



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

April 30, 2010

Mr. Charles G. Pardee
Senior Vice President, Exelon Generation Company, LLC
President and Chief Nuclear Officer, Exelon Nuclear
4300 Winfield Road
Warrenville, IL 60555

SUBJECT: OYSTER CREEK GENERATING STATION - NRC INTEGRATED INSPECTION
REPORT 05000219/2010002 AND NRC OFFICE OF INVESTIGATIONS
REPORT 1-2009-044

Dear Mr. Pardee:

On March 31, 2010, the U.S. 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 29, 2010, 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.

This inspection also reviewed your actions for a Rod Worth Minimizer operability event that occurred on July 15, 2009, and led to a violation of NRC regulatory requirements. In response to this event, the NRC Office of Investigations (OI) initiated an investigation on August 12, 2009, to determine if there were willful aspects that contributed to this violation of Technical Specifications. Based upon the evidence developed during the investigation, the NRC concluded that while a violation of NRC requirements did occur, there was insufficient evidence to substantiate that employees at Oyster Creek deliberately violated technical specifications during the reactor startup from the July 15 event.

Please note that final NRC documents, such as the OI report described above, may be made available to the public under the Freedom of Information Act (FOIA) subject to redaction of information appropriate under FOIA. Requests under FOIA should be made in accordance with 10 CFR 9.23, Request for Records.

The report documents two NRC-identified findings of very low safety significance (Green). Both of these findings were determined to involve violations of NRC requirements. However, because of the very low safety significance and because they are entered into your corrective action program, the NRC is treating these findings as non-cited violations (NCVs) consistent

C. Pardee

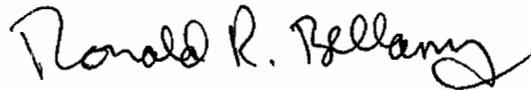
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with Section VI.A.1 of the NRC Enforcement Policy. If you contest any NCV, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN.: Document Control 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.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Website at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

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

Enclosure: Inspection Report 05000219/2010002
w/Attachment: Supplemental Information

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Sincerely,
/RA/
Ronald R. Bellamy, Ph.D., Chief
Projects Branch 6
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U. S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket No.: 50-219

License No.: DPR-16

Report No.: 05000219/2010002

Licensee: Exelon Nuclear

Facility: Oyster Creek Generating Station

Location: Forked River, New Jersey

Dates: January 1, 2010 – March 31, 2010

Inspectors: J. Kulp, Senior Resident Inspector
J. Ambrosini, Resident Inspector
W. Schmidt, Senior Reactor Analyst

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

Enclosure

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SUMMARY OF FINDINGS

IR 05000219/2009002; 01/01/2010 - 03/31/2010; Exelon Energy Company, LLC, Oyster Creek Generating Station; Maintenance Effectiveness, Operability Evaluations.

The report covered a 3-month period of inspection by resident inspectors and a senior reactor analyst. Two Green non-cited violations (NCV) 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: Barrier Integrity

Green. The inspectors identified a Green non-cited violation (NCV) of 10 CFR 50.65(a)(3), requirements for monitoring the effectiveness of maintenance at nuclear power plants (maintenance rule), because Exelon did not make adjustments to established performance and condition monitoring goals to ensure that unavailability and reliability of structures, systems and components (SSC) were appropriately balanced. Specifically, Exelon did not ensure that corrective actions identified in a 2006-2007 (a)(3) evaluation to update performance criteria sheets for maintenance rule systems were adequately implemented. Exelon entered this issue into their corrective action system as IR 1053237.

This finding is not similar to any of the IMC 0612 Appendix E minor examples, but is more than minor because if left uncorrected it would have the potential to lead to a more significant safety concern. Specifically, the failure to implement revised performance criteria could prevent the screening of safety significant systems that have exceeded their performance criteria through a maintenance rule expert panel and prevent Exelon from monitoring degraded components against established goals in a manner sufficient to provide reasonable assurance that such SSCs are capable of fulfilling their intended functions. This finding is not suitable for evaluation using the Significance Determination Process (SDP) because the performance deficiency did not cause the degraded equipment performance. Findings for which the SDP does not apply may be Green or assigned a severity level after NRC management review. Per the guidance provided in NRC inspection procedure 71111.12, this issue is considered to be a Category II finding and thus, per NRC management review, is considered to be Green. This finding has a cross-cutting aspect in the area of problem identification and resolution (P.3(c)). Specifically, Exelon did not ensure that actions identified in the 2006-2007 (a)(3) assessment to update performance criteria sheets for maintenance rule systems were completed and implemented. (Section 1R12)

