housekeeping practices, storage of portable equipment, and temporary installations (e.g., scaffolding, lead shielding)

The inspectors independently performed their walkdown and verified that the following SSCs were free of potential adverse seismic conditions:

- "A" isolation condenser on August 22, 2012
- Standby liquid control tank on August 22, 2012

Observations made during the walkdown that could not be determined to be acceptable were entered into Exelon's corrective action program for evaluation.

Additionally, inspectors verified that items that could allow the spent fuel pool to drain down rapidly were added to the seismic walkdown equipment list (SWEL) and these items were walked down by Exelon.

b. Findings

No findings were identified.

.3 Followup Inspection for Three or More Severity Level IV Traditional Enforcement Violations in the Same Area in a 12-Month Period (IP 92723)

a. Inspection Scope

The inspectors performed a follow-up inspection for three Severity Level (SL) IV Traditional Enforcement violations in the area of Impeding Regulatory Process that occurred in 2011. Two of the violations involved Operator Licensing medical issues and the third violation involved improper implementation of an Emergency Action Level bases change.

The objectives of the inspection were to determine whether Exelon:

- Provided assurance that the causes of the SL IV Traditional Enforcement violations were understood;

- Provided assurance that the extent of condition and extent of cause of the SL IV Traditional Enforcement violations were identified; and

- Provided assurance that corrective actions for the SL IV Traditional Enforcement violations were sufficient to address the causes.

The inspectors reviewed Exelon's collective Common Cause Analysis evaluation for the violations, related condition reports, procedures, and relevant references. The inspectors also interviewed management and staff personnel who were familiar with the violations and participated in the evaluation or corrective actions.

Documents reviewed during the inspection are listed in the Attachment.

b. Findings and Observations

No findings were identified.

The inspectors concluded that Exelon completed an adequate Common Cause Analysis that used a systematic method to identify the causes of the Traditional Enforcement violations. Exelon considered the primary common cause to be inadequate individual accountability and questioning attitude associated with regulatory sensitive issues. Exelon's evaluation also considered two additional Traditional Enforcement violations that occurred outside of the 12-month period assessed by the inspection.

The inspectors determined that the station adequately assessed the extent of condition and extent of cause of the violations. The inspectors concluded that Exelon's corrective actions were sufficient to address the identified common cause and that the completed and planned corrective actions addressed the causes described in the evaluation.

.4 Operation of an ISFSI at Operating Plants (IP 60855)

a. Inspection Scope

The inspectors evaluated Exelon's activities related to long-term operation and monitoring of their Independent Spent Fuel Storage Installation (ISFSI), and verified that activities were being performed in accordance with the Certificate of Compliance (CoC), technical specifications (TS), regulations, and Exelon procedures.

The inspectors performed tours of the ISFSI pad to assess the material condition of the pad and the loaded horizontal storage modules (HSMs). The inspectors also verified that transient combustibles were not being stored on the ISFSI pad or in the vicinity of the HSMs. The inspectors confirmed vehicle entry onto the ISFSI pad was controlled in accordance with Exelon's procedures and verified that Exelon was appropriately performing daily HSM surveillances in accordance with TS requirements.

The inspectors interviewed reactor engineering personnel and reviewed Exelon's program associated with fuel characterization and selection for storage from the last ISFSI loading campaign in April/May 2012. The inspectors verified that the criteria meets the conditions for cask and canister use as specified in the CoC. The inspectors also confirmed that physical inventories were conducted annually and were maintained as required by the regulations.

The inspectors reviewed radiological records from the last ISFSI loading campaign to confirm that radiation and contamination levels measured on the casks were within limits specified by TS and consistent with values specified in the updated final safety analysis report (UFSAR). The inspectors reviewed radiation protection procedures and radiation work permits (RWPs) associated with ISFSI operations. The inspectors also reviewed annual environmental reports to verify that areas around the ISFSI pad and the ISFSI site boundary were within limits specified in 10 CFR Part 20 and 10 CFR Part 72.104.

The inspectors reviewed corrective action program condition reports (ARs), and the associated follow-up actions that were generated since Exelon's last loading campaign to ensure that issues were entered into the corrective action program, prioritized, and

evaluated commensurate with their safety significance. The inspectors also reviewed Exelon's 10 CFR 72.48 screenings.

b. Findings

No findings were identified.

.5 Institute of Nuclear Power Operations (INPO) Report Review

a. Inspection Scope

The inspectors reviewed the final report for the INPO plant assessment of Oyster Creek Nuclear Generating Station conducted in March 2012. The inspectors reviewed these reports to ensure that any issues identified were consistent with NRC perspectives of Exelon performance and to determine if INPO identified any significant safety issues that required further NRC follow-up.

b. Findings

No findings were identified.

4OA6 Meetings, Including Exit

On January 22, 2013, the inspectors presented the inspection results to Russell Peak, Oyster Creek Plant Manager, and other members of the Oyster Creek Nuclear Generating Station staff. The inspectors verified that no proprietary information was retained by the inspectors or documented in this report.

4OA7 Licensee-Identified Violations

None

ATTACHMENT: SUPPLEMENTARY INFORMATION

SUPPLEMENTARY INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

G. Stathes, Site Vice-President
M. Massaro, Site Vice-President
R. Peak, Plant Manager
M. Ford, Director, Operations
B. Baker, Site Manager Reactor Services, Limerick
G. Young, Operations Training
G. Busch, ISFSI Project Manager
C. Holtzapple, SNM Coordinator
G. Malone, Director, Engineering
J. Dostal, Director, Maintenance
C. Symonds, Director, Training
D. DiCello, Director, Work Management
J. Barstow, Manager, Regulatory Assurance
T. Farenga, Radiation Protection Manager
R. Larzo, Engineering Manager
V. Samlal, DSC Engineer
J. Murphy, Rad Engineering Manager
J. McCarthy, Senior Radiation Protection Analyst
D. Chernesky, Manager, Environmental/Chemistry
T. Keenan, Manager, Site Security
W. Trombley, Senior Manager, Plant Engineering
H. Ray, Senior Manager, Design Engineering
G. Flesher, Shift Operations Superintendent
J. Chrisley, Regulatory Assurance Specialist
D. Moore, Regulatory Assurance Specialist
J. Kerr, Regulatory Assurance Specialist
K. Wolf, RP Technical Manager
S. Schwartz, Senior Staff Engineer
P. Procacci, Electrical Design Engineer
C. Coyle, HVAC Design Engineer
I. Abelev, HVAC System Engineer

LIST OF ITEMS OPENED, CLOSED, DISCUSSED, AND UPDATED

Opened/Closed

05000219/2012005-01	NCV	Failure to Follow Inspection and Torquing of Bolted Connection Procedure (Section 1R15)
05000219/2012005-02	NCV	Inadequate Application of Strippable Coating to the Refueling Cavity Liner and the Failure to Configure a Valve in the Leakage Collection System Resulting in Increased Potential for Corrosion on the Exterior of the Drywell Liner Surface in the Sand Beds (Section 1R08)

