



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
475 ALLENDALE ROAD
KING OF PRUSSIA, PENNSYLVANIA 19406-1415

May 13, 2011

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

SUBJECT: OYSTER CREEK GENERATING STATION - NRC INTEGRATED INSPECTION
REPORT 05000219/2011002

Dear Mr. Pacilio:

On March 31, 2011, the US Nuclear Regulatory Commission (NRC) completed an inspection at your Oyster Creek Generating Station. The enclosed integrated inspection report documents the inspection findings, which were discussed on April 20, 2011, with Mr. M. Massaro, Site Vice President, and other members of your staff.

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

The report documents three NRC-identified findings of very low safety significance (Green) and one severity level IV non-cited violation. Two of the 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 (CAP), the NRC is treating these findings as non-cited violation(s) (NCV(s)) consistent with Section VI.A.1 of the NRC Enforcement Policy. If you contest any NCV, 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 characterization of 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. The information you provide will be considered in accordance with Inspection Manual Chapter 0305.

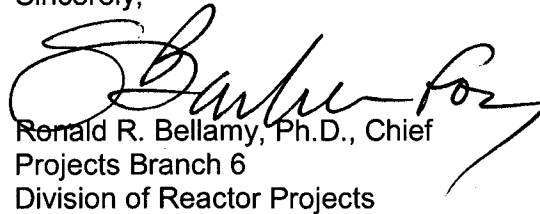
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M. Pacilio

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We appreciate your cooperation. Please contact me at (610) 337-5200 if you have any questions regarding this letter.

Sincerely,



Ronald R. Bellamy, Ph.D., Chief
Projects Branch 6
Division of Reactor Projects

Docket No. 50-219
License No. DPR-16

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w/Attachment: Supplemental Information

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M. Pacilio

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We appreciate your cooperation. Please contact me at (610) 337-5200 if you have any questions regarding this letter.

Sincerely,

/RA by Scott Barber Acting For/

Ronald R. Bellamy, Ph.D., Chief
Projects Branch 6
Division of Reactor Projects

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w/Attachment: Supplemental Information

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U. S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket No.: 50-219

License No.: DPR-16

Report No.: 05000219/2011002

Licensee: Exelon Nuclear

Facility: Oyster Creek Generating Station

Location: Forked River, New Jersey

Dates: January 1, 2011 – March 31, 2011

Inspectors: J. Kulp, Senior Resident Inspector
J. Ambrosini, Resident Inspector
E. Keighley, Resident Inspector
R. Nimitz, Senior Health Physicist
T. Hedigan, Operations Engineer
J. Tomlinson, Operations Engineer

Approved By: Ronald R. Bellamy, Ph.D., Chief
Projects Branch 6
Division of Reactor Projects

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SUMMARY OF FINDINGS

IR 05000219/2011002; 01/01/2011 - 03/31/2011; Exelon Energy Company, LLC, Oyster Creek Generating Station; Operability Evaluations, Surveillance Testing, Identification and Resolution of Problems, Event Followup.

The report covered a 3-month period of inspection by resident inspectors, a senior health physicist and operations engineers. Two Green non-cited violations (NCV), one green finding (FIN) and one severity level IV non-cited violation were identified. The significance of most findings is indicated by their color (Green, White, Yellow, or Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP). The cross-cutting aspects were determined using IMC 0310, "Components Within the Cross Component 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 finding of very low safety significance (Green) when Exelon did not make an accurate immediate operability determination in accordance with OP-AA-108-115 "Operability Determinations" following discovery of a through wall leak in the emergency service water (ESW) pump discharge piping. The finding does not involve enforcement action because no violation of regulatory requirements was identified. Exelon's corrective actions included performing a prompt operability determination which determined that the piping was inoperable, replacing the discharge tee for the 'C' ESW pump, and performing detailed ultrasonic tests on the remaining portions of the ESW piping at the intake structure. Exelon placed this issue in the corrective action program (CAP) as IR 1164020.

The finding is more than minor because it affects the procedure quality attribute of the mitigating systems cornerstone to ensure the availability, reliability and capability of systems that respond to initiating events to prevent undesirable consequences, specifically the ESW system piping. In accordance with table 4a of IMC 0609.04, "Phase 1 – Initial Screening and Characterization of Findings," the finding was determined to be of very low safety significance (Green) because it was not a design or qualification deficiency confirmed not to result in loss of operability or functionality; did not result in a loss of system safety function; did not represent an actual loss of safety function of a single train for greater than its technical specification allowed outage time; was not an actual loss of safety function of one or more non-technical specification trains of equipment designated as risk significant per 10CFR50.65 for greater than 24 hours and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. This finding has a cross-cutting aspect in the area of human performance, resources because Exelon did not ensure that procedures were available and adequate to ensure nuclear safety, specifically the accuracy of Attachment 3 to OP-AA-108-115 was not adequate to guide a STA/SRO to the proper operability

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determination when evaluating leakage from an ASME class 1, 2 or 3 component. [H.2(c)]. (Section 1R15)

Green NCV. The inspectors identified a Green NCV of technical specification 6.8.1.a for Exelon's failure to have written procedures for activities listed in Regulatory Guide 1.33 , which includes procedures for abnormal, off-normal, or alarm conditions and procedures for combating emergencies and other significant events. Specifically, Exelon did not have a procedure to cope with a loss of main control room annunciators. Exelon entered this issue into the CAP as IR 1205823.

This finding is not similar to any of the IMC 0612 Appendix E minor examples, but is more than minor because it affects the procedure quality attribute of the mitigating systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The inspectors used Inspection Manual Chapter 0609 Appendix M, "Significance Determination Process Using Qualitative Criteria," because other significance determination process guidance was not suited to provide reasonable estimates of the significance of this inspection finding. With the assistance of NRC management, the inspectors determined that the finding was of very low safety significance (Green) because there was no actual loss of safety system function during the time period the annunciator panels were inoperable. This finding has a cross-cutting aspect in the area of human performance, resources (H.2(c)), where complete, accurate, and up-to-date procedures are available and adequate to assure nuclear safety. [H.2(c)] (Section 4OA2)

Cornerstone: Initiating Events

Green NCV. The inspectors identified a Green NCV of 10CFR 50.55a, Codes and Standards, because Exelon did not properly establish baseline reference values for the service water pumps as required by the American Society of Mechanical Engineers (ASME) Operation and Maintenance (OM) Code for Inservice Testing (IST). Exelon procedure 641.1.001, "Service Water Pump Operability and In-Service Test" required the operators to take differential pressure baseline data at three flow rates, while the ASME requirement in subsection ISTB (IST of pumps in light-water reactor power plants) paragraph 4.1, "Preservice Testing" requires that this data be taken at a minimum of five points. Exelon's corrective actions included revising procedure 641.1.001 to be in accordance with the ASME code, rebaselining #1 and #2 service water pumps, and performing an extent of condition review to ensure that all pumps are baselined in accordance with the ASME Code. Exelon entered this issue into the CAP as IR 1175089.

This finding is more than minor because it is similar to IMC 0612 Appendix E minor example 2.c in that the same issue affected both service water pumps and both have experienced degrading performance into the action range. Additionally, the finding is more than minor because if left uncorrected it could have the potential to lead to a more significant safety concern. The inspectors used Inspection Manual Chapter 0609.04, Phase 1 Initial Screening and Characterization of Findings, to determine that the NCV screened as very low safety significance (Green). This finding is applicable to the Initiating Events cornerstone as a transient initiator, but screens as Green because the

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finding does not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions would not be available. This finding has a cross-cutting aspect in the area of human performance, resources, where complete, accurate, and up-to-date procedures are available and adequate to assure nuclear safety. [H.2.(c)] (Section 1R22)

Other Findings

SL IV. The inspectors identified a Severity Level (SL) IV, non-cited violation (NCV) of 10 CFR 26.31 (c) (3) and Exelon procedure SY-AA-102-202, "Testing For Cause," for failure to administer post-event drug and alcohol testing after a potential substantial degradation of the level of safety of the plant occurred on December, 23, 2010. Additionally, the inspectors identified that the licensee failed to administer a post event fatigue assessment per 10 CFR 26.211 (a)(3) and Exelon procedure LS-AA-119-1001, "Fatigue Management." Specifically, the inspectors identified that on December, 23, 2010, the licensee failed to conduct post-event drug and alcohol testing, and fatigue assessments of the operators whose human error caused a reactor scram during a reactor startup. Upon identification, the licensee entered this issue into the CAP.

The inspectors determined that the finding involved traditional enforcement because Exelon did not perform 10 CFR 26.31 post event fitness for duty (FFD) testing and 10 CFR 26.211 post event fatigue assessments. If a licensed operator had tested positive, Exelon would have had to report this to the NRC per 10 CFR 26.719 (2)(ii). Exelon's failure to perform the required testing had the potential to impact the NRC's ability to take action against individual licensed operators, which impacted the regulatory process. In accordance with Section 6.14, "Fitness for Duty," of the NRC Enforcement Policy, the NRC determined that the safety significance of this violation met the SL IV criteria because the situation, per example 3 of a SL IV violation, was a matter with more than a minor safety or environmental significance. (Section 4OA2)

REPORT DETAILS

Summary of Plant Status

The Oyster Creek Generating Station (Oyster Creek) began the inspection period operating at 100% power.

On January 8th, operators performed a planned downpower to 70% for a rod pattern adjustment and to perform air leakage testing on the condensers. The plant returned to full power on January 9th.

On January 20th, operators responded to a trip of the 'E' reactor recirculation pump (RCP) which resulted in an unplanned downpower to 70%. This event is discussed in detail in section 4OA3. The plant returned to full power on January 22nd.

On February 10th, 11th, and 15th, operators performed brief, unplanned downpowers to 90% to remove the second stage reheaters and high pressure feedwater heaters from service during troubleshooting activities for a leak on the #1 main flash tank. The plant returned to full power within a few hours following each downpower.

On February 19th, operators performed a planned downpower to 60% to perform repairs on the #1 main flash tank, which had developed a manway leak. The plant returned to full power on February 20th.

Oyster Creek operated at 100% 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)

a. Inspection Scope (1 sample)

The inspectors performed one site specific weather-related condition inspection.

The inspectors reviewed Exelon's response to a winter storm warning on January 11. The inspectors verified that operators properly monitored important plant equipment that could have been affected by the cold weather conditions. The inspectors ensured that temperatures for equipment and areas in the plant were maintained within procedural limits, and when necessary, compensatory actions were properly implemented in accordance with procedures. The inspectors performed walkdowns of areas that could be potentially impacted by the winter storm conditions, such as the intake structure and emergency diesel generators (EDG).