Cornerstone: Barrier Integrity

- Green. An NRC identified NCV of Technical Specification (TS) 6.8.1, Procedures and Programs, was identified when Exelon did not declare the rod worth minimizer (RWM) inoperable prior to completing the withdrawal of the twelfth rod during a reactor startup on July 15, 2009. During the startup, the RWM exhibited difficulty following the movement of control rods, had difficulty following which control rod was selected, and generated a total of 3 rod blocks even though the physical configuration of the control rod positions was in accordance with the control rod withdrawal sequence. Although operations personnel were aware of these malfunctions of the RWM, they believed that the rod blocks being generated were conservative and did not consider the operability criteria contained in the RWM operating procedure. At the beginning of the withdrawal of the twelfth control rod, the RWM generated an improper rod block and began tracking a control rod that had not been selected or withdrawn. The operators were able to clear the rod block and fully withdraw the rod. The operators declared the RWM inoperable based upon the improper rod block that occurred at the beginning of the withdrawal of the twelfth rod, but entered the TS action statement based upon the time that the operability decision was made, which was after the rod was fully withdrawn. Because of this conclusion, the wrong TS action statement was entered and all actions and limitations associated with the correct TS were not completed. This issue has been entered into Exelon's corrective action program.

The finding was more than minor because it was similar to example 2.g of IMC 0612 Appendix E. Additionally, the finding was more than minor because it was associated with the Design Control attribute of the Barrier Integrity cornerstone objective to provide reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. In accordance with IMC 0609.04 (Table 4a), "Phase 1 – Initial Screening and Characterization of Findings," the finding was determined to be of very low safety significance (Green) because the finding affected the barrier integrity cornerstone and was a fuel barrier issue. The performance deficiency had a cross-cutting aspect in the area of human performance, decision making [H.1(a)], because Exelon did not make a safety significant decision using a systematic process when faced with uncertain or unexpected plant conditions. Specifically, Exelon did not consider the operability criteria in procedure 409, "Operation of the Rod Worth Minimizer," when faced with a malfunctioning RWM during the reactor startup on July 15, 2009. (Section 1R15)

REPORT DETAILS

Summary of Plant Status

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

On February 28, operators performed a planned downpower to 85% to recover control rods following hydraulic control unit maintenance. Oyster Creek returned to full power later the same day.

On March 21, operators performed a planned downpower to 60% for performance of a control rod pattern adjustment, turbine valve testing and non-destructive evaluation of piping in the condenser bay in preparation for temporary repairs. Oyster Creek returned to full power later the same day.

Oyster Creek operated at full 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 (5 samples)

The inspectors performed five site specific weather-related condition inspections.

The inspectors reviewed Exelon's response to the following adverse weather conditions: cold weather conditions on January 4; a severe thunderstorm warning from the National Weather Service (NWS) on January 25; a blizzard warning from the NWS on February 5; a winter storm warning from the NWS on February 9; and a high wind warning on March 12. The inspectors verified that operators properly monitored important plant equipment that could have been affected by the cold weather, snow accumulation and the high winds from the storms. The inspectors ensured that temperatures for equipment and areas in the plant were maintained within procedural limits, access to equipment was maintained, and when necessary, compensatory actions (i.e., additional heating or increased monitoring frequency) were properly implemented in accordance with procedures. The inspectors performed walkdowns of areas that could be potentially impacted by the cold weather conditions, such as the intake structure, the fire protection system, and the emergency diesel generators. The inspectors performed walkdowns of the site and intake structure following the storms to ensure that there was no damage caused by debris from the storms.

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

b. Findings

No findings of significance were identified.

Enclosure

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:

- Containment spray system #2 when containment spray system #1 was unavailable due to planned surveillance testing on January 19;
- 'A' control rod drive (CRD) system when 'B' CRD system was unavailable due to planned maintenance on March 10; and
- Core spray system #2 when core spray system #1 was out for planned surveillance testing on March 29.