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

Procedures
OP-OC-108-109-1001, Preparation for Severe Weather T&RM for Oyster Creek, Revision 16
OP-AA-108-111-1001, Severe Weather and Natural Disaster Guidelines, Revision 9
WC-AA-107, Seasonal Readiness, Revision 11
OP-OC-108-109-1002, Cold Weather Freeze Inspection, Revision 4
ABN-31, High Winds, Revision 18
ABN-32, Abnormal Intake Level, Revision 19

Condition Reports
1366669 1447243 1446831 1441562 1439194 1425728
1373418

Maintenance Orders/Work Orders
A2291958 A2291428 A2291836 A2291956 A2299647 A2292220
A2292281 A2291037 A2277901

Miscellaneous
Oyster Creek Winter Execution Morning Plant Status Report, dated December 14, 2012
Oyster Creek Certification of 2012-2013 Winter Readiness, dated November 15, 2012

Section 1R04: Equipment Alignment

Procedures
330, Standby Gas Treatment System, Revision 54
322, Service Water Service, Revision 80
341, EDG Operation, Revision 99
302.1, Control Rod Drive System, Revision 111
OP-OC-108-103-1003, Oyster Creek Locked Equipment and Key Control, Revision 20

Drawings
GE 237E487, Control Rod Drive System Flow Diagram, Revision 63
GU 3E-822-21-1000, Standby Gas Treatment, Revision 10

Maintenance Orders/Work Orders
C2027733

Section 1R05: Fire Protection

Procedures
OP-OC-201-008-1012, Reactor Building (Drywell and Torus) (RB-FA-2), Revision 1
OP-OC-201-008-1030, Turbine Building (Condenser Bay) (TB-FZ-11E), Revision 0
OP-OC-201-008, Oyster Creek Pre-Fire Plans, Revision 13

Section 1R06: Flood Protection Measures

Procedures
ABN-18, Service Water Failure, Revision 16

ABN-20, TBCCW Failure Response, Revision 11
ABN-32, Abnormal Intake Level, Revision 19
OP-OC-201-008-1010, Reactor Building (CRD and Core Spray) (RB-FZ-1F3), Revision 0
OP-OC-201-008-1011, Reactor Building (Containment Spray) (RB-FZ-1F4), Revision 0

Miscellaneous
Internal Flood Evaluation Summary and Notebook: Oyster Creek Nuclear Generating Station, dated April 17, 2008
White Paper 28063-005, Design and Licensing Bases for Flooding at OCGS, dated August 29, 2007
Information Notice 2005-30, Safe Shutdown Potentially Challenged by Unanalyzed Internal Flooding Events and Inadequate Design

Section 1R08: In-Service Inspection

Procedures
205.95.0, Reactor Flood-up/Drain Down, Revision 20
205.94.0, RPV Flood-up Using Core Spray, Revision 12
RP-OC-6006, Reactor Cavity and Equipment Pit Leak Mitigation and Decontamination, Revision 2
ER-AA-335-002, Procedure Liquid Penetrant Examination, Revision 6
ER-AA-335-003, Procedure Magnetic Particle Examination, Revision 5
ER-AA-335-004, Ultrasonic Measurement Of Material Thickness and Interfering Conditions, Revision 16
ER-AA-335-014, Procedure VT-1 Visual Examination, Revision 7
ER-AA-335-016, Procedure VT-3 Visual Examination of Component Supports, Attachments and Interiors of Reactor Vessels, Revision 8
ER-AA-335-018, Visual Examination of ASME, Revision 8
IWE Class MC and Metallic Liners of IWL Class CC Components
ER-AA-335-002, Procedure Eddy Current Surface Examinations, Revision 1
GEH-PDI-UT-2, GE Hitachi Nuclear Energy PDI Generic Procedure for the Ultrasonic Examination of Austenitic Pipes, Revision 6
GEH-UT-601, GE Hitachi Nuclear Energy Procedure For Ultrasonic Thickness Measurements for Flow Accelerated Corrosion (FAC), Version 6

Drawings & Sketches
Oyster Creek RPV MAP, 7/1/99
Dwg. E 232-565-5, Nozzle Details For General Electric Inc. Jersey Central – Reactor Vessel
Structural Integrity Associates drawing 1200118.510, 11/12/12; N-9 Control Rod Drive Return Nozzle Safe End, Pipe, And Elbow Full Structural Weld Overlay design (4 sheets), 11/14/12 (Nozzle N-9)
GE Dwg. 4066-4, 3/8/66, Reactor Building; Building Cross-section Details
Exelon Nuclear Drawing, GE JC147434, Sheet 2 of 3, Revision 57; Sumps And Waste Collection System, Flow Diagram
Exelon Nuclear Drawing, GE 237E756, Sheet 1, Revision 53, Spent Fuel Pool Cooling, Flow Diagram
Dwg 1200118.510 SIA dwg. Revision 4, 11/14/12
Final WSI Construction dwg. Contours

Condition Reports (*NRC-identified)

1437583	1437716*	1437583	1388492	1144359	1436892
1437169	1436360	1436340	1141202	1137564	1279515
1286188	1241899	1155454	1145290	1451886*	1437716
1125902	1388192	1418745	1418700	1435047	1431606
1421211	1273404	1347421	1315262	1440116*	1437583
1301435	1417576	1403174	1435742	1433984	1432528
1432713	1432684	1432671	1430947	1435740	1145290
1421211	1440116	1436892*	1440116*	1433984	1439117*
1438651	1438414	1438578	1436892	1444414	

Maintenance Orders/Work Orders

R2076388 R2087028 R2046983 R2134869 C2023712 C2028889
C2028760

Miscellaneous

ASME Code, Appendix VIII, Supplement 10: Qualification Requirements For Dissimilar Metal Piping Welds

Performance Demonstration Initiative (PDI), Guideline for Ultrasonic Examination of Corrosion Resistant Cladding (CRC), PDI-GL-002, Revision B, 1/29/03

Exelon Nuclear Letter RA-09-011, March 9, 2009; Subject: Submittal of Analytical Evaluation in Accordance with IWB-3134(b)

Electric Power Research Institute Report IR-2008-340; Evaluation of Dissimilar Metal Weld Examinations Performed at Oyster Creek during Refueling Outage 22 (1R22)

BWR Feedwater Nozzle And Control Rod Drive Return Line Nozzle Cracking: Resolution Of Generic Technical Activity A-10 (Technical Report)

ASME Boiler and Pressure Vessel Code Case N-504-4, Alternative Rules for Repair of Classes 1, 2 and 3 Austenitic Stainless Steel Piping, Section XI, Division 1

Material Safety Data Sheet, Supermend Hardener, 3/4/11 (9 pages)

NRC Information Notice 2012-19: License Renewal Post-Approval Site Inspection Issues, October 23, 2012

ECR OC 12-00540, N-9 Safe End and Pipe Weld Overlay (rejectable PT indications)

Specifications

Specification IS-328227-004, Specification for Oyster Creek, Functional Requirements for Drywell Containment Vessel Thickness Examinations, Revision 14A, 2009

Engineering Calculations & Evaluations

Structural Integrity Associates, Inc. Calculation Package, File No.:1200118.310; Title: Weld Overlay Sizing for CRD Nozzle Safe End, Safe End-to-Pipe Weld, Pipe, and Pipe-to-Elbow Weld; Revision 1, 11/14/12