Documents reviewed for this inspection activity are listed in the Supplemental Information attachment to this report.

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b. Findings

No findings were identified.

1R04 Equipment Alignment (71111.04)a. Inspection Scope (3 samples)

The inspectors performed three partial equipment alignment inspections. The partial equipment alignment inspections were completed during conditions when the equipment was of increased safety significance such as would occur when redundant equipment was unavailable during maintenance or adverse conditions, or after equipment was recently returned to service after maintenance. The inspectors performed a partial walkdown of the following systems, and when applicable, the associated electrical distribution components and control room panels, to verify the equipment was aligned to perform its intended safety functions:

- 'B' standby liquid control (SLC) pump while the 'A' SLC pump was unavailable for planned maintenance on January 11th;
- Containment spray system '1' while containment spray system '2' was unavailable for planned surveillance testing on March 15th; and
- EDG '1' while EDG '2' was unavailable for planned inspections on March 28th.

Documents reviewed for this inspection activity are listed in the Supplemental Information attachment to this report.

b. Findings

No findings were identified.

1R05 Fire Protection (71111.05Q)a. Inspection Scope (5 samples)

The inspectors performed a walkdown of five plant areas to assess their vulnerability to fire. During plant walkdowns, the inspectors observed combustible material control, fire detection and suppression equipment availability, visible fire barrier configuration, and the adequacy of compensatory measures (when applicable). The inspectors reviewed "Oyster Creek Fire Hazards Analysis Report" and "Oyster Creek Pre-Fire Plans" for risk insights and design features credited in these areas. Additionally, the inspectors reviewed CAP condition reports (CR) documenting fire protection deficiencies to verify that identified problems were being evaluated and corrected. Documents reviewed for this inspection activity are listed in the Supplemental Information attachment to this report. The following plant areas were inspected:

- Reactor building 95' elevation (RB-FZ-1B) on January 11th;
- Reactor building 23' elevation (RB-FZ-1E) on January 6th;
- Reactor building 75' elevation (RB-FZ-1C) on February 23rd;

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- New rad waste building (NR-FZ-1C) on March 24th; and
- Motor generator set room (OB-FZ-8A) on March 25th.

b. Findings

No findings were identified.

1R07 Heat Sink Performance (71111.07)

a. Inspection Scope (2 samples)

The inspectors verified acceptable heat exchanger performance by reviewing the results of two heat exchanger maintenance activities. The inspectors reviewed the results of the of the 1-1 turbine building closed loop cooling water heat exchanger cleaning and inspection on March 9 and the 1-2 reactor building closed cooling water heat exchanger cleaning and inspection on March 17 to verify that the heat exchangers met cleanliness and performance/material condition requirements. Documents reviewed are listed in the Supplemental Information attachment to this report.

b. Findings

No findings were identified.

1R11 Licensed Operator Requalification Program (71111.11)

.1 Review of Written Examination and Operating Test Results

a. Inspection Scope (1 sample)

On March 11th, the inspectors conducted an in-office review of results of licensee-administered annual operating tests and comprehensive written exams for 2010. 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 inspector verified that:

- Crew pass rates were greater than 80 percent. (Pass rate was 100 percent);
- Individual pass rates on the written exam were greater than 80 percent. (Pass rate was 97.7 percent);
- Individual pass rates on the job performance measures of the operating exam were greater than 80 percent. (Pass rate was 100 percent);
- Individual pass rates on the dynamic simulator test were greater than 80 percent. (Pass rate was 100 percent); and
- Overall pass rate among individuals for all portions of the exam was greater than or equal to 80 percent. (Overall pass rate was 97.7 percent).

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b. Findings

No findings were identified.

.2 Resident Inspector Quarterly Review of Licensed Operator Training Activities

a. Inspection Scope (1 sample)

The inspectors observed one simulator training scenario to assess operator performance and training effectiveness on February 3rd. The inspectors observed training scenarios "2612.CREW.11-1.01". The inspectors assessed whether the simulator adequately reflected the expected plant response, operator performance met Exelon's procedural requirements, and the simulator instructor's critique identified crew performance problems. Documents reviewed for this inspection activity are listed in the Supplemental Information attachment to this report.

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12)

a. Inspection Scope (3 samples)

The inspectors performed three maintenance effectiveness inspection activities. The inspectors reviewed the following degraded equipment issues in order to assess the effectiveness of maintenance by Exelon:

- ESW maintenance, inspection and piping integrity (IR 1164020) on January 25th;
- Maintenance rule implementation for system 661 (area radiation monitoring) on February 15th; and
- Failure of final feedwater temperature element (TE-47) (IR 01190467) on March 22nd.

The inspectors also verified that the systems or components were being monitored in accordance with Exelon's maintenance rule program requirements. The inspectors compared documented functional failure determinations and unavailable hours to those being tracked by Exelon. The inspectors reviewed completed maintenance work orders and procedures to determine if inadequate maintenance contributed to equipment performance issues. The inspectors also reviewed applicable work orders, CAP CR, operator narrative logs, and vendor manuals. Documents reviewed for this inspection activity are listed in the Supplemental Information attachment to this report.

b. Findings

No findings were identified.

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1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13)a. Inspection Scope (5 samples)

The inspectors reviewed five on-line risk management evaluations through direct observation and document reviews for the following plant configurations:

- 'B' control rod drive (CRD) pump and 'B' isolation condenser (IC) unavailable due to planned maintenance on January 4th;
- Risk assessment for unplanned half scrams on January 23rd and January 31st;
- Core spray (CS) system 2 and 'C' battery charger unavailable due to planned maintenance and '1-1' air compressor unavailable due to unplanned maintenance on February 17th;
- 6K10 relay failure and replacement during surveillance testing on core spray system #1 on February 24th; and
- EDG '1' unavailable for planned surveillance testing and 1-1 service water pump unavailable for planned preventive maintenance on March 7th.

The inspectors reviewed the applicable risk evaluations, work schedules, and control room logs for these configurations to verify the risk was assessed correctly and reassessed for emergent conditions in accordance with Exelon's procedures. Exelon's actions to manage risk from maintenance and testing were reviewed during shift turnover meetings, control room tours, and plant walkdowns. The inspectors also used Exelon's on-line risk monitor (Paragon) to gain insights into the risk associated with these plant configurations. Additionally, the inspectors reviewed CAP CR documenting problems associated with risk assessments and emergent work evaluations. Documents reviewed for this inspection activity are listed in the Supplemental Information attachment to this report.

b. Findings

No findings were identified.

1R15 Operability Evaluations (71111.15)a. Inspection Scope (5 samples)

The inspectors reviewed five operability evaluations for degraded or non-conforming conditions associated with:

- Fluke 2189A out of tolerance – effects on safety system maintenance on January 10th (IR 1157124);
- ESW system 2 pipe leak (immediate operability determination) on January 19th (IR 1164020);
- ESW system 2 pipe leak (prompt operability determination) on January 21st (IR 1164020);

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- ESW System 2 flange leak on January 25th (IR 1166848); and
- 'C' battery room ventilation on March 17th (IR 1188320).

The inspectors reviewed the technical adequacy of the operability evaluations to ensure the conclusions were technically justified. The inspectors also walked down accessible portions of equipment to corroborate the adequacy of Exelon's operability evaluations. Documents reviewed for this inspection activity are listed in the Supplemental Information attachment to this report.

b. Findings

Introduction. The inspectors identified a finding of very low safety significance (Green) for Exelon's failure to make an accurate immediate operability determination which provided reasonable assurance of operability in accordance with the guidance provided in OP-AA-108-115, "Operability Determinations" following discovery of a through wall leak in the ESW system #2 pump discharge piping.

Description. At approximately 0115 on January 19th, during performance of surveillance 607.4.017, "Containment Spray and Emergency Service Water System 2 Operability and Quarterly Inservice Test", operators identified a through wall leak of between 25 and 50 GPM in the 'C' ESW pump 10 inch discharge tee connection to the 14 inch common discharge header for ESW system #2. The ESW piping system is an ASME class 3 piping system. The operators completed the surveillance test and submitted a CAP issue report (IR 1164020) documenting the leak in the 'C' ESW pump discharge tee. No external degradation of the tee due to corrosion or wear was noted by the operators or maintenance personnel. Photographs of the tee also show no obvious external degradation.

At 0500 on January 19th, the shift manager documented an immediate operability determination of operable but degraded, based upon the successful completion of the surveillance test and reasonable assurance that ESW system 2 could perform its design function. The shift manager requested that engineering perform an operability evaluation to support a prompt operability determination, which would confirm the immediate operability determination.

On the morning of January 20th, the inspectors reviewed the immediate operability determination performed by Exelon. The inspectors contacted the shift manager to challenge the immediate operability determination of operable but degraded based upon guidance contained in inspection manual part 9900, "Operability Determinations & Functional Assessments for Resolution of Degraded or Nonconforming Conditions Adverse to Quality or Safety", paragraph C.12, "Operational Leakage From ASME Code Class 1, 2, and 3 Components" which states, in part:

"In performing the immediate determination, the degradation mechanism would have to be readily apparent to support a determination of operable. To be readily apparent, the degradation mechanism must be discernable from visual inspection (such as corrosion or wear) or substantial operating experience must exist with the degradation mechanism on the system at the facility. In addition, detailed

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non-destructive examination data may be necessary to support an immediate expectation of operability determination. If detailed non-destructive examination is necessary and the examination cannot be completed within the time frame normally expected for an immediate operability determination, the component should be declared inoperable and the appropriate TS required actions taken."

At 1330 on January 20th, a log entry was made validating the initial immediate operability determination of operable but degraded based upon successful completion of the surveillance test on January 19th.

At 1630 on January 20th, Exelon commenced non-destructive evaluation (NDE) of the discharge tee by performing ultrasonic testing (UT). The UT results of the tee identified a degraded area, measuring 2.5 inches by 7.5 inches, that was below the required minimum wall readings, with the degradation of the piping being internal to the tee. Visual inspection identified the presence of two through wall holes within the degraded area. At 0026 on January 21st, Exelon declared ESW system #2 inoperable after analysis of the UT results could not show structural integrity of the tee and would not support a determination of operable. Initially, Exelon entered the 7 day shutdown limiting condition of operability (LCO) mandated by technical specification (TS) 3.4.C.3 starting at the time of discovery of the leak (0145, January 19). Subsequently, Exelon changed the time of entrance in to the LCO to 1630 January 20th as that is when the NDE results proving that the discharge tee was not structurally sound were obtained. The licensee procured a new tee and installed it on January 25th.