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

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05)a. Inspection Scope (71111.05Q 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 corrective action program condition reports 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:

- CRD pump room (RB-FZ-1F3) on January 5;
- Portable emergency pump area on January 13;
- Feedwater pump area (TB-FZ-11F) on January 21;
- 4160V C and D vaults (TB-FA-3A) on February 22; and
- New warehouse (NW-FA-23) on February 23.

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures (71111.06)

a. Inspection Scope (1 sample)

The inspectors performed one internal flood protection inspection activity.

The inspectors performed an internal flood protection inspection activity in the turbine building basement which contains the service air compressors, instrument air dryers and the turbine building closed cooling water pumps. The inspectors performed a walkdown of the flood barriers, floor drains, and floor sumps. The inspectors evaluated these items to determine if internal flood vulnerabilities existed and to assess the physical condition of the equipment and components in the turbine building basement. The inspectors reviewed preventive maintenance activities associated with flood protection equipment. The inspectors also reviewed Exelon's procedures related to flooding of the turbine building basement.

Documents associated with these reviews are listed in the Supplemental Information attachment to this report.

b. Findings

No findings of significance were identified.

1R07 Heat Sink Performance (71111.07)

a. Inspection Scope (1 sample)

Annual Review. The inspectors verified acceptable heat exchanger performance by reviewing Exelon's technical evaluation of the 'A' spent fuel pool heat exchanger following inspection and corrective maintenance (tube plugging). Documents reviewed are listed in the Supplemental Information attachment to this report.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification Program (71111.11)

a. Inspection Scope (1 sample)

The inspectors observed one simulator training scenario to assess operator performance and training effectiveness on March 2. 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 of significance were identified.

1R12 Maintenance Effectiveness (71111.12)a. Inspection Scope (2 samples)

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

- Standby gas treatment system (SGTS) #2 (IR 1022923) on January 27 and;
- Nuclear instrument (NI) system (IR 853335, 903303, 947291) on March 18.

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 unavailability 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, corrective action program condition reports, operator narrative logs, and vendor manuals. Documents reviewed for this inspection activity are listed in the Supplemental Information attachment to this report.

b. FindingsIntroduction

The inspectors identified a Green non-cited violation (NCV) of 10 CFR 50.65(a)(3), requirements for monitoring the effectiveness of maintenance at nuclear power plants (maintenance rule), because Exelon did not make adjustments to established performance and condition monitoring goals to ensure that unavailability and reliability of structures, systems and components (SSC) were appropriately balanced. Specifically, Exelon did not ensure that corrective actions identified in a 2006-2007 (a)(3) evaluation to update performance criteria sheets for maintenance rule systems were adequately implemented.

Description

The inspectors determined that Exelon did not adequately update various maintenance rule performance goals after review of a previous evaluation. Specifically, Exelon documented a required periodic evaluation of performance and condition monitoring activities and associated goals and preventive maintenance in "Oyster Creek Generating Station Maintenance Rule Periodic (a)(3) Assessment, dated January 1, 2006 – June 30, 2007." Exelon used the corrective action program (IR 601473) to manage the various tasks required to complete the assessment. In section 5.3.4 of the assessment, Exelon recommended that all system managers develop new performance criteria sheets for all maintenance rule systems. The task was placed in the corrective action program

(IR 601473, action 37) as an action item and was documented as complete on October 12, 2007. Exelon developed additional action items in IR 601473, tasking each system manager to review the existing performance monitoring criteria and ensure it was updated in accordance with ER-AA-310-1003, "Maintenance Rule – Performance Criteria Selection." These assigned actions were taken to complete between 2007 and 2009. Exelon did not have an action in IR 601473 to implement the updated performance criteria and therefore, did not load the revised criteria into the maintenance rule tracking software. Since the revised criteria were not implemented, systems managers were using outdated and technically unjustifiable data to evaluate performance and condition monitoring activities for some systems.