Structural Integrity Associates, Inc. Calculation Package, File No.:1200118.310; Title: Weld Overlay Sizing for CRD Nozzle Safe End, Safe End-to-Pipe Weld, Pipe, and Pipe-to-Elbow Weld; Revision 1, 11/14/12; Attachment 1; Assessment to Justify Startup for N9 Nozzle, Safe End, Pipe and Elbow Weld Overlay

Structural Integrity Associates, Inc. Calculation Package, File No.:1200118.310; Title: Weld Overlay Sizing for CRD Nozzle Safe End, Safe End-to-Pipe Weld, Pipe, and Pipe-to-Elbow Weld; Revision 1, 11/14/12; Attachment 2: Crack Growth Rate Evaluation for Stainless Steel Weld Overlay at Oyster Creek

Engineering Evaluation for AR A2318125, Repair of N7B Flange, 11/26/12

Technical Evaluation 01432528.02, Evaluation of the Degradation of Coating found in Sandbed

Bays – 2012, 12/19/12, 19 pages
Technical Evaluation 01435740-04, Evaluation of 2012 Drywell Sandbed UT Data – External Data, 11/18/12, 4 pages

NDE Inspection Reports & Data Sheets
Sand Bed Bay #1, Report 1R24-LRA-043, ASME IWE (CLASS MC) Containment and IWL (CLASS CC) Metallic Liner Visual Exam and NDE Report, 11/17/12 (25 pages), (VT, UT)
Sand Bed Bay #3, Report 1R24-LRA-050, ASME IWE (CLASS MC) Containment and IWL (CLASS CC) Metallic Liner Visual Exam and NDE Report, 11/17/12 (64 pages), (VT, UT)
Sand Bed Bay #5, Report 1R24-LRA-037, ASME IWE (CLASS MC) Containment and IWL (CLASS CC) Metallic Liner Visual Exam and NDE Report, 11/17/12 (8 pages), (VT, UT)
Sand Bed Bay #7, Report 1R24-LRA-040, ASME IWE (CLASS MC) Containment and IWL (CLASS CC) Metallic Liner Visual Exam and NDE Report, 11/17/12 (50 pages), (VT, UT)
Sand Bed Bay #9, Report 1R24-LRA-032, ASME IWE (CLASS MC) Containment and IWL (CLASS CC) Metallic Liner Visual Exam and NDE Report, 11/17/12 (22 pages), (VT, UT)
Sand Bed Bay #11, Report 1R24-LRA-030, ASME IWE (CLASS MC) Containment and IWL (CLASS CC) Metallic Liner Visual Exam and NDE Report, 11/19/12 (85 pages), (VT, UT)
Sand Bed Bay #13, Report 1R24-LRA-009, ASME IWE (CLASS MC) Containment and IWL (CLASS CC) Metallic Liner Visual Exam and NDE Report, 11/18/12 (64 pages), (VT, UT)
Sand Bed Bay #15, Report 1R24-LRA-066, ASME IWE (CLASS MC) Containment and IWL (CLASS CC) Metallic Liner Visual Exam and NDE Report, 11/17/12 (23 pages), (VT, UT)
Sand Bed Bay #17, Report 1R24-LRA-048, ASME IWE (CLASS MC) Containment and IWL (CLASS CC) Metallic Liner Visual Exam and NDE Report, 11/17/12 (22 pages), (VT, UT)
Sand Bed Bay #19, Report 1R24-LRA-046, ASME IWE (CLASS MC) Containment and IWL (CLASS CC) Metallic Liner Visual Exam and NDE Report, 11/17/12 (32 pages), (VT, UT)
Report 1R24-047, Examination Summary Sheet, Component ID: 422-1013, Support (RF-2-28), VT, 11/7/12 (VT)
Report 1R24-128, Examination Summary Sheet, Component ID: NR02 4-565A (N1A), N1A Recirc Outlet Nozzle Safe End, 11/4/12 (No change from 2008, rejectable indication in 2008) (UT)
GE Hitachi, Indication Notification Report (INR) OC1R24 IVVI-12-01 SD Bank 1 Horizontal H04 ID, 5 pages, 10/26/12 (VT)
GE Hitachi, INR OC1R24 IVVI-12-02 SD Drain Channel Weld V19 ID, 3 pages, 10/26/12 (VT)
GE Hitachi, INR OC1R24 IVVI-12-03 SD Drain Channel Weld V07 ID, 5 pages, 10/27/12 (VT)
GE Hitachi, INR OC1R24 IVVI-12-04 SD Drain Channel Weld V03 ID, 2 pages, 10/27/12 (VT)
GE Hitachi, INR OC1R24 IVVI-12-05 SD Center Baffle Plate, 4 pages, 10/26/12 (VT)
GE Hitachi, INR OC1R24 IVVI-12-06 SD 50 degree HAD Swing Bar Stop Block, 4 pages, 10/26/12 (VT)
GE Hitachi, INR OC1R24 IVVI-12-07 SD 135 degree Lifting Rod Lock Collar, 3 pages, 10/26/12 (VT)
GE Hitachi, INR OC1R24 IVVI-12-08 SD 130 degree HAD Swing Bar Stop Block & Jacking Bolt, 4 pages, 10/26/12 (VT)
GE Hitachi, INR OC1R24 IVVI-12-09 SD Tie Bar N-1 Lower, 4 pages, 10/26/12 (VT)
GE Hitachi, INR OC1R24 IVVI-12-10 SD Tie Bar K-1 Lower, 2 pages, 10/26/12 (VT)
GE Hitachi, INR OC1R24 IVVI-12-11 SD Tie Bar N, 6 pages, 10/26/12 (VT)
GE Hitachi, INR OC1R24 IVVI-12-12 SD Tie Bar C-1 Lower, 4 pages, 10/27/12 (VT)
GE Hitachi, INR OC1R24 IVVI-12-13 SD Tie Bar B-1 Lower, 2 pages, 10/27/12 (VT)
GE Hitachi, INR OC1R24 IVVI-12-14 SD 310 degree HAD Swing Bar Stop Block, 2 pages, 10/27/12 (VT)
GE Hitachi, INR OC1R24 IVVI-12-15 SD 45 degree Lifting Rod Lock Collar, 3 pages, 10/27/12 (VT)

GE Hitachi, INR OC1R24 IVVI-12-16 SD Drain Channel Weld V15 ID, 4 pages, 10/27/12 (VT)
GE Hitachi, INR OC1R24 IVVI-12-17 SD Drain Channel Weld V08 ID, 3 pages, 10/27/12 (VT)
GE Hitachi, INR OC1R24 IVVI-12-18 SD Drain Channel Weld V16 ID, 4 pages, 10/27/12 (VT)
GE Hitachi, INR OC1R24 IVVI-12-19 Fuel Support Casting 34-35 FME, 4 pages, 11/05/12 (VT)
VT-2 Visual Examination NDE Sheet, Report No. R2143786, N7B flange, Post Repair Test During Plant Operational Pressure Test, 12/4/12 (VT)
GE Hitachi, Examination Summary Sheet, Report No.: 1R24-209, Component ID: NC-4-0001AR1, N9 Weld Overlay, 11/29/12, 70 pages
GE Hitachi, Austenitic Piping 1.0T Flaw Evaluation Sheet, Oyster Creek, Weld ID: NC-4-0001AR1, Indication 11
WSI Nonconformance Report 12-151, 11/20/12, 16 pages
WSI Nonconformance Report 12-152, 11/20/12, 15 pages
WSI Nonconformance Report 12-152, Attachment 1, 11/20/12
Liquid Penetrant Inspection Report No.: N9-PT-08, 11/25/12 (LP)