The inspectors noted that Exelon procedure OP-AA-108-115, "Operability Determinations", paragraph 4.5.10.2, "Operational Leakage from Code Class 1, 2, and 3 Components" contains the same guidance for immediate operability determinations as is contained in inspection manual part 9900, paragraph C.12 as described above. Exelon's procedure contains an attached checklist in attachment 3, "ASME Code Class 2 or 3 Component Through-Wall Leak Operability Determination Checklist" to aid the on-shift technical advisor (STA) or senior reactor operator (SRO) in determining the operability of ASME class 2 or 3 components that are exhibiting operational leakage. The inspectors identified that the checklist does not accurately implement the guidance contained in paragraph 4.5.10.2 of the same procedure. Specifically, Attachment 3, question 8 asks:

"Does it appear that the flaw (i.e. pinhole) should not propagate based on general overall visual observation and operating experience (e.g. the leak is characteristic of other small, through wall leaks that have been previously evaluated at the station in the same or similar system (e.g. fire system, ESW, service water) with similar flaws?"

The guidance contained in attachment 3 is fundamentally different and asks the SRO/STA to evaluate the potential of a flaw to propagate based upon how the component looks on the outside, ignoring potential internal degradation of the component.

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The inadequacy of the guidance in attachment 3 can allow the STA/SRO to make an erroneous operability determination of "operable but degraded" on a component that has internal damage that actually renders it "inoperable". In the case of the through wall leak of the 'C' ESW pump discharge tee, the completed checklist evaluated the system as "operable but degraded" when the tee had internal degradation that rendered it inoperable.

Analysis. Exelon's failure to make an accurate immediate operability determination based upon the information provided to the operators concerning the through wall leak in ESW system #2 and the guidance provided in OP-AA-108-115, "Operability Determinations" was a performance deficiency.

There were no similar examples in IMC 0612, Appendix E, "Examples of Minor Issues". This finding was more than minor because it affects the procedure quality attribute of the mitigating systems cornerstone to ensure the availability, reliability and capability of systems that respond to initiating events to prevent undesirable consequences, specifically the ESW system piping.

In accordance with table 4a of IMC 0609.04, "Phase 1 – Initial Screening and Characterization of Findings," the finding was determined to be of very low safety significance (Green) because it was not a design or qualification deficiency confirmed not to result in loss of operability or functionality; did not result in a loss of system safety function; did not represent an actual loss of safety function of a single train for greater than its technical specification allowed outage time; was not an actual loss of safety function of one or more non-technical specification trains of equipment designated as risk significant per 10CFR50.65 for greater than 24 hours and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event.

This finding has a cross-cutting aspect in the area of human performance, resources because Exelon did not ensure that procedures were available and adequate to ensure nuclear safety, specifically the accuracy of Attachment 3 to OP-AA-108-115 was not adequate to guide a STA/SRO to the proper operability determination when evaluating leakage from an ASME class 1, 2 or 3 component. (H.2(c)).

Enforcement. This finding does not involve enforcement action because no violation of regulatory requirements was identified. Because this finding does not involve a violation and has very low safety significance, it is identified as FIN 05000219/201102-01, "Failure to Make an Accurate Immediate Operability Determination." (**FIN 05000219/201102-01, Failure to Make an Accurate Immediate Operability Determination**).

1R18 Plant Modifications (71111.18)a. Inspection Scope (1 temporary and 1 permanent modification samples)

The inspectors reviewed one temporary and one permanent plant modification that were implemented by Exelon personnel at Oyster Creek. The inspectors reviewed the following modifications:

- Install new tee on ESW system 2 discharge piping from C ESW pump (temporary modification ECR OC 11-00035-000); and
- Install evaporator in control rod drive rebuild room for operations (permanent modification ECR OC 10-00692-001).

The inspectors reviewed the engineering/procedure change packages, design basis, and licensing basis documents associated with each of the modifications to ensure that the systems associated with each of the modifications would not be adversely impacted by the change. The inspectors walked down portions of the systems associated with the modification when applicable and prudent. The inspectors reviewed the modifications to ensure they were performed in accordance with Exelon's modification process. The inspectors also ensured that licensing/design basis documents and operating procedures were properly revised to support implementation of the modification. The inspectors also reviewed Exelon's 10 CFR 50.59 screening for each of the modifications. Documents reviewed for this inspection activity are listed in the Supplemental Information attachment to this report.

b. Findings

No findings were identified.

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

The inspectors observed portions of and/or reviewed the results of eight post-maintenance tests for the following equipment:

- Standby liquid control operability test following an oil change and sample on the 'A' pump on January 11th (R2116016);
- Repair of leak on the 'C' ESW pump discharge (ESW) tee on January 26th (C2025008);
- ESW/containment spray system 2 relay replacement on January 19th (R2170837);
- Core spray system 2 following Generic Letter 96-05 periodic verification of valve V-20-41 on February 15th (R2053395);
- IC automatic actuation bistable test following replacement of failed 6K10 relay (C2025274) on February 24th;
- '1-1' reactor building component cooling water heat exchanger following cleaning and inspection on March 16th (R2161229);

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- Service water inlet pressure gauge connection V-3-327 to the '1-1' reactor building component cooling water heat exchanger after leak repair on March 25th (C2025490); and
- #2 Diesel Generator load test following a pillow block inspection on March 29th (R2179216).

The inspectors verified that the post-maintenance tests conducted were adequate for the scope of the maintenance performed and that they ensured component functional capability. Documents reviewed for this inspection activity are listed in the Supplemental Information attachment to this report.

b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope (1 IST sample and 6 routine surveillance samples)

The inspectors observed portions of and/or reviewed the results of seven surveillance tests:

- 'B' IC isolation test and calibration on January 14th;
- 'B' IC valve operability and IST on January 13th;
- Service water pump 1-2 IST accelerated testing on February 2nd;
- Containment spray/ESW system 2 operability and IST accelerated testing on February 18th;
- #1 EDG load test surveillance on March 7th;
- Reactor coolant system leakage detection surveillance on March 11th; and
- Containment spray 2 operability and quarterly IST on March 15th.

The inspectors verified that test data was complete and met procedural requirements to demonstrate the systems and components were capable of performing their intended function. The inspectors also reviewed CAP CR that documented deficiencies identified during these surveillance tests. Documents reviewed for this inspection activity are listed in the Supplemental Information attachment to this report.

b. Findings

Introduction. The inspectors identified a Green NCV of 10CFR 50.55a, Codes and Standards, because Exelon did not properly establish baseline reference values for the service water pumps as required by the American Society of Mechanical Engineers (ASME) Operation and Maintenance (OM) Code for IST.

Description. On February 1, Exelon performed surveillance testing on the 1-2 service water pump and determined the pump was below the ASME IST low action level for pump differential pressure. Both the 1-1 and 1-2 service water pumps had been on an

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accelerated testing schedule due to a lowering trend on pump differential pressure. The 1-1 pump had been previously replaced in 2008 and the 1-2 pump was replaced in 2009 and both pumps had been in the "required action" range as specified by the ASME code at least once since installation.

The inspectors reviewed the test data and compared it to the baseline reference values established when the 1-2 service water pump was installed in September 2009. The inspectors identified that procedure 641.4.001, Service Water Pump Operability and In-Service Test, required the operators to take differential pressure baseline data at three separate flow rates. This was in contrast to requirements stated in section ISTB 4.1, "Preservice Testing" of the ASME OM Code, 1995 edition with the 1996 addenda, which states, "flow rate and differential pressure shall be measured at a minimum of five points."

Exelon entered this issue into their CAP as IR 1175089 to revise procedure 641.4.001 to include requirements to establish a five point pump curve for baseline data in accordance with ASME requirements. Additionally, Exelon performed an extent of condition review to identify if other IST pump procedures use fewer than five reference points for preservice testing.

Analysis. The inspectors determined that Oyster Creek's failure to establish preservice reference values for the service water pumps in accordance with ASME Code requirements was a performance deficiency. This finding more than minor because it is similar to IMC 0612 Appendix E minor example 2.c in that the same issue affected both service water pumps and both have experienced degrading performance into the action range. Additionally, the finding is more than minor because if left uncorrected it could have the potential to lead to a more significant safety concern. The ASME code specifies preservice testing requirements in place to provide baseline data to compare trended system parameters and alert operators to degrading performance prior to component inoperability. If the reference values are set up incorrectly, system monitoring could be ineffective in predicting degrading pump performance.

The inspectors used inspection manual chapter 0609.04, Phase 1 Initial Screening and Characterization of Findings, to determine that the NCV screened as very low safety significance (Green). This finding is applicable to the Initiating Events cornerstone as a transient initiator, but screens as Green because the finding does not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions would not be available.

This finding has a cross-cutting aspect in the area of human performance, resources, where complete, accurate, and up-to-date procedures are available and adequate to assure nuclear safety. Specifically, Exelon did not have the proper ASME requirements included in procedure 641.4.001, Service Water Pump Operability and In-Service Test. [H.2(c)]

Enforcement. 10CFR 50.55a states, in part, that IST programs verify the operational readiness of pumps and valves in compliance with the requirements of the ASME code. Contrary to the above, Exelon failed to establish sufficient procedural guidance to

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capture baseline pump flow and differential pressure data for the service water pumps. Because this violation was of very low safety significance and it was entered into Exelon's CAP as IR 1175089, this violation is being treated as an NCV, consistent with the Enforcement Policy. **(NCV 05000219/2011002-02, Failure to Establish Proper Baseline Data for Service Water Pumps in Accordance with ASME Code).**

Cornerstone: Emergency Preparedness [EP]

1EP6 Drill Evaluation (71114.06)

a. Inspection Scope (1 samples)

The inspectors observed one operator requalification activity on February 3rd, which counted as an input into the NRC's emergency response drill and exercise performance indicator (PI). The inspectors observed Exelon's critique of the training activity to verify that weaknesses and deficiencies were adequately identified. The inspectors specifically focused on ensuring Exelon identified operator performance issues associated with event classification, notification, and protective action recommendations.

Documents reviewed for this inspection activity are listed in the Supplemental Information attachment to this report.

b. Findings

No findings were identified.

2. RADIATION SAFETY

Cornerstone: Occupational Radiation Safety [OS]

RS01 Radiological Hazard Assessment and Exposure Control (71124.01)

a. Inspection Scope

The inspectors reviewed activities and associated documentation in the areas listed below. Exelon's performance was evaluated against 10 CFR 20, the Updated Final Safety Analysis Report, Technical Specifications, and station procedures.