An illustrative example concerns the performance and condition monitoring activities related to the nuclear instrument (NI) system. The NI system consists of the source range monitors and neutron monitoring system, which monitor core power and protect against fuel damage through the generation of rod blocks and reactor trip setpoints. During the periodic evaluation conducted in 2006-2007, the system manager determined that the performance criteria needed to be revised from "no repeat MPFF" (maintenance preventable functional failures) to "2 MPFF per 24 month period." The specific action in IR 601473 to review and update the reliability criteria for the NI system was completed on June 21, 2007. On three occasions (December 19, 2008 – IR 853335, May 7, 2009 – IR 903303, and July 29, 2009 – IR 947291), the NI system experienced spiking of average power range monitoring (APRM) channels and generated unintended half scram signals. The system manager determined that each of these events constituted a MPFF of the NI system. The three recorded MPFFs within an 8 month time period exceeded the NI system's updated reliability criteria but not the outdated criteria since the spikes occurred on different APRM channels. For a system that exceeds its reliability criteria, Exelon T&RM (Training and Reference Manual) ER-AA-310-1005, "Maintenance Rule – Dispositioning Between (a)(1) and (a)(2)" requires the system manager to review the MPFF and make a proposal to be reviewed by Exelon's maintenance rule expert panel, to determine if the NI system should be placed in 10 CFR 50.65(a)(1) status where it would be subject to additional monitoring and corrective actions. Because the revised performance criteria were not implemented and the system manager was using the outdated criteria to evaluate system performance, the nuclear instrument (NI) system was not evaluated by the maintenance rule expert panel for transitioning to (a)(1) status. Had the new reliability criteria been implemented, the NI system would have been evaluated for transition to (a)(1) status and a detailed maintenance plan of action would have been generated to restore the reliability of the system.

Analysis

Exelon's failure to make adjustments, where necessary, to goals and monitoring to ensure that unavailability and reliability are balanced is a performance deficiency. This finding is not similar to any of the IMC 0612 Appendix E minor examples, but is more than minor because if left uncorrected it would have the potential to lead to a more significant safety concern. Specifically, the failure to implement revised performance criteria could prevent the screening of safety significant systems that have exceeded their performance criteria through a maintenance rule expert panel and prevent Exelon from monitoring degraded components against established goals in a manner sufficient to provide reasonable assurance that such SSCs are capable of fulfilling their intended functions.

This finding is not suitable for evaluation using the Significance Determination Process (SDP) because the performance deficiency did not cause the degraded equipment performance. Findings for which the SDP does not apply may be Green or assigned a severity level after NRC management review. Per the guidance provided in inspection procedure 71111.12, this issue is considered to be a Category II finding and thus, per NRC management review, is considered to be Green.

This finding has a cross-cutting aspect in the area of problem identification and resolution (P.3(c)). Specifically, Exelon did not ensure that actions identified in the 2006-2007 (a)(3) assessment to update performance criteria sheets for maintenance rule systems were completed and implemented.

Enforcement

10 CFR 50.65(a)(3) states, in part, that adjustments shall be made to performance monitoring activities where necessary to ensure that the objective of preventing failures of systems, structures and components (SSC) through maintenance is appropriately balanced against the objective of minimizing unavailability.

Contrary to the above, the licensee failed to implement adjustments to maintenance rule performance monitoring criteria as recommended in the 2006-2007 (a)(3) evaluation. As a result of not completing adjustments to the goals, system managers were using technically unjustifiable criteria to monitor and evaluate system performance for some maintenance rule systems.

Because this finding was of very low safety significance and was entered into Exelon's corrective action program as IR 1053237, this violation is being treated as an NCV, consistent with the NRC Enforcement Policy. **(NCV 04000219/201002-01, Adjustments to Maintenance Rule System Performance Criteria not made after Biannual Evaluation).**

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 documented reviews for the following plant configurations:

- 'A' isolation condenser and containment spray system #1 unavailable due to planned maintenance on January 4;
- STGS #1, 'A' isolation condenser, and 'B' 125V battery charger unavailable due to planned maintenance on January 5;
- STGS #2 and containment spray system #2 unavailable due to planned maintenance on January 11;
- Capacitor bank #2 unavailable due to unplanned maintenance on January 14; and
- Unplanned inoperability and entry into a limited condition for operation (LCO) for 'A' core spray booster pump on March 29.

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 corrective action program condition reports 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 of significance were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope (6 samples)

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

- Containment spray recirculation fan breaker on January 4 (IR 1010428);
- V-28-39 limit switch broken on January 5 (IR 1012511);
- V-28-28, STGS #2 orifice inlet valve failed to close on January 27 (IR 1022923);
- 'OD' breaker low temperature alarm on February 18 (IR 1030141);
- Torus O2 analyzer reading off scale low locally on March 3 (IR 1037327); and
- Rod worth minimizer (RWM) inoperability due to inconsistent rod tracking and generation of improper rod blocks on July 15, 2009.