Program Health Reports
OYSTER CREEK Inservice Inspection (ISI) Program Health Report, 3rd Quarter 2012

NDE Inspector Certifications
1625 0977 1079

Section 1R11: Licensed Operator Requalification Program

Procedures
2612.885.0.0911A, Oyster Creek Station Licensed Operator Requal Training Simulator Exercise Guide, Revision 2
201, Plant Startup, Revision 82
202.1, Power Operations, Revision 132
203, Plant Shutdown, Revision 66
625.4.001, Turbine Over Speed Test and Calibration, Revision 18
OP-AB-300-1001, BWR Control Rod Movement Requirements, Revision 7
OP-AB-300-1003, BWR Reactivity Maneuver Guidance, Revision 8
OP-AA-108-108, Unit Restart Review, Revision 12
OP-AA-108-110, Evaluation of Special Tests or Evolutions, Revision 2
OP-AA-106-101, Significant Event Notification and Reporting, Revision 15

Section 1R12: Maintenance Effectiveness

Procedures
ER-AA-310, Implementation of the Maintenance Rule, Revision 8
ER-AA-310-1001, Maintenance Rule Scoping, Revision 4
ER-AA-310-1002, Maintenance Rule Functions – Safety Significance Classification, Revision 3
ER-AA-310-1006, Maintenance Rule Expert Panel Roles and Responsibilities, Revision 4
330, Standby Gas Treatment System, Revision 54
117.3, Alternate AC System Reliability Monitoring, Revision 4

Drawings
BR 2011, Reactor Building Ventilation Flow Diagram, Revision 62
GU 3E-822-21-1000, Standby Gas Treatment, Revision 10

Calculations
C-1302-822-5350-030, OC Reactor Building Diff Press System Alarm Setpoint Calculation, Revision 0

Condition Reports
1425935 1397342 1139347 1143867 1155922 1439089
1433118 1386338 1425712

Miscellaneous
OCMM-408808-001, Reactor Building Differential Pressure Indication System Modification, Revision 0
Maintenance Rule Scope and Performance Monitoring Document, System 743 – Station Blackout (SBO) CT and Support System
System 743 Station Blackout (SBO) CT and Support System Failure Report dated December 1, 2010 through December 17, 2012
NUMARC 93-01, Industry Guideline for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants, Revision 2
System 743 – Station Blackout (SBO) CT monthly report, July 2012
System 743 – Station Blackout (SBO) CT monthly report, August 2012
System 743 – Station Blackout (SBO) CT monthly report, September 2012
System 743 – Station Blackout (SBO) CT monthly report, October 2012
System 743 – Station Blackout (SBO) CT monthly report, November 2012
System 743 – Station Blackout (SBO) CT monthly report, March 2011
Scoping/Risk Significance Detailed Report for System 743 Station Blackout (SBO) CT and Support System
Oyster Creek Operations Logs, September 1, 2010 through December 17, 2012

Section 1R13: Maintenance Risk Assessments and Emergent Work Control

Procedures
WC-OC-101-1001, Online Risk Management and Assessment, Revision 9
OP-AA-108-117, Protected Equipment Program, Revision 2
ER-AA-600-1042, On-Line Risk Management, Revision 7
OU-OC-103-1001, Shutdown Safety Management Program, Revision 7
OP-OC-108-109-1001, Severe Weather Preparation, Revision 16

Condition Reports
1437620 1434584 1432438

Maintenance Orders/Work Orders
R2190214

Section 1R15: Operability Determinations and Functionality Assessments

Procedures
LS-AA-120, Issue Identification and Screening Process, Revision 10
OP-AA-108-115, Operability Determinations (CM-1), Revision 10
322, Service Water Service, Revision 80
ABN-31, High Winds, Revision 18
ABN-32, Abnormal Intake Level, Revision 19
2400-GMM-3900.52, Inspection and Torquing of Bolted Connections, Revision 7
2400-SMM-3219.02, Liquid Poison System Explosive Valve Maintenance, Revision 8

Drawings
GE 148F723, Liquid Poison System Flow Diagram, Revision 39

Condition Reports (*NRC-identified)
1069881 1444862* 1444861* 1417726* 1418103* 1442876
1186333 1176569 1431888

Maintenance Orders/Work Orders
R2190214 A2318262 R2179400

Section 1R18: Plant Modifications

Procedures
ABN-32, Abnormal Intake Level, Revision 18
ABN-32, Abnormal Intake Level, Revision 19

Condition Reports (IRs)
1434076

Maintenance Orders/Work Orders
A2316198

Miscellaneous
Oyster Creek Nuclear Generating Station UFSAR Section 9.2.1.1, "Service Water Systems", Revision 17
OC-2012-S-0105, 50.59 Review, "Revision of ABN-32 for shutdown of service water pumps when the water reaches 0.5 feet below the service water pump motors", Revision 0
ABN-32-IP-10/29/1012-01, Document Site Approval Form: "Abnormal Intake Level", dated October 29, 2012
EP-AA-1010, Table OCGS 3-2 OCGS EAL Technical Basis, Section HA4, "Natural or destructive phenomena affecting Vital Areas", Revision 6
EP-AA-1010, Table OCGS 3-2 OCGS EAL Technical Basis, Section HU4, "Natural or destructive phenomena affecting Protected Area", Revision 6

Section 1R19: Post-Maintenance Testing

Procedures
OP-MA-109-101, Clearance and Tagging, Revision 13
MA-AA-716-012, Post Maintenance Testing, Revision 17
607.4.017, Containment Spray and Emergency Service Water Pump System 2 Operability and Quarterly Inservice Test, Revision 31
2400-SMM-3900.04, System Pressure Test Procedure (ASME XI), Revision 9
665.5.003, Main Steam Isolation Valve Leak rate Test, Revision 43
ER-AA-380, Primary Containment Leakrate Testing Program, Revision 9
MA-AA-716-012, Post Maintenance Testing, Revision 17
Industry Guideline For Implementing Performance-Based Option of 10 CFR Part 50, Appendix J, NEI 94-01, Revision 2
2400-GMM-3921.52, Removal, Inspection and Installation of Mechanical Snubbers, Revision 12
SP-1302-52-045, Oyster Creek Specification for Requirements for Functional Testing of Snubbers, Revision 6

Condition Reports (*NRC-identified)

1426259	*1431388	1439150	1438491	1438308	1440422
1442086	1429613	1432256	1437828	1439774	