Inspection Planning

The inspectors reviewed Performance Indicators (PIs) in the Occupational Exposure Cornerstone. The inspectors also reviewed the results of recent radiation protection program audits and assessments and any reports related to occupational radiation safety since the last inspection. (See Section 4OA2)

Radiological Hazard Assessment

The inspectors discussed plant operations to identify significant, new radiological hazards for onsite workers or members of the public. The inspectors assessed the potential impact of the changes and monitoring to detect and quantify the radiological hazard.

The inspectors toured RCAs and reviewed radiological surveys of the plant and outdoor areas to verify the thoroughness and frequency of the surveys. The inspectors conducted walk-downs of the new radwaste building, old radwaste building, radiac instrument calibration facility, turbine building counting room, and outdoor storage areas to evaluate material conditions and radiological conditions. The inspectors made independent radiation measurements to verify conditions.

The inspectors discussed and reviewed work activities associated with waste drum evaporation to verify radiological assessment and control.

Contamination and Radioactive Material Control

The inspectors observed and inspected Exelon's methods used to control, survey, and release potentially contaminated material for unrestricted use from the RCA. The inspectors verified that the work was in accordance with plant procedures and the procedures were sufficient to control the spread of contamination and prevent unintended release of radioactive materials from the site.

The inspectors selected sealed sources with the greatest radiological risk and verified that the sources were accounted for and intact. The inspectors discussed any transactions involving nationally tracked sources to evaluate reporting in accordance with 10 CFR 20.2207. (Note: As part of this inspection, the inspectors conducted reviews of the licensee's inventory and control of nationally tracked sources. (See Section 4OA5)

Radiological Hazards Control and Work Coverage

The inspectors conducted inspections to verify the adequacy of posting and physical controls for High Radiation Areas (HRAs).

Problem Identification and Resolution

The inspectors reviewed the licensee's threshold for identification of problems with radiation monitoring and exposure control, and inspected how they were addressed in Exelon's CAP. The inspectors discussed corrective actions for identified concerns. (See Section 4OA2)

b. Findings

No findings were identified.

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RS02 Occupational As Low As Reasonably Achievable (ALARA) Planning and Controls
(71124.02)

a. Inspection Scope

The inspectors reviewed Exelon's performance, in the below identified areas, with respect to maintaining individual and collective radiation exposure as low as reasonably achievable.

Inspection Planning

To assess current performance, the inspectors reviewed plant collective exposure history, current exposure trends, and ongoing or planned activities. The inspectors determined the plant's three year rolling average collective exposure.

The inspectors reviewed site-specific procedures for maintaining occupational exposures ALARA, including the processes used to estimate and track exposures from work activities.

Radiological Work Planning

The inspectors compared accrued results (person-rem) with the dose in Exelon's ALARA planning for work activities that exceeded 5 person-rem aggregate dose. The inspectors determined the reasons for inconsistencies between intended and actual work activity doses. The inspectors discussed aggregate exposure sustained during the 1R23 Refueling Outage in 2010 as compared to pre-outage goals.

The inspectors reviewed the post job review packages for the five jobs with the highest collective dose during the 1R23 outage. The inspectors reviewed the CAP to determine if Exelon entered lessons learned and recommendations for dose/contamination reduction.

Verification of Dose Estimates and Exposure Tracking Systems

The inspectors reviewed five ALARA work packages and reviewed the assumptions and bases for the collective exposure estimate. The inspectors verified that Exelon established measures to track, trend, and, if necessary, to reduce occupational doses for ongoing work activities, including criteria to prompt additional reviews and/or controls.

The inspectors evaluated Exelon's method of adjusting exposure estimates, or re-planning work, when unexpected changes in scope or emergent work are encountered.

Source Term Reduction and Control

The inspectors determined the historical trends and current status of plant source terms known to contribute to elevated facility aggregate occupational exposure. The inspectors discussed source term mitigation with Exelon staff and reviewed the Oyster

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Creek Five-Year ALARA plan and the Oyster Creek Chemistry Outage Plan: 1R23. The inspectors discussed contingency plans for potential changes in the source term as the result of changes in plant fuel performance issues or changes in plant primary chemistry.

The inspectors discussed Exelon's actions for cobalt reduction in the primary water and steam systems, improved pre-filters and deep bed resins for reactor water cleanup, hydrogen water chemistry program, zinc injection program, shutdown chemistry, cavity and fuel pool chemistry during the outage, and start-up chemistry. The inspectors discussed a project being conducted on the use of noble metals to evaluate reduction of the radioactive source term. The inspectors reviewed outage dose rates and collective doses for repetitive high dose jobs to evaluate trends.

Problem Identification and Resolution

The inspectors determined if problems associated with ALARA planning and controls were being identified by Exelon at an appropriate threshold and were properly addressed for resolution in Exelon CAP. The inspectors discussed corrective actions for identified ALARA concerns. (See Section 4OA2)

b. Findings

No findings were identified.

RS04 Occupational Dose Assessment (71124.04)

a. Inspection Scope

The inspectors assessed the accuracy and effectiveness Exelon's occupational dose assessment program, including internal dose, in the areas listed below.

Inspection Planning

The inspectors reviewed the results of radiation protection program audits related to internal and external dosimetry to determine overall performance in the area of dose assessment.

The inspectors reviewed Exelon's current national voluntary laboratory accreditation program (NVLAP) accreditation report for the personnel dosimetry. The inspectors verified that Exelon's external dosimeter vendor was certified by NVLAP in the appropriate irradiation test categories for each type of personnel dosimeter.

The inspectors reviewed Exelon dosimetry operations procedures, including issuance/use of external dosimetry and assessment of internal dose. The inspectors evaluated procedure guidance for personnel monitoring. The inspectors determined if Exelon has procedural requirements for determining when external and internal dosimetry is required.

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External Dosimetry

The inspectors evaluated the use of Exelon's personnel dosimeters that require processing, to determine if they were NVLAP accredited. The inspectors determined if Exelon uses a "correction factor" to address the response of the electronic dosimeter (ED) as compared to its thermoluminescent dosimeter (TLD), when the ED must be used to assign dose.

The inspectors also reviewed how TLDs and finger rings were stored prior to issuance, during use, after use, and how these dosimeters were shipped to the vendor. The inspectors verified that workers were instructed not to expose dosimeters to radiation outside of Oyster Creek or store dosimeters in adverse environments.

Internal Dosimetry

The inspectors reviewed routine bioassay (in vivo) procedures used to assess dose from internally deposited nuclides using whole body counting equipment. The inspectors reviewed procedures to determine the methods used, if an individual is internally or externally contaminated, the release of contaminated individuals, the determination of entry route (ingestion, inhalation), and assignment of dose.

The inspectors evaluated Exelon's instrumentation for passive monitoring and personnel contamination monitoring to detect potential intakes of radionuclides and to initiate internal dosimetry. The inspectors evaluated the minimum detectable activity (MDA) of the instrumentation that Exelon uses for passive whole body counting, to determine if the MDA was sufficient to determine the potential for internally deposited radionuclides to prompt additional investigation.

The inspectors reviewed three whole body counts to evaluate counting times and use of appropriate libraries. The inspectors discussed anomalous peaks and conduct of dose evaluations relative to procedure requirements.

Special Dosimetric Situations

The inspectors reviewed Exelon's methodology for monitoring external dose when non-uniform fields are expected or large dose gradients could exist to determine if workers were appropriately issued multiple badges as a result this during the calendar year 2010.

Problem Identification and Resolution

The inspectors reviewed corrective action documents to verify that problems associated with occupational dose assessment were being identified by Exelon at an appropriate threshold and were addressed for resolution in Exelon CAP. (See Section 4OA2)

b. Findings

No findings were identified.

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RS05 Radiation Monitoring Instrumentation (71124.05)a. Inspection Scope

The inspectors evaluated Exelon's radiation monitoring instrumentation to assess the accuracy and operability of radiation monitoring instruments, in the below listed areas.

Inspection Planning

The inspectors reviewed the plant updated final safety analysis report (UFSAR) to identify radiation instruments associated with monitoring area radiological conditions including airborne radioactivity, process streams, effluents, materials/articles, and workers.

The inspectors obtained and reviewed copies of Exelon and third-party (independent) evaluation reports of the radiation monitoring program since the last inspection, including audits of Exelon's offsite calibration facility and reviewed the reports for insights into Exelon's program.

The inspectors reviewed procedures that govern instrument source checks and calibrations. The inspectors reviewed the calibration and source check procedures for adequacy. The inspectors reviewed calibration records and source checks for contamination monitoring instruments. The inspectors checked several portable radiation and air sampling instruments to determine if they were calibrated within the prescribed frequency.

The inspectors walked down Exelon's radiac instrument calibration facility to locate the radioactive check and calibration sources and to evaluate material conditions therein.

Walkdowns and Observations

The inspectors walked down the stack effluent monitoring system, turbine building effluent monitoring system, off-gas building effluent monitoring system, and service water effluent monitoring system to verify that effluent/process monitor configurations align with offsite dose calculation manual (ODCM) descriptions. The inspectors looked for monitor degradation and/or out-of-service tags.

The inspectors reviewed the effluent monitor set-points as provided in the ODCM and station procedures.

The inspectors selected more than five portable survey instruments in use or available for issuance and checked calibration and source check stickers for expiration dates, and to assess instrument material condition and operability.

The inspectors selected PCMs, PMs, and SAMs and verified that the periodic source checks were performed in accordance with Exelon's procedures. The inspectors reviewed alarm set-point data for various personnel and equipment monitors at three

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RCA exits to verify that the alarm set-point values were reasonable to ensure that licensed material was not released from the radiological controlled area.

Calibration and Testing Program

Process and Effluent Monitors

The inspectors reviewed the calibration and testing of the stack effluent monitoring system, turbine building effluent monitoring system, off-gas building effluent monitoring system, and service water effluent monitoring system to verify calibration and testing were consistent with the ODCM and that effluent/process monitor configurations align with ODCM descriptions.

The inspectors reviewed effluent monitor alarm set-points as provided in the ODCM, station procedures and calculations.

Laboratory Instrumentation

The inspectors performed a walkdown of the Health Physics Counting Lab and inspected various laboratory instruments (i.e., gamma spectrometer, gross alpha and gross beta analytical instruments). The inspectors verified that the daily performance and background checks were performed and that the frequency of calibration and calibration results were adequate.