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

A Green NRC identified Non-Cited Violation (NCV) of TS 6.8.1, Procedures and Programs, was identified when Exelon did not declare the rod worth minimizer (RWM) inoperable prior to completing the withdrawal of the twelfth rod during a reactor startup on July 15, 2009. The RWM exhibited difficulty tracking control rod position, generated inappropriate rod blocks and did not meet the operability criteria listed in procedure 409, "Operation of the Rod Worth Minimizer."

Description

At 1820 on July 15, 2009, a reactor startup was commenced to return Oyster Creek to power operation following a reactor scram on July 12. During the startup, the RWM exhibited difficulty following the movement of control rods, had difficulty following which

control rod was selected, and generated a total of 3 rod blocks even though the physical configuration of the control rod positions was in accordance with the control rod withdrawal sequence. Although operations personnel were aware of these malfunctions of the RWM, they believed that the rod blocks being generated were conservative. Operations personnel determined that the rod block that was generated was proper based upon the control rod position that the RWM indicated, even though the control rod position indicated was different than the true position. The operators were able to clear the improper rod blocks and continue with the startup.

The withdrawal of the twelfth control rod (rod 46-27) commenced at 1923. The rod was moved out one notch to position two on its way to position forty-eight. At 1926, the RWM lost track that rod 46-27 was selected, identified it as being out of sequence and generated a rod block. This rod block was improper as rod 46-27 was physically in the correct position in regards to the withdrawal sequence. The RWM generated several "relatch requests" which verified that rod 46-27 was in the proper sequence and the rod block cleared. At 1929, the operators recommenced rod withdrawal but the RWM was not tracking control rod movement and generated additional relatch requests and identified one or more withdrawal errors ("relatch warnings"). At this time, the RWM identified rod 14-27, a rod that had not been selected or withdrawn, as being at position twenty-eight and generated a rod block. At 1930, operators performed a RWM "demand scan", which refreshed the RWM with the current rod positions, and cleared the erroneous rod block for rod 14-27. The operators were then able to complete the withdrawal of the twelfth rod. At 1940, the operators declared the RWM inoperable due to generating an improper rod block, which occurred at 1929 during the withdrawal of the twelfth control rod. The operators entered Technical Specification (TS) 3.2.B.2(a), which addresses RWM inoperability after the first twelve rods are withdrawn. At 1942, the RWM was bypassed and the startup was continued.

The criteria for operability of the RWM is contained in procedure 409, "Operation of the Rod Worth Minimizer," which states, "The RWM will be considered operable if the RWM can track CRD positions, and develop rod blocks when the rod positions do not match the loaded sequence. Per the procedure, failures of individual rod position indications will not cause the RWM to be inoperable if actual rod position can be substituted into the RWM and the RWM can generate appropriate rod blocks with the substituted rod position."

The inspectors noted that during the withdrawal of the first twelve rods, there were 3 inappropriate rod blocks generated and numerous instances where the RWM lost track of control rod position as evidenced by the generation of "relatch requests," "relatch warnings," and repetitive selections of individual control rods. Although the operability call was made at 1940, the event that the operability call was based upon occurred at 1929. Based upon the time that the final improper rod block occurred, the previous instances of the RWM not accurately tracking rod position, and the operability criteria contained in procedure 409, the inspectors concluded that the operators should have declared the RWM inoperable prior to the withdrawal of the twelfth control rod and entered TS 3.2.B.2(b). This TS requires the submission of a 30 day report to the NRC detailing why the RWM failed, the actions and schedule required to repair it, and limits the licensee to one reactor startup per calendar year in this condition. Additionally, this TS requires the stationing of a second licensed operator and an engineer from the Core Engineering group to verify that the rod program is being followed.

Exelon documented this malfunction by adding it to an existing action request related to troubleshooting and repair of the RWM. Exelon documented the entrance into the wrong technical specification in IR 1062747.

Analysis

Exelon's failure to declare the RWM inoperable in accordance with the operability criteria contained in procedure 409 "Operation of the Rod Worth Minimizer," is a performance deficiency.

The finding was more than minor because it was similar to example 2.g of IMC 612, Appendix E. Exelon conducted a portion of the reactor startup with a malfunctioning RWM and did not declare the RWM inoperable