Maintenance Orders/Work Orders

C2027733	C2028734	R2179230	R2173669	C2028595	C2027126
R2116444	R2208902	R2136093	C2026522		

Section 1R20: Refueling and Other Outage Activities

Procedures

201, Plant Start-up, Revision 82
205.95.0, Reactor Flood-up/Drain-down, Revision 20
233, Drywell Access and Control, Revision 70
302.2, Control Rod Drive Manual Control System, Revision 53
604.1.005, Torus to Drywell Vacuum Breaker, Mechanical Surveillance and Limit Switch Calibration, Revision 24
401.2, Nuclear Instrumentation SRM Channels Operation during Start-up, Revision 13
402.2, IRM Operation During Start-up, Revision 26
602.4.001, Nuclear Steam Supply System (NSSS) Leak Test, Revision 50
602.4.001, Nuclear Steam Supply System (NSSS) Leak Test, Revision 51
202.1, Power Operations, Revision 132
203, Plant Shutdown, Revision 66
625.4.001, Turbine Over Speed Test and Calibration, Revision 18
OP-AB-300-1001, BWR Control Rod Movement Requirements, Revision 7
OP-AB-300-1003, BWR Reactivity Maneuver Guidance, Revision 8
OP-AA-108-108, Unit Restart Review, Revision 12
OP-AA-108-110, Evaluation of Special Tests or Evolutions, Revision 2
OP-AA-106-101, Significant Event Notification and Reporting, Revision 15
NF-AB-720-F-1, Control Rod Sequence Review and Approval Sheet, Revision 1

Condition Reports

1437620	1444589	1444592	1445022	1445121	1445358
1445373	1445484	1445803	1445806	1445894	1445954
1446816	1446719	1446272	1445954	1445936	1444388
1441833	1441836	1441910	1441771	1433982	1434196
1438948	1441036	1441023	1441009	1441008	1440925
1440882	1440870	1439768	1440127	1439416	1439292
1439493	1439625	1439646	1439723	1439743	1439814
1440329	1440278	1440076	1440047	1440021	1427547
1438368	1438577	1437155	1430779	1430829	1430832
1430835	1430849	1430924	1430985	1431024	1431095
1431098	1431101	1431115	1437317	1437368	1435924
1435959	1435842	1433621	1433368	1429145	1435249
1435039	1434828	1434404	1433122	1434235	1434322
1434924	1432271	1432320	1432158	1434070	1431229
1431141	1431241	1431350	1431430	1431690	1431700
1431689	1431536	1431502	1430624	1430787	1430299
1430495	1430519	1430487	1429882	1429651	1429647
1429643	1429641	1429640	1429638	1429637	1429634
1429632	1429623	1429618	1429948	1430092	1430074

1430006	1429973	1429471	1429399	1429447	1429275
1429118	1431388	1439150	1438491	1438308	1440422
1447378	1434655	1440895	1445358	1445121	1444987
1444589	1444592	1442335	1442086	1442614	1442335
1442341	1442346	1441613	1441543	1441927	1441856
1440794	1440895	1440878	1439813	1439814	1438760
1430624	1328300	1436679	1436683	1436698	1436713
1437138	1437063	1436794	1436123	1436794	1432374
1434070	1431895	1430438	1430415	1430349	1430503
1430489	1430432	1430492	1429964	1429571	1429612
1431735	1431229	1431264	1430051	1430059	1429613
1430096	1431674	1431601	1431105	1431586	1431232
1432146	1431965				

Maintenance Orders/Work Orders
C2026522

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Clearance No. 12501578
NF-AB-720-F-1, Control Rod Sequence Review and Approval Sheet, dated 11/24/12

Section 1R22: Surveillance Testing

Procedure
602.4.002, MSIV Closure and IST Test, Revision 39
602.3.005, ADS Actuation Circuit Test and Calibration, Revision 31
636.4.002, Diesel Generator No. 2 Automatic Actuation Test, Revision 10

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1429613	1439748	1440804	1440808	1440820	1440828
1440837					

Maintenance Orders/Work Orders
R2174290

Section 1EP2: Alert and Notification System Evaluation

Procedures
EP-MA-121-1002, Exelon East Alert Notification System (ANS) Program, Revision 8
EP-MA-121-1003, Exelon East ANS Siren Monitoring, Troubleshooting, and Testing ASC ANS System, Revision 0
EP-MA-121-1004, Exelon East ANS Corrective Maintenance, Revision 5
EP-MA-121-1005, Exelon East ANS Preventive Maintenance Program, Revision 4

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Consolidated Technical Review of Exelon East Updated Design Reports for Three Mile Island, Peach Bottom, Limerick and Oyster Creek Stations

Section 1EP3: Emergency Response Organization Staffing and Augmentation System

Procedures

EP-AA-100, Exelon Nuclear Standardized Radiological Emergency Plan, 6/20/2012
EP-AA-1010, Exelon Nuclear Radiological Emergency Plan Annex for Oyster Creek Station, Revision 4
EP-AA-1102, ERO Fundamentals, Revision 5
TQ-AA-113, ERO Training and Qualifications, Revision 20

Miscellaneous

Oyster Creek 2012 Station Off-hours Drive-in Augmentation Drill Report (2012-08), dated October 11, 2012
Oyster Creek Generating Station EP Full Scale Integrated Drill and Semi- Annual Health Physics (HP) Drill Report, Revision 1, dated August 17, 2012
Oyster Creek Generating Station Emergency Preparedness Full Scale Integrated Drill Report (2011-02), dated March 23, 2011
ERO Call-in Augmentation Drill Results (2012-02), dated June 26, 2012
ERO Call-in Augmentation Drill Results (2012-04), dated March 20, 2012
ERO Call-in Augmentation Drill Results (2011-13), dated December 20, 2011
ERO Call-in Augmentation Drill Results (2011-07), dated September 24, 2011
ERO Call-in Augmentation Drill Results (2011-04), dated June 23, 2011
ERO Call-in Augmentation Drill Results (2010-11), dated December 7, 2010
ERO Call-in Augmentation Drill Results (2010-05), dated September 23, 2010
ERO Team Roster, dated 11/03/2012
ERO B-1 Table

Section 1EP5: Correction of Emergency Preparedness Weaknesses

Condition Reports

1012042	1308050	1159509	1328578	1433589	1257675
1305572	1268265	1382684	1343871	1408679	1433277
1054741	1048234	1012048			

Miscellaneous

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EP-MA-124-1001-F-04, Technical Support Center Inventory, Revision E, dated August 22, 2012
EP-MA-124-1001-F-04, Operations Support Center Inventory, Revision G, dated August 22, 2012
EP-MA-124-1001-F-10, Emergency Operations Facility Inventory, Revision G, dated August 23, 2012
EP-MA-124-1001-F-11, Emergency Operations Facility Equipment Test, Revision G, dated September 11, 2012
EP-MA-124-1001-F-02, TSC/OSC Equipment Test Software and Reference Document Inventory, Revision F, dated May 30, 2012
EP-MA-124-1001-F-11, Emergency Facility Equipment Tests, Revision F, dated March 14, 2012
Event Summary Report of an Alert Declared at the Exelon Nuclear Oyster Creek Station, dated October 31, 2012
Oyster Creek Generating Station, 07/23/12, Notice of Unusual Event Report (2012-1), dated August 16, 2012
Oyster Creek Generating Station, 08/23/11, Notice of Unusual Event Report, Revision 1 (2011-1R1), dated September 21, 2011