The inspectors reviewed trends of quality control checks to identify indications of degraded instrument performance and implementation of corrective actions.

Whole Body Counter

The inspectors reviewed the method and sources used to perform whole body counter calibration and functional checks before and after daily use, including check sources and calibration phantoms. The inspectors evaluated calibration and check sources relative to the station's isotopic mix.

The inspectors reviewed the latest calibration report to verify that the calibration sources, phantom, and geometries used were appropriate for the plant source term. The inspectors reviewed results to identify anomalous results or other indications of instrument performance issues.

Post Accident Monitoring Instruments

The inspectors reviewed the station's high-range drywell radiation monitoring systems, including calibration and functional testing. The inspectors verified that electronic and source range calibrations were conducted on appropriate ranges and that appropriate calibration acceptance criteria was used.

Portable Survey Instruments, Electronic Dosimetry and Air Sampler/CAMs

The inspectors reviewed calibration documents to evaluate adequacy for various instrumentation, such as portable survey instrumentation, portable air monitoring instrumentation, scaler instruments, and electronic dosimeters.

Instrument Calibrator

The inspectors reviewed the most recent calibration of the Exelon's instrument calibrators, including results of measurements at various source strengths and shielding thickness. The inspectors also reviewed source certificates and their traceability to National Institute of Standards Technology.

Calibration and Check Sources

The inspectors reviewed the Exelon's latest 10 CFR Part 61 source term, to determine if the calibration sources used were representative of the types and energies of radiation encountered in the plant.

Problem Identification and Resolution

The inspectors reviewed corrective action documents associated with radiation monitoring instrumentation, to determine if the Exelon identified issues at an appropriate threshold and placed the issues in the CAP for resolution. In addition, the inspectors evaluated the appropriateness of the corrective actions for a selected sample of problems documented by the Exelon that involve radiation monitoring instrumentation. (See Section 4OA2)

Findings

No findings were identified.

4. OTHER ACTIVITIES [OA]

4OA2 Identification and Resolution of Problems (71152)

.1 Review of Items Entered Into the CAP

The inspectors performed a daily screening of items entered into Exelon's CAP to identify repetitive equipment failures or specific human performance issues for follow-up. This was accomplished by reviewing hard copies of each condition report, attending daily screening meetings, or accessing Exelon's computerized database.

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.2 Annual Sample: Low Vacuum Scram Root Cause Review (71152)

a. Inspection Scope (1 sample)

The inspectors performed an in depth review of the root cause evaluation that Exelon performed related to the reactor scram event that occurred on December 23, 2010. The inspectors interviewed operators that were involved in the plant startup and subsequent scram.

The inspectors reviewed Exelon's implementing procedures for conducting a plant startup, fitness for duty, fatigue management, and event response. The inspectors reviewed the corrective actions determined by the root cause to ensure that the changes implemented were effective and reasonable.

b. Findings & Observations

Introduction. The inspectors identified a Severity Level IV, non-cited violation (NCV) of 10 CFR 26.31 (c)(3) and Exelon procedure SY-AA-102-202, "Testing For Cause," for failure to administer post-event drug and alcohol testing after a potential substantial degradation of the level of safety of the plant that occurred on December, 23, 2010. Additionally the inspectors identified that the Exelon failed to administer a post event fatigue assessment per 10 CFR 26.211 (a)(3) and Exelon procedure LS-AA-119-1001, "Fatigue Management." Specifically, the inspectors identified that on December 23, 2010, the Exelon failed to conduct post-event drug and alcohol testing, and fatigue assessments of the operators whose human error caused an automatic reactor scram during a reactor startup.

Description. On March 22, 2011, during a records review of the root cause report that Exelon performed related to the automatic reactor scram event on December, 23, 2010, the inspectors identified that Exelon failed to administer post-event fitness for duty (FFD) testing and post event fatigue assessments of the operators whose human error caused an automatic reactor scram. Specifically, after the reactor scram, Exelon identified that human error allowed the crew to raise reactor pressure above 500 pounds per square inch gauge (psig) without ensuring the completion of all required plant conditions. Procedure 201, "Plant Startup," requires that operators confirm that all main condenser vacuum trips have cleared prior to exceeding 500 psig reactor pressure. Control room operators did not identify that the reactor protection low vacuum trips were not clear. When reactor pressure was raised to 570 psig, the condenser low vacuum bypass signal automatically cleared as designed; however, condenser vacuum was still below the scram setpoint. Thus, an automatic reactor automatic scram occurred due to the low vacuum condition. Exelon procedure OP-AA-300-1540, "Reactivity Management Administration," classifies a reactor scram as a level three reactivity management event.

Procedure SY-AA-102-202, "Testing For Cause," requires post event FFD testing and a fatigue assessment as soon as practical after an event where an actual or potential substantial degradation of the level of safety of the plant where human error may have caused or contributed to the event. The procedure defines a potential substantial degradation as any reactivity management event including, but not limited to, a control

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rod mispositioning or a fuel bundle mispositioning. The Exelon did not follow the requirements outlined in 10 CFR 26.31 (c)(3) and Exelon procedure SY-AA-102-202 for post event drug and alcohol testing after it was identified that the event involved a human error that may have contributed or caused the event. Additionally, 10 CFR 26.211 and LS-AA-119-1001, "Fatigue Management," requires the Exelon to perform a post event fatigue assessment in response to issues that require post event drug and alcohol testing. The inspectors determined that Exelon's failure to adhere to the requirements was a performance deficiency since the issue resulted in not meeting a requirement that was reasonably within Exelon's ability to foresee and correct.

Analysis. The inspectors determined that the finding involved traditional enforcement because Exelon did not perform 10 CFR 26.31 post event FFD and 10 CFR 26.211 post event fatigue assessments. If a licensed operator had tested positive, Exelon would have had to report this to the NRC per 10 CFR 26.719 (2)(ii). Exelon's failure to perform the required testing had the potential to impact the NRC's ability to take action against individual licensed operators, which impacted the regulatory process. In accordance with Section 6.14, "Fitness for Duty," of the NRC Enforcement Policy, the NRC determined that the safety significance of this violation met the SL IV criteria because the situation, per example 3 of a SL IV violation, was a matter with more than a minor safety or environmental significance. Exelon's failure to implement the requirements of 10 CFR 26.31 (c)(3) and Procedure SY-AA-102-202 resulted in a condition that did not ensure that the FFD program provide reasonable assurance that individuals are not under the influence of any substance, or are not physically impaired from any substance or cause.

Enforcement. 10 CFR 26.31 (c)(3) states, in part, "Licensees and other entities shall administer drug and alcohol tests to the individuals who are subject to the subpart under the following conditions: (3) As soon as practical after an event involving a human error that was committed by an individual who is subject to this subpart, where the human error may have caused or contributed to the event. The individual(s) who committed the human error(s) shall be tested if the event resulted in- (iii) Actual or potential substantial degradations of the level of safety of the plant."

Exelon procedure SY-AA-102-202, "Testing For Cause", states, in part, "As soon as practical after an event involving a human error that was committed by an individual, where the human error may have caused or contributed to the event, the licensee shall conduct a fatigue assessment in accordance with LS-AA-119-1001, "Fatigue Management and For Cause test the individual(s) who committed the errors. The individual(s) who committed the human error(s) shall be subject to a Fatigue Assessment and be For Cause tested if the event resulted in: Actual or Potential Substantial Degradation of the Level of Safety of the Plant."."

10 CFR 26.211 (a)(3), states, in part, "Licensees shall ensure that fatigue assessments are conducted under the following conditions: A fatigue assessment shall be conducted in response to events requiring post-event drug and alcohol testing as specified in 26.31 (c)." Exelon procedure LS-AA-119-1001, "Fatigue Management," states, in part, "Post event: Conduct a fatigue assessment in response to events requiring post-event drug and alcohol testing."

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Contrary to the above, on December, 23, 2010, Exelon failed to administer post-event FFD testing and fatigue assessments to ensure that licensed operators are not under the influence of any substance, legal or illegal, or mentally or physically impaired from any cause, which in any way adversely affects their ability to safely and competently perform their duties. Upon identification of this finding, the issue was entered in Exelon's CAP (IR 1193110) for review. Because the finding is of very low significance and was entered into Exelon's CAP, this issue is being treated as a Non-Cited Violation, consistent with Section VI.A of the NRC Enforcement Policy. **(NCV 05000219/2011002-03, Failure to Administer Post Event Fitness for Duty Testing).**

Observations

The root cause stated that the prompt investigation identified that inadequate procedure compliance by the URO initiated the event. The root cause team agreed with the prompt investigation and the focus of the investigation was to determine why this single point of failure in procedure compliance caused the entire MCR team to proceed above the 500 psig reactor pressure milestone without all requirements being met. For the items that were identified in the root cause, the evaluation was thorough, and included considerations for extent of condition. The inspectors reviewed Exelon's corrective actions and determined that they were appropriate to adequately address the identified deficiencies.

The inspectors found that the root cause did not identify some issues that were contributors to the event. The following are issues that the root cause team were aware of but did not include them as part of the root cause report: during the startup when reactor pressure was greater than 300 psig a second set of steam jet air ejectors was placed in service. The Unit Supervisor stated that no noticeable change in vacuum occurred at that time; Step 5.43.3 of procedure 201, "Plant Startup," states, "When main condenser vacuum has stabilized and is greater than approximately 25 inches of vacuum, then remove mechanical vacuum pumps from service." This step was signed off, however, vacuum at the time of the trip was 23.9 inches. Strict adherence to the procedure should have caused the control room crew to stop and correct the problems with vacuum prior to proceeding. The root cause report did not list these steps as barriers in the barrier analysis.

Issue report (IR) 556890, written on November, 11, 2006, described the same plant conditions; however, the crew stopped the startup for seven hours to resolve the issue with vacuum. The root cause report did not identify the startup in 2006 as part of the operating experience review and therefore did not identify that this issue with vacuum during reactor startups had occurred recently. The operating experience review did identify that in 1984 at Oyster Creek an automatic reactor scram occurred due to low condenser vacuum. Similar conditions existed related to challenges establishing condenser vacuum. The root cause does state some personnel had noticed a challenge to vacuum but the condition was not effectively communicated to the team. The root cause does not address the additional procedural issues and the equipment issues with establishing vacuum above 25 inches and, therefore, there are no corrective actions to address these issues. Exelon entered this observation into the CAP as IR 1193110.