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NOSA-OYS- 11-03, Emergency Preparedness Audit Report, Oyster Creek, April 18, 2011 – April 21, 2011
NOSA-OYS-12-03, Emergency Preparedness Audit Report, Oyster Creek, April 23, 2012 – April 27, 2012
NOSA-OYS-12-03, Emergency Preparedness NOS Objective Evidence Report, April 23, 2012 – April 27, 2012
Oyster Creek Station NRC Baseline Program Inspection Readiness Assessment, dated August 31, 2012
Evacuation Time Estimates for the Oyster Creek Plume Exposure Pathway Emergency Planning Zone, dated October 2012

Section 2RSO1: Radiological Hazard Assessment and Exposure Controls

Procedures
RP-AA-350, Personnel Contamination Monitoring Decontamination and Reporting, Revision 10
RP-AA-18, Radiological Posting and Labeling Program Description, Revision 1
RP-AA-376, Radiological Posting and Labeling and Markings, Revision 6
RP-AA-376-1001, Radiological Posting and Labeling and Markings Standard, Revision 6
RP-AA-300, Radiological Survey Program, Revision 10
RP-AA-302, Determination of Alpha Levels and Monitoring, Revision 4
RP-AA-403, Administration of the Radiation Work Permit Program, Revision 3
RP-AA-460, Controls for High and Locked High Radiation Area, Revision 23
RP-AA-460-001, Controls for Very High Radiation Areas, Revision 4
RP-AA-460-002, Additional High Radiation Exposure Controls, Revision 1
RP-AA-460-003, Access to HRAS-LHRA in Response to a Potential or Actual Emergency, Revision 2
RP-AA-500, Radioactive Material Control, Revision 14
RP-AA-503, Unconditional Release Survey Method, Revision 5
RP-AA-4005, Conduct of Radiation Protection Outage Readiness Assessment, Revision 1
Oyster Creek Station Procedure 233, Drywell Access and Control, Revision 68

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1430591 1429810 1430067

Miscellaneous
LS-AA-126-1005 Attachment 1 Check In Self Assessment 1363513 – Nuclear Regulatory Commission Outage HP Inspection, dated May 25, 2012
OCGS Radiological Survey No. IAA-12-6285, Drywell 13' General Area, dated October 22, 2012
OCGS Radiological Survey No. IAC-12-6281, Drywell 13' Under Vessel, dated October 22, 2012
OCGS Radiological Survey No. IAA-12-6286, DW C Recirc Loop, dated October 22, 2012
OCGS Radiological Survey No. IAA-12-6287, DW E Recirc Loop, dated October 22, 2012
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OCGS Radiation Work Permit No. 12-00508 1R24 Drywell Scaffolding, dated June 2, 2011

OCGS Radiation Work Permit No. 12-00519 1R24 Drywell ISI-IGSCC-FAC Inspections, dated June 2, 2011
OCGS Radiation Work Permit No. 12-00511 1R24 Drywell CRD Exchange and CRD Support Work, dated June 2, 2011
OCGS Radiation Work Permit No. 12-00505 1R24 Outage Drywell Observations, Inspection, Operations, Services and RP, dated June 2, 2011
TQ-AA-160 Attachment 10 Supplemental Radiation Protection Technician Qualification Card, LMS ID 952397, dated September 8, 2012
TQ-AA-160 Attachment 10 Supplemental Radiation Protection Technician Qualification Card, LMS ID 034205, dated September 7, 2012
TQ-AA-160 Attachment 10 Supplemental Radiation Protection Technician Qualification Card, LMS ID034653, dated October 15, 2012
TQ-AA-160 Attachment 10 Supplemental Radiation Protection Technician Qualification Card, LMS ID033202, dated September 10, 2012
TQ-AA-160 Attachment 10 Supplemental Radiation Protection Technician Qualification Card, LMS ID033203, dated September 8, 2012
TQ-AA-160 Attachment 10 Supplemental Radiation Protection Technician Qualification Card, LMS ID 024832, dated September 10, 2012

Section 2RSO2: Occupational ALARA Planning and Controls

Procedures
RP-AA-16, ALARA Program Description, Revision 0
RP-AA-400, ALARA Program, Revision 9
RP-AA-400-1001, Establishing Collective Radiation Exposure Annual Business Plan, Revision
RP-AA-400-1002, Dose Equalization, Revision 1
RP-AA-400-1003, Work Group Exposure Reduction Plan, Revision 0
RP-AA-400-1004, Emergent Dose Control and Authorization, Revision 4
RP-AA-400-1005, ALARA Suggestion Program, Revision 0
RP-AA-400-1006, Outage Exposure Estimating and Tracking, Revision 3
RP-AA-400-1007, Elevated Dose Rate Response Planning, Revision 0
RP-AA-400-1008, Exposure Goal Recovery Plans, Revision 0
RP-AA-400-1009, Remote Monitoring System, Revision 0
RP-AA-400-2000, Department Dose Zealot, Revision 0
RP-AA-401, Operational ALARA Planning and Controls, Revision 15
RP-OC-402, Use of Temporary Shielding, Revision 0
CY-AB-120-1000 BWR Strategic Water Chemistry Plan, Revision 11

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1421348

Miscellaneous
2012 Collective Dose Goals and Actual by Department
LS-AA-126-1005 Attachment 1 - Check In Self Assessment 1363513 – Nuclear Regulatory Commission Outage HP Inspection, dated May 25, 2012
OC Generating Station Radiation Protection 01R23 – 2010 Refueling Outage Report, dated February 25, 2011
RP-AA-400, Attachment 2 - SAC Agenda, dated October 24, 2012
RP-AA-401, Attachment 2 - ALARA Plan 2012-508 for 1R24 Drywell Scaffolding, dated October 25, 2012
RP-AA-401, Attachment 2 - ALARA Plan 2012-503 for 1R24 Drywell Under-vessel Maintenance

Activities, dated October 25, 2012
RP-AA-401, Attachment 2 - ALARA Plan 2012-402 for 1R24 Reactor Disassembly, Refuel, Inspections and Reassembly, dated October 25, 2012
RP-AA-401, Attachment 2 - ALARA Plan 2012-506 for 1R24 for Drywell Insulation Removal – Replacement, dated October 25, 2012
RP-AA-401, Attachment 2 - ALARA Plan 2012-507 for 1R24 Drywell Shielding, dated October 25, 2012
RP-AA-401, Attachment 2 - ALARA Plan 2012-511 for 1R24 Drywell CRD Exchange and CRD Support Work, dated October 25, 2012
RP-AA-401, Attachment 2 - ALARA Plan 2012-519 for 1R24 Drywell ISI-IGSCC-FAC Inspections, dated October 25, 2012
RP-AA-401, Attachment 2 - ALARA Plan 2012-245 for 1R24 Cavity Coating and Decontamination, dated October 25, 2012