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The inspectors observed that procedure SY-AA-102-202, "Testing For Cause," has a qualifying statement, "if there is reasonable suspicion that the worker's behavior contributed to the event." The underlined words had been used in the previous version of 10 CFR §26, but had been removed as stated in the Federal Register FRN-03-31-2008:

[10 CFR] "Section 26.31(c)(3) [Post event] amends the portion of former §26.24(a)(3) that required drug and alcohol testing when an event involving a failure in individual performance leads to significant consequences. The final rule amends the former provision because it has been subject to misinterpretation and numerous questions from licensees. The phrase "if there is reasonable suspicion that the worker's behavior contributed to the event" in former §26.24(a)(3) has been subject to misinterpretation. The location of this phrase at the end of the list of conditions under which post-event testing must be performed has led some licensees to conclude that this phrase applies only to events involving actual or potential substantial degradations of the level of safety of the plant. Other licensees have misinterpreted the term "reasonable suspicion" as meaning "reasonable suspicion of substance abuse" or some other "illegal" or "disreputable" activity. Neither of these interpretations is consistent with the intent of this provision. Therefore, to clarify the intent of the provision, the final rule eliminates the phrase "if there is reasonable suspicion that the worker's behavior contributed to the event" from the end of the list of significant events that require post-event testing and, instead, requires post-event testing as soon as practical after significant events."

Having this additional phrase in the procedure is a vulnerability, where a person determining whether to do post-event testing could incorrectly determine that post-event testing is not required. This issue was determined to be minor and Exelon entered this observation into the CAP as IR 1192432.

.3 Radiation Safety (71124.01, 71124.02, 71124.04, 71124.05, TI 2515/179)

a. Inspection Scope

The inspectors reviewed corrective action documents, to determine if identified problems were entered into the CAP for resolution and to determine the threshold. Also, reviewed were recent audits and assessments and CAP documents.

The review was against the criteria contained in 10 CFR 20, Technical Specifications, and station procedures.

b. Findings

No findings were identified.

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40A3 Event Followup (71153) (2 samples)

The inspectors performed two event followup inspection activities. Documents reviewed for this inspection activity are listed in the Supplemental Information attached to this report.

.1 Partial Loss of Control Room Annunciatorsa. Inspection Scope

On January 14, operations personnel in the control room responded to a loss of main control room annunciator alarm functions. Alarm panels B, N, J, K, P, and Q each experienced problems with the alarm functions and Exelon performed troubleshooting activities to determine the cause of the panel failures. Exelon implemented compensatory measures to ensure that system parameters were appropriately trended and all safety equipment remained available despite the lack of alarm capability.

The inspectors arrived on site after being informed of the event on January 18, 2011. The inspectors performed a walkdown of the control room and discussed the issue with Exelon personnel in order to understand the extent of the issues with the main control room annunciators. The inspectors also reviewed operator logs, process plant computer (PPC) data, and system drawings to understand the plant's response and ensured that the site did not meet any emergency response entry criteria.

b. Findings

Introduction. The inspectors identified a Green NCV of Technical Specification (TS) 6.8.1.a for Exelon's failure to have written procedures for activities listed in Regulatory Guide 1.33, which include procedures for abnormal, off-normal, or alarm conditions, and procedures for combating emergencies and other significant events. Specifically, Exelon did not have a procedure to cope with a loss of main control room annunciators.

Description. At 2115 on January 14, Exelon operators noted that the N, P, and Q main control room annunciator panels flashed intermittently and then stopped flashing. Operators performed alarm checks to identify the extent of the issue and found that the audible alarms for the balance of plant panels did not work and the alarm lights for panels J, K, and B did not work. Panels J, K, N, P, and Q have alarms for secondary plant systems, while the B panel has alarms for the safety-related systems containment spray, core spray, and automatic depressurization system (ADS). Initial troubleshooting efforts identified a failed power supply card for the J panel. Operators removed this alarm card, and the annunciator alarms for panel B and J all remained lit, but the K panel tested satisfactory.

Operators reviewed TS and emergency action level (EAL) limits to identify if there were any entry requirements met. At 0015 on January 15, approximately three hours after the initial failures, operators instituted compensatory measures to monitor for adverse trends and ensure the availability of the equipment affected by the faulty annunciator panels. Exelon continued troubleshooting activities through the weekend and restored most of

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the alarm functions for the B and J annunciator panels by 0449 on January 17, and secured compensatory actions at that time. The remaining troubleshooting activities and associated repairs will require a forced outage to resolve.

The inspectors verified that this condition did not meet any EAL entry criteria and questioned the three hour delay in instituting compensatory measures for the loss of all alarms for containment spray, core spray, and ADS to determine if this was in accordance with station procedures and identified that Oyster Creek does not have a procedure for loss of main control room annunciators. The inspectors verified that several other Exelon sites have procedures for the loss of main control room annunciators that require immediate compensatory actions and provides additional guidance depending on the alarm panels affected.

Analysis. The inspectors determined that Oyster Creek's failure to establish and implement written procedures for responding to a loss of control room annunciators was a performance deficiency because Exelon is expected to meet the requirements of TS 6.8.1.a to have procedures for expected off-normal conditions. This finding is not similar to any of the IMC 0612 Appendix E minor examples, but is more than minor because it affects the procedure quality attribute of the mitigating systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The lack of established procedures to respond to the loss of main control room annunciators could lead to a delay in implementing compensatory measures for safety systems, as happened on January 14-15.

The inspectors used Inspection Manual Chapter 0609 Appendix M, "Significance Determination Process Using Qualitative Criteria," because other significance determination process guidance was not suited to provide reasonable estimates of the significance of this inspection finding. With the assistance of NRC management, the inspectors determined that the finding was of very low safety significance (Green) because there was no actual loss of safety system function during the time period the annunciator panels were inoperable.

This finding has a cross-cutting aspect in the area of human performance, resources (H.2(c)), where complete, accurate, and up-to-date procedures are available and adequate to assure nuclear safety. Specifically, Exelon did not have established procedural guidance for Oyster Creek operators to respond to a loss of multiple main control room annunciator panels that did not result in an EAL entry.

Enforcement. TS 6.8.1a states, in part, that written procedures shall be established, implemented, and maintained as recommended in Regulatory Guide 1.33. Contrary to the above, Exelon failed to establish a procedure to respond to a loss of control room annunciators. Because this violation was of very low safety significance and it was entered into Exelon's CAP as IR 1205823, this violation is being treated as an NCV, consistent with the Enforcement Policy. **(NCV 05000219/2011002-04, Failure to Establish Procedures for Responding to the Loss of Control Room Annunciators).**

Enclosure

.2 'E' RCP Trip

a) Inspection Scope

On January 20th, operations personnel in the control room responded to a trip of the 'E' Reactor Recirculation Pump (RRP).

The inspectors responded to the control room following site announcement of the trip of the 'E' RRP and observed the response of Exelon personnel to the event, including operator actions in the control room. At the time of the event, the inspectors verified that conditions did not meet the entry criteria for an emergency action level (EAL) as described in the Oyster Creek EAL matrix. In addition, the inspectors reviewed 10 CFR 50.72, "Immediate Notification Requirements for Operating Nuclear Power Reactors," to verify that there were no notification requirements for this event. The inspectors also reviewed technical specification requirements to ensure that Oyster Creek operated in accordance with its operating license.

The inspectors reviewed PPC data, control room logs, and discussed the event with Exelon personnel to gain an understanding of how operations personnel and plant equipment responded during the event. The inspectors evaluated Exelon's program and process associated with event response to ensure they adequately implemented station procedures OP-AA-108-114, "Post Transient Review" and OP-AA-106-101-1001, "Event Response Guidelines."

b. Findings

No findings were identified.

.3 (Closed) LER 05000219/2010-002-00, "Automatic Reactor Scram during Startup due to Low Condenser Vacuum"

a. Inspection Scope

This LER discussed the low vacuum reactor scram that occurred during reactor startup on December 23, 2010. The inspectors reviewed this LER and no new issues were identified. This LER is closed.

b. Findings

No findings were identified.

4OA5 Other.1 World Association of Nuclear Operators (WANO) Plant Assessment Report Reviewa. Inspection Scope

The inspectors reviewed the report for the WANO plant assessment of the Oyster Creek Nuclear Generating Station conducted in March 2010. The inspectors reviewed the report to ensure that issues identified were consistent with the NRC perspectives of licensee performance and to verify if any significant safety issues were identified that required further NRC follow-up.

b. Findings

No findings were identified.

.2 TI 2515/179 - Verification of Licensee Responses to NRC Requirement for Inventories of Materials Tracked in the National Source Tracking System Pursuant to Title 10, Code of Federal Regulations, Part 20.2207a. Inspection Scope

During the period March 21 - 25, 2011, the inspectors conducted the following activities to confirm the inventories of radioactive materials possessed at Oyster Creek were appropriately reported and documented in the National Source Tracking System (NSTS) in accordance with 10 CFR 20.2207.

Inspection Planning

The inspectors retrieved and reviewed a copy of the Exelon's submitted NSTS inventory. The inspectors also reviewed reconciliation reports.

Inventory Verification

The inspectors performed a physical inventory of the sources listed on the Exelon's inventory to identify each source listed on the inventory.

The inspectors verified the presence of the nationally tracked sources by conducting a radiation survey of the source shield.

The inspectors examined the physical condition of the source containers, evaluated the effectiveness of the procedures for secure storage and handling, discussed maintenance of the device including source leak tests, and verified the posting and labeling of the source was appropriate.

The inspectors reviewed Exelon records for the source and compared the records with the data from the NSTS inventory. The inspectors evaluated the effectiveness of procedures for updating the inventory records.

Enclosure

Determine the Location of Unaccounted-for Nationally Tracked Sources

The inspectors reviewed the Exelon's source inventory and verified Oyster Creek has no unaccounted-for sources.

Review of Other Administrative Information

The inspectors reviewed the administrative information contained in the NSTS inventory printout with Exelon personnel to determine if all administrative information (e.g., mailing address, docket number, and license number) were correct.

b. Findings

No findings were identified.

4OA6 Meetings, Including Exit

Resident Inspector Exit Meeting.

On April 20, the inspectors presented their overall findings to members of Exelon's management led by Mr. M. Massaro, Site Vice President, and other members of his staff who acknowledged the findings. The inspectors confirmed that proprietary information reviewed during the inspection period was returned to Exelon.

4OA7 Licensee-Identified Violations

None.