Section 2RSO3: In-Plant Airborne Radioactivity Control and Mitigation

Procedures
RP-AA-301, Radiological Air Sampling Program, Revision 5
RP-AA-700-1301, Calibration, Source Check, Operation and Set-up of the Eberline Beta Air Monitor Model AMS-4, Revision 0
RP-AA-825, Maintenance Care and Inspection of Respiratory Protective Equipment, Revision 5
RP-AA-13, Respiratory Protection Program Description, Revision 0
RP-AA-870-1002, Use of Vacuum Cleaners in Radiological Controlled Areas, Revision 3
RP-AA-870-1003, Testing Portable HEPA Filter Units, Revision 0
RP-AA-870-1001 Set-up and Operation of Portable Air Filtration Equipment, Revision 2
Station Procedure 329, Reactor Building Heating, Cooling and Ventilation System, Revision 62

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1430035

Miscellaneous
System Health Report for System 822 - Rx Building Ventilation, Quarter 3, 2012
RP-AA-301, Attachment - 2 Airborne Radioactivity Calculation Sheet, Sample # 12-1187, Drywell Initial Entry, dated October 22, 2012
RP-AA-301, Attachment - 2 Airborne Radioactivity Calculation Sheet, Sample # 12- 1188, Drywell Initial Entry, dated October 22, 2012
RP-AA-301, Attachment 2 - Airborne Radioactivity Calculation Sheet, Sample # 12-1191, Drywell General Area, dated October 22, 2012
RP-AA-301, Attachment 2 - Airborne Radioactivity Calculation Sheet, Sample # 12-1207, Reactor Building 119' Head Removal, dated October 23, 2012
RP-AA-301, Attachment 2 - Airborne Radioactivity Calculation Sheet, Sample # 12-1239, Reactor Building Cavity, dated October 23, 2012
RP-AA-870-1001 Attachment 3 - Sample HEPA Issue and Return Log, dated October 19, 2012
RP-AA-870-1002 Attachment 1 - HEPA Vacuum Issue Log, dated October 24, 2012
RP-AA-825-1013 Attachment 2 - 3M Air Mate Inspection and issue Log, dated October 25, 2012

Section 2RSO4: Occupational Dose Assessment

Procedures
RP-AA-210, Dosimetry Issue, Usage and Control, Revision 22
RP-AA-210-1001, Dosimetry Logs and Forms, Revision 0

RP-AA-210-1003, REMs Access Control System, Revision 0
RP-AA-220, Bioassay Program, Revision 8
RP-AA-221, Whole Body Count Data Review, Revision 1
RP-AA-222, Methods for Estimating Internal Exposure from In Vivo and In Vitro Bioassay Data, Revision 3
RP-AA-250, External Dose Assessment from Contamination, Revision 0
RP-AA-270, Prenatal Radiation Exposure, Revision 6
RP-AA-350, Personnel Contamination Monitoring, Decontamination and Reporting, Revision 10

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1430594 1430382 1430412 1430110

Miscellaneous
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RP-AA-210-1001 Attachment - 13 Multiple Dosimetry EDE Evaluation Sheet for 1R24 Drywell Under-vessel Maintenance Activities on Carousel, dated October 19, 2012
RP-AA-210-1001 Attachment - 13 Multiple Dosimetry EDE Evaluation Sheet for Drywell CRD Exchange and Support Work at Carousel Level, dated October 19, 2012
RP-AA-210-1001 Attachment 3 - Multiple Dosimetry Issue log (Single Entry) for CRD Exchange, EID# 5673, dated October 24, 2012
RP-AA-210-1001 Attachment 3 - Multiple Dosimetry Issue log (Single Entry) for CRD Exchange, EID# 5945, dated October 24, 2012
RP-AA-210-1001 Attachment 3 - Multiple Dosimetry Issue log (Single Entry) for CRD Exchange, EID# 5751, dated October 24, 2012
RP-AA-210-1001 Attachment 3 - Multiple Dosimetry Issue log (Single Entry) for CRD Exchange, EID# 2568, dated October 24, 2012
RP-AA-203, Attachment 1 - Dose Control Level Extension Form, J. Morel, dated October 15, 2012
RP-AA-203, Attachment 1 - Dose Control Level Extension Form, M. Wilson, dated October 11, 2012
RP-AA-203, Attachment 1 - Dose Control Level Extension Form, J. Burgan, dated October 10, 2012
RP-AA-270, Attachment 3 - Declaration of Pregnancy for DPW #1, dated October 24, 2011
RP-AA-270, Attachment 4 - Embryo/Fetus Dose Report for DPW #1, dated October 24, 2011
RP-AA-270, Attachment 5 - DPW Secondary/Primary Dose Log for DPW #1, dated October 24, 2011
RP-AA-270, Attachment 2 - Declaration of Intent to Become Pregnant for DPW #2, dated May 3, 2012
RP-AA-270, Attachment 5 - DPW Secondary/Primary Dose Log for DPW #2, dated May 5, 2012

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-2140, Monthly Data Elements for NRC Occupational Exposure Control Effectiveness, Revision 5
LS-AA-2150, Monthly Data Elements for NRC RETS/ODCM Radiological Effluent Occurrence, Revision 2
CY-OC-170-201, Compliance with Technical Specification 6.8.4 Radioactive Effluent Control Program, Revision 2

Condition Reports
0430565 1430560 1359080

Miscellaneous
NEI 99-02, Regulatory Assessment Performance Indicator Guideline, Revision 6
Oyster Creek MSPI Basis Document
Oyster Creek Unit 1 - 4Q2011 – 3Q2012 MSPI Data, December 17, 2012
Performance Indicator Data – 2nd quarter 2011 to 2nd quarter 2012

Section 4OA2: Problem Identification and Resolution

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ABN-19, RBCCW Failure Response, Revision 10
C-2-C, RB CCW ISOL, Revision 3
E-7-d, CCW Flow Lo A, Revision 1
E-7-f, CCW Flow Lo BA, Revision 1
OP-AA-102-102, General Area Checks and Operator Field Rounds, Revision 12
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 10
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
CC-AA-309-1012, 10 CFR Part 21 Technical Evaluations, Revision 2
651.4.002, Standby Gas Treatment System 10-Hour Run, Revision 5
ER-AA20, Equipment Reliability Program Description, Revision 3
ER-AA-2001, Plant Health Committee, Revision 16
ER-AA-2100, Equipment Reliability Performance Review & Analysis, Revision 1
ER-AA-10, Equipment Reliability Process Description, Revision 7
ER-AA-30, Integrated Equipment Reliability Long Term Planning Process Description, Revision 2
LS-AA-120, Issue Identification and Screening Process, Revision 14
LS-AA-125-1001, Root Cause Investigation Report Content and Format, Revision 9

Drawings
BR 3029, Sht. 2, Emergency Condenser System Electrical Elementary Diagram, Revision 26
BR 3029, Sht. 2A, Emergency Condenser System Electrical Elementary Diagram, Revision 24
GE 148F262, Sht. 1, Emergency Condenser Flow Diagram, Revision 54
GE 148F712, Sht. 1, Reactor Vessel Level, Pressure, and Temperature Instruments, Revision 47

Calculations/Engineering Evaluation Reports
C-1302-211-E320-130, Isolation Condenser Time Delay Relays 6K9/10/11/12 Setpoint Uncertainty, Revision 0
ECR OC 12-00438, Isolation Condenser System Relay Replacement, Revision 4

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1165919	1181834	1207106	1243864	1288256	1334733
1347525	1375260	1375960	1398230	1431041	1445823
0849990	0932736	1145063	1178900	1350115	1441225
1444319*	1233058				

Maintenance Orders/Work Orders

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609.3.113, Isolation Condenser Automatic Actuation Bistable Calibration and Test, Rev. 20, Performed 1/6/10, 2/3/10, and 6/14/10
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AR 01281400-01, Recurring Quarterly Operations Burden Review, dated December 19, 2011
AR 01317603-01, Recurring Quarterly Operations Burden Review, dated April 2, 2012
AR 01357660-01, Recurring Quarterly Operations Burden Review, dated July 1, 2012
AR 01392631-01, Recurring Quarterly Operations Burden Review, dated October 2, 2012
Abnormal Component Position Notebook, dated November 28, 2012
Adverse Condition Monitoring and Contingency Plan Notebook, dated November 28, 2012
Control Room Degraded Components Database, dated November 28, 2012
Disabled Alarms Database, dated November 28, 2012
Main Control Room Deficiencies Database, dated November 28, 2012
Main Control Room Distractions Database, dated November 28, 2012
Operator Aids Notebook, dated November 28, 2012
Operator Challenge Database, dated November 28, 2012
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Operator Work-Around Database, dated November 28, 2012
Temporary Modifications Notebook, dated November 28, 2012
01350115-05, Equipment Apparent Cause Report, dated 5/30/12
1022972, EPRI Plant Engineering: Control Relay Aging Management Guideline, dated April 2011
OYS-34497, Failure Analysis of a Time Delay Relay, dated March 13, 2009
OYS-36241, Fault Analysis of an Isolation Condenser Relay, dated March 1, 2011

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

Procedures

OP-OC-108-109-1001, Preparation for Severe Weather T&RM for Oyster Creek, Revision 16
OP-AA-108-111-1001, Severe Weather and Natural Disaster Guidelines, Revision 9
WC-AA-107, Seasonal Readiness, Revision 11
OP-OC-108-109-1002, Cold Weather Freeze Inspection, Revision 4
ABN-31, High Winds, Revision 18
ABN-32, Abnormal Intake Level, Revision 19

Section 4OA5: Other Activities

Procedures

NF-AA-60, Fuel Selection For Dry Cask Storage Process Description, Revision 0
NF-AA-300, Special Nuclear Material Control and Accountability, Revision 15
NF-AA-309, Fuel Move Sheet Cask 23, Attachment 2

NF-AA-330, Special Nuclear Material Physical Inventories, Revision 11
NF-AA-620-1000, Classification of Fuel Assemblies for Dry Storage/Transport, Revision 2
NF-AB-624, BWR Fuel Selection and Documentation for NUHOMS Dry Cask Loading, Revision 0
NF-OC-300, Special Nuclear Material Control-Oyster Creek, Revision 14
OU-AA-630, Dry Cask Storage Program Implementation, Revision 0
OU-OC-641, Transporting and Loading of Transport Cask and Dry Shielded Canister, Revision 2
OU-OC-642, Dry Shielded Canister Welding, Vacuum Drying, and Helium Backfill, Revision 3
RP-OC-1001-04—1, Radiation Protection Calculation, Doses On-Site and to Members of the Public as a Result of the Independent Spent Fuel Storage Installation, Revision 2
LS-AA-125-1002, Common Cause Analysis Manual, Revision 7
TQ-AA-150, Operator Licensing Training, Revision 7

Drawings
3179, Miscellaneous Outdoor Facilities, Revision 9
3180-12, Miscellaneous Outdoor Facilities Sheet 1, dated November 23, 1966

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1352824	1347055	1363636	1380764	1092319	1180107
1192432	1193110	1220428	1288468	1324011	1357538
1357538	1377128	1422582	1415778	1406841	1410069
1404344	1405765	1382255	1382254	1382251	1382250
1382248	1401219	1407010	1406952	1406823	1405765
653489	1406089	1402045	1402027	1402009	1422582

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OEDO Procedure 220, Coordination with the Institute of Nuclear Power Operations, Revision 1
72.48 Screening No. OC02011-S-0117
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RP-AA-401 Attachment 2, ALARA Plan, 2012 Dry Cask Storage Campaign, Revision 13
RWP 01021, Rev. 0, “ISFSI Project, All Areas”
Technical Specification Log Sheet Number 681.4.004 Attachment 1, Dry Fuel Storage, Revision 24
N-OC-ILT-12ILTSY, License Maintenance Training
Oyster Creek Nuclear Generating Station UFSAR Section 2.4.2, Floods, Revision 16
Oyster Creek Nuclear Generating Station UFSAR Section 2.3.1, Regional Climatology, Revision 16
Oyster Creek Nuclear Generating Station UFSAR Section 3.4, Water Level (Flood) Design, Revision 14
NEI 12-07, Guidelines for Performing Verification Walkdowns of Plant Flood Protection Features, Revision 0-A
Exelon letter, “Exelon Generation Company, LLC’s 180-day Response to NRC Request for Information Pursuant to 10 CFR 50.54(f) Regarding the Flooding Aspects of Recommendation 2.3 of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident,” dated November 19, 2012

LIST OF ACRONYMS

AC	alternating current
ADAMS	Agencywide Documents Access and Management System
ALARA	as low as is reasonably achievable
ANS	Alert and Notification System
AP	ALARA plan
AR	assignment report
CAMs	continuous air monitors
CR	Condition Report
CFR	Code of Federal Regulations
CoC	Certificate of Compliance
DNMS	Division of Nuclear Materials Safety
EAL	Emergency Action Level
EDG	emergency diesel generator
EP	Emergency Preparedness
ERO	Emergency Response Organization
FEMA	Federal Emergency Management Agency
FSAR	Final Safety Analysis Report
HRA	high radiation area
HSM	Horizontal Storage Module
ISFSI	Independent Spent Fuel Storage Installation
LHRA	locked high radiation area
IEEE	Institute of Electrical and Electronics Engineers
IC	Isolation Condenser
IMC	Inspection Manual Chapter
INPO	Institute of Nuclear Power Operations
KV	kilovolt
LER	licensee event report
NCV	non-cited violation
NEI	Nuclear Energy Institute
NRC	Nuclear Regulatory Commission
ODCM	Offsite Dose Calculation Manual
OA	Other Activities
pCi/g	picocuries per gram
PARS	Publicly Available Records
PI	Performance Indicator
RCS	reactor coolant system
RG	Regulatory Guide
RO	refueling outage
RP	radiation protection
RPM	Radiation Protection Manager
RWP	radiation work permit
SDP	Significance Determination Process
SSC	structure, system, or component
TS	Technical Specifications
UFSAR	Updated Final Safety Analysis Report
URI	unresolved item
VHRA	very high radiation area