ATTACHMENT: SUPPLEMENTAL INFORMATION

Enclosure

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

M. Massaro, Site Vice-President
 R. Peak, Plant Manager
 D. Dicello, Director, Work Management
 M. McKenna, Director, Operations
 G. Malone, Acting Director, Engineering
 C. Symonds, Director, Training
 A. Kazarian, System Engineer
 J. Dostal, Director, Maintenance
 J. Barstow, Manager, Regulatory Assurance
 T. Keenan, Manager, Security
 M. Ford, Manager, Environmental/Chemistry
 J. Renda, Manager, Site Radiation Protection
 M. Nixon, Chemistry Supervisor
 A. Farenga, Manager, Radiological Engineering
 R. Skelsky, Senior Manager, Systems Engineering
 H. Ray, Senior Manager, Design Engineering
 G. Flesher, Shift Operations Superintendent
 J. McDaniel, Manager, Nuclear Oversight
 M. Rossi, Requal Training Lead
 M. Seeloff, Manager, Corrective Action Program
 C. Taylor, Regulatory Assurance Specialist
 J. Chrisley, Regulatory Assurance Specialist
 J. Kerr, Regulatory Assurance Specialist

Others:

State of New Jersey, Bureau of Nuclear Engineering

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSEDOpened/Closed

05000219/2011002-01	FIN	Failure to Make an Accurate Immediate Operability Determination (Section 1R15)
05000219/2011002-02	NCV	Failure to Establish Proper Baseline Data for Service Water Pumps in Accordance with ASME Code (Section 1R22)
05000219/2011002-03	NCV	Failure to Administer Post Event Fitness for Duty Testing (Section Section 4OA2)
05000219/2011002-04	NCV	Failure to Establish Procedures for Responding to the Loss of Control Room Annunciators (Section 4OA3)

Closed

05000219/2010-002-00 LER Automatic Reactor Scram during Startup due to
Low Condenser Vacuum (Section 4OA3)

LIST OF DOCUMENTS REVIEWED

In addition to the documents identified in the body of this report, the inspectors reviewed the following documents and records.

Section 1R01: Adverse Weather ProtectionProcedures

OP-OC-108-109-1001, "Preparation for Severe Weather T&RM for Oyster Creek"
OP-AA-108-111-1001, "Severe Weather and Natural Disaster Guidelines"
WC-AA-107, "Seasonal Readiness"
OP-OC-108-1001, "Preparation for Severe Weather T&RN for Oyster Creek"
OP-OC-108-109-1002, "Cold Weather Freeze Inspection"
OP-OC-108-109-1003, "Winter Readiness"
ABN-31, "High Winds"
ABN-32, "Abnormal Intake Level"

Condition Reports

1160128 1160129 1160130 1160132 982811

Work Orders (AR)

A2268450 A2268453 A2268451 A2268452 A2268319

Section 1R04: Equipment AlignmentProcedures

612.4.001, "Standby Liquid Control Pump and Valve Operability and Inservice Test"
310, "Containment Spray System Operation,"
341, "Emergency Diesel Generator Operation"

Drawings

BR 2005 S4, "Emergency Service Water System"
BR 2005 S2, "Emergency Service Water System"
BR 3001 S2, "Emergency Power System"

Condition Reports (IR)

1029262

Work Orders (AR)

A2244710

Other

UFSAR 6.2.2, "Containment Heat Removal Systems"
UFSAR 8.3, "Onsite Power Systems"

Section 1R05: Fire Protection

Procedures

ABN-29, "Plant Fires"
101.2, "Oyster Creek Site Fire Protection Program"
CC-AA-211, "Fire Protection Program"
333, "Plant Fire Protection System"

Other Documents

Pre-Fire Plan RB-FZ-1B, "Reactor Building 95' Elevation"
Pre-Fire Plan RB-FZ-1E, "Reactor Building 23' Elevation"
Pre-Fire Plan RB-FZ-1C, "Reactor Building 75' Elevation"
Pre-Fire Plan NR-FZ-1C, "New Rad Waste Building"
Pre-Fire Plan OB-FZ-8A, "MG Set Room"

Section 1R07: Heat Sink Performance

Procedures

ER-AA-340-2000, "Balance Of Plant Heat Exchanger Inspection, Testing, and Maintenance Guide"
ER-AA-340-1002, "Service Water Heat Exchanger Inspection Guide"
ER-AA-340, "GL 89-13 Program Implementing Procedure"
ER-OC-340-1001, "Oyster Creek Generic Letter 89-13 Program Basis Document"
ER-AA-340-1002, "Hx Inspection report"

Condition Reports (IR)

1185388 1190948

Work Orders (AR)

R2118370 R2162955 R2159628 R2118371

Other Documents

NUREG-1801, "Generic Aging Lessons Learned (GALL) Report"
Oyster Creek Service Water (SW) System Notebook

Section 1R11: Licensed Operator Regualification Program

Other Documents

EOP User's Guide (2000-BAS-3200.02)
2612.CREW.11-1.01

Section 1R12: Maintenance Effectiveness

Procedures

ER-AA-310, "Implementation of Maintenance Rule"
ER-AA-310-1005, "Maintenance Rule - Disposition Between (a)(1) and (a)(2)"
LS AA-125-1003, "Apparent Cause Evaluation Manual"
ER-AA-1001, "Maintenance Rule - Scoping"
CC-MA-203-1001, "Environmental Qualification Engineering"
CC-AA-203, "Environmental Qualification Program"
RAP-10F4e, "Off Gas/Mn Stm Dnscl/Inop"
RAP-J5b, "Rad Hi"
ABN-26, "High Main Steam/Off-Gas/Stack Effluent Activity"
ER-AA-340, "GL 89-13 Oyster Creek Program Implementing Procedure"
ER-OC-340-1001, "Oyster Creek Generic Letter 89-13 Program Basis Document"

ER-AA-5400, "Buried Piping and Raw Water Corrosion Program (BPRWCP) Guide"
 OP-AA-106-101-1006, "Issue Resolution Documentation Form"
 OP-AA-108-111, "Adverse Condition Monitoring and Contingency Plan"
 202.1, "Power Operation"

Drawings

3E-532-A3-1000, "Pipe Integrity Inspection Program"

Condition Reports (IR)

1174958	729853	766373	1164020	1140050	1128042
930144	637092	836994	637125	330592	847953
862659	1190467	1191740			

Work Orders (AR)

C2015959	A2169691	C2018372	A2211339	C2019658	M2273891
M2211339					

Other Documents

NEI 93-01, "Industry Guideline for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants"

Maintenance Rule Scoping Document for System 661, Area Radiation Monitoring

Topical Report 140, "Emergency Service Water and Service Water System Piping Plan"

Operability Evaluation OC-2003-OE-0013

Configuration Change 328333-005, "Installation of 10" Tees on ESW Lines at the Intake"

SP-1302-12-261, "Specification for Pipe Integrity Inspection Program"

SP-9000-06-004, "Specification for Application and Repair of Service Level III Coatings"

TDR 829, "Pipe Integrity Inspection Program"

C-1302-532-E310-050, "ESW Elbow Minwall Assessment for the First Elbow Off Of Pump P-3-3A on the Intake Structure"

Section 1R13: Maintenance Risk Assessments and Emergent Work ControlProcedures

ER-AA-600-1042, "On-line Risk Management"

ER-AA-600-1021, "Risk Management Application Methodologies"

ER-AA-600-1014, "Risk Management Configuration Control"

ER-AA-600-1011, "Risk Management Program"

WC-OC-101-1001, "On-line Risk Management and Assessment"

ER-AA-600-1012, "Risk Management Documentation"

WC-AA-101, "Online Work Control"

OP-MA-109-101, "Clearance and Tagging"

OP-AA-10, "Clearance and Tagging Process Description"

Work Orders (AR)

C2025274

Condition Report (IR)

1178900	1179512
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Other Documents

11500363, Clearance: "Isolation Condenser NE01A Logic Train 'A' Actuation"

Technical Specification 3.0 "Limiting Conditions for Operation (General)"

Technical Specification 3.8 "Isolation Condenser"
 Technical Specification 3.1, Table 3.1.1 "Protective Instrumentation Requirements"
 Oyster Creek PRA Deterministic Calculations Notebook
 Oyster Creek HRA Notebook
 NUMARC 93-01, "Industry Guideline for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants"

Section 1R15: Operability Evaluations

Procedures

OP-AA-108-115, "Operability Determination"

Drawings

BR 2009 S1 R42, "Turbine Building H&V"

Condition Reports (IR)

1166848	1157124	1108584	1159781	1159783	1159260
1159259	1164020	1166220	1166208	1165588	1165017
1164650	1166228	1188320			

Work Orders (AR)

R2142188	R2144002	R2084846	R2124062	R2170837	C2025008
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Other Documents

NRC Inspection Manual - Part 9900 Technical Guidance, "Operability Determinations & Functionality Assessments for Resolution of Degraded or Nonconforming Conditions Adverse to Quality or Safety"
 SP-1302-12-261, "Specification for Pipe Integrity Inspection Program, Oyster Creek Nuclear Generating Station"
 Adverse Condition Monitoring and Contingency Plan, "ESW System #2 Flange Leak", dated 1/29/11
 OC-2011-OE-0002, "ESW Pump P-3-3C(52C) and ESW System II"
 2011-002-001, "NDE Data Report for ESW System 2 Piping, DnStrm of P-3-3C"
 Technical Specification 3.4, "Emergency Cooling"

Section 1R18: Plant Modifications

Procedures

CC-AA-102, "Design Input and Configuration Change Impact Screening"
 CC-AA-103, "Configuration Change Control For Permanent Physical Plant Changes"
 607.4.017, "Containment Spray and Emergency Service Water Pump System 2 Operability and Quarterly Inservice Test"
 SP-10-006, "RB CRD Rebuild Area EMC Water Eater Evaporator Operation"
 358, "Operation of Drum Evaporators" (superseded procedure)

Condition Report (IR)

1166848	1165588	1163783	1173454
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Work Order (AR)

C2025008	A2269042	C2024713	C2024535	A2260191
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Other

OC-2011-OE-0002, Operability Evaluation "Emergency Service Water (ESW) System-532"

"Specification Sheet for Water Eater Model 125E Wastewater Evaporator"
UFSAR Table 9.4-1, "Reactor Building Heating and Ventilation System"

Section 1R19: Post-Maintenance Testing

Procedures

MA-AA-716-012, "Post Maintenance Testing"
OP-MA-109-101, "Clearance and Tagging"
612.4.001, "Standby Liquid Control Pump and Valve Operability and Inservice Test"
607.4.017, "Containment Spray and Emergency Service Water Pump System 2 Operability and Quarterly Inservice Test"
610.4.003, "Core Spray Valve Operability and In-Service Test"
609.3.113, "Isolation Condenser Automatic Actuation Bistable Calibration and Test"
642.4.001, "RBCCW Inservice Test"
636.4.013, "Diesel Generator 2 Load Test"

Condition Report (IR)

1092620	1166848	1190948	1192164
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Work Order (AR)

R2116016	A2244710	C2025008	R2053395	A2090727	R2170837
A0703363	A2271771	C2025274	R2161229	R2161229	C2025490
A2274169	R2179216	C2025160			

Other

NRC Generic Letter 96-05, "Periodic Verification of Design-Basis Capability of Safety-Related Power-Operated Valves"
GE 885D781, "Core Spray System Flow Diagram"

Section 1EP6: Drill Evaluation

Other Documents

2612.CREW.11-1.01

Section 1R22: Surveillance Testing

Procedures

SA-AA-129, "Electrical Safety"
MA-AA-1000, "Conduct of Maintenance"
ER-AA-321, "Administrative Requirements for IST"
ER-AA-321-1007, "Inservice Testing (IST) Program Corporate Technical Positions"
609.3.013, "Isolation Condenser Isolation Test and Calibration – B2 Sensors First"
607.4.017, "Containment Spray and Emergency Service Water Pump System 2 Operability and Quarterly Inservice Test"
607.4.004, "Containment Spray and Emergency Service Water Pump System 1 Operability and Comprehensive/Preservice/Post-Maintenance Inservice Test"
641.4.001, "Service Water Pump Operability and In-Service Test"
307, "Isolation Condenser System"
609.4.001, "Isolation Condenser Valve Operability and In Service Test"
636.4.003, "Diesel Generator #1 Load Test"
607.4.017, "Containment Spray and Emergency Service Water Pump System 2 Operability and Quarterly Inservice Test"

607.4.008, "Containment Spray and Emergency Service Water System 2 Pump Operability Test"

310, "Containment Spray System Operation"

Condition Reports (IR)

1158488	1175089	656323	1169851	882786	1155065
1151485	1113188	1150025	1073245	1161987	1145568

Work Orders (AR)

R2169921	R2177183	R2102312	R2103594	R2148871	A2268689
A2249132	R2177958				

Other Documents

NRC Inspection Manual Part 9900 Technical Guidance, "Maintenance- Preconditioning of Structures, Systems, and Components Before Determining Operability"

UFSAR Table 6.2-6, "Emergency Service Water Pumps"

UFSAR 9.2, "Water Systems"

Maintenance Rule Scoping Document for System 531, Service Water System

ASME Code for Operation and Maintenance of Nuclear Power Plants, 1995 edition with 1996 addenda

ECR OC-08-00781, "Demineralized Water Makeup to Isolation Condensers"

UFSAR 6.2.2, "Containment Heat Removal Systems"

Technical Specification 6.2, "Emergency Cooling"

Section RS01:Radiological Hazard Assessment and Exposure Control

Procedures

LS-AA-126-1005, "Check In Self Assessment"

RP-AA-503, "Unconditional Release Survey Methods"

RP-AA-503-F-01, "Unconditional Release Instructions Using the Small Article Monitor for Personnel Items "

RP-AA-460, "Controls for High and Locked High Radiation Areas"

RP-AA-460-001, "Control of Very High Radiation Areas"

RP-AA-203-1001, "Personnel Exposure Investigations"

RP-AA-203-1002, "Response to Electronic Pocket Dosimeter (EPD) Rest Alarms"

Section RS02: Occupational ALARA Planning and Controls

Procedures

RP-AA-401, "Operational ALARA Planning and Controls"

RP-AA-402, "Radiation Protection 5 Year Exposure Reduction Planning"

RP-AA-441, "Evaluation and Selection Process for Radiological Respirator Use"

CY-AB-120-130, "BWR Shutdown Chemistry Control"

CY-AB-120-120, "BWR Startup Chemistry"

Other

Refueling Outage (1R23) Report

Section RS04:Occupational Dose Assessment

Procedures

RP-AA-210, "Dosimetry Issue, Usage and Control"

RP-AA-220, "Bioassay Program"

RP-AA-11, "External Dose Control Program Description"

RP-AA-12, "Internal Dose Control Program Description"
RP-AA-222, "Methods for Estimating Internal Exposure from In-Vivo and In-Vitro Bioassay Data"
RP-AA-226, "Calibration of Canberra Accuscan Whole Body Counter"
RP-AA-227, "Operation of Canberra Accuscan Whole Body Counter"
RP-AA-302, "Determination of Alpha Levels and Monitoring"
RP-AA-350, "Personnel Contamination Monitoring Decontamination and Reporting"

Other

NAVLAP Certification Documentation

Section RS05: Radiation Monitoring Instrumentation

Procedures

RP-OC-1001, "Operation of the Canberra Fast Scan Whole Body Counting System"
RP-AA-700, "Control of Radiation Protection Instruments"
RP-AA-700-1101, "Calibration of the RO-2, RO-2A, RO-20 and RSO 50-E Ion Chambers"
RP-AA-700-1203, "Calibration of MGP Instrument Telepole"
RP-OC-701, "Calibration of Eberline Model AMS-3/3A Beta Air Monitor"
RP-OC-700-1301, "Calibration Source Check, Operation and Setup of the Eberline Beta air Monitor Model AMS-4"
OJT # 209, "Processing and Calibration Checks: Electronic Dosimeters"
RP-OC-301-1002, "Background Efficiency, Operational Checks and Performance of Scaler System"
CY-AA-130-201, "Radiochemistry Quality Control"
Offsite Dose Calculation Manual (Revision 4)
406.2, "Operation of the Process Radiation Monitoring System"
621.3.023, "Stack RAGEMS Sample and Effluent Flow Calibration"
621.3.024, "Stack RAGEMS Sample and Effluent Flow Functional Test"
621.3.025, "Stack RAGEMS Noble Gas Monitor Calibration"
621.3.026, "Stack RAGEMS Noble Gas Monitor Functional Test"
621.4.044, "Stack and Turbine Building RAGEMS Turbine Building LRM Source Check"
621.3.021, "AOG Ventilation Radiation Monitoring System Channel Calibration"
666.3.010, "AOG vent radiation Monitor Functional Test"
621.3.036, "Turbine Building RAGEMS Noble Gas Channel Calibration"
621.3.037, "Turbine Building RAGEMS Noble Gas Monitor Functional Test"
621.3.034, "Turbine Building RAGEMS Sample and Effluent Flow Calibration"
621.3.045, "Turbine Building RAGEMS Sample and Effluent Flow Functional Test"
621.3.041, "Service Water Radiation Monitoring System Calibration"
621.3.043, "Service Water Radiation Monitor Functional Test"
621.3.030, "Containment High Range Radiation Monitoring System Calibration"

Other

Offsite Dose Calculation Manual (Revision 4)
Main Stack Monitoring System Daily Checks
Main Stack Isokinetic flow calculation
10 CFR 61 Waste Stream Analyses
Radiological Groundwater Protection Program Reports
Whole Body Counter Calibration Report dated December 5, 2010
Check in Assessment 1134316-02

Section 40A2: Identification and Resolution of ProblemsProcedures

LS-AA-119-1001, "Fatigue Management"
 SY-AA-102, "Exelon's Nuclear Fitness For Duty Program"
 SY-AA-102-202, "Testing For Cause"
 OP-AA-300-1540, "Reactivity Management Administration"
 OP-AA-106-101, "Significant Event Reporting"
 OP-AA-106-101-1001, "Event Response Guidelines"
 201, "Plant Startup"
 ABN-1, "Reactor Scram"
 619.3.014, "Condenser Low Vacuum Calibration and Test"
 Check-in Assessment 1134316-02, Radiation Protection
 Issue Report 01190746

Condition Reports (IR)

0556890	1155520	1192432	1193110	1196555
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Section 40A3: Event FollowupProcedures

RAP-BOP, "BOP Annunciator Response"
 OP-OC-100-1002, "Main Control Room Turnover Checklist"
 RAP-NSSS, "NSSS Annunciator Response Procedures"
 202.1, "Power Operation"
 ABN-2, "Recirculation System Failures"
 OP-AA-108-114, "Post Transient Review"

Condition Reports (IR)

979382	1163060	1164872	1164969	1197337
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Other Documents

NUREG-1022, "Event Reporting Guidelines 10 CFR 50.72 and 50.73"
 Exelon ltr, "Licensee Event Report (LER) 2010-002-00, Automatic Reactor Scram during Startup due to Low condenser Vacuum", dated February 21, 2011

Section 40A5: OtherProcedures

RP-AA-800, "Control, Inventory, and Leak Testing of Radioactive Sources"
 RP-AA-800-001, "Nationally Tracked Source Program"
 NF-AA-330, "Special Nuclear material Physical Inventories"
 NF-OC-300-1002, "Special Nuclear Material Control- Oyster Creek Source Leak and Surveillance Tests"

Condition Reports (IR)

1047948	1047802	1047806	1047835	1047838	1047859
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Other

National Tacked Sources Inventory and Re-conciliation (2009-2011)

LIST OF ACRONYMS

ADAMS	Agency-wide Documents Access and Management System
ALARA	As Low As Reasonably Achievable
ASME	American Society of Mechanical Engineers
CAP	Corrective Action Program
CFR	Code of Federal Regulations
CR	Condition Report
CRD	Control Rod Drive
CS	Core Spray
EAL	Emergency Action Level
ED	Electronic Dosimeter
EDG	Emergency Diesel Generator
EP	Emergency Preparedness
ESW	Emergency Service Water
Exelon	Exelon Energy Company, LLC
FIN	Finding
HRA	High Radiation Area
IC	Isolation Condenser
IMC	Inspection Manual Chapter
IR	Issue Report
IST	Inservice Test
LER	License Event Report
MDA	Minimum Detectable Activity
NCV	Non Cited Violation
NRC	Nuclear Regulatory Commission
NUREG	NRC technical report designation (<u>N</u> uclear <u>R</u> egulatory Commission)
ODCM	Offsite Dose Calculation Manual
Oyster Creek	Oyster Creek Generating Station
PARS	Publicly Available Records
PI	Performance Indicator
PPC	Process Plant Computer
RCA	Radiological Controlled Area
RRP	Reactor Recirculation Pump
SDP	Significance Determination Process
SLC	Standby Liquid Control
TLD	Thermoluminescent Dosimeter
TS	Technical Specifications
UFSAR	Updated Final Safety Analysis Report
UT	Ultrasonic Testing
WO	Work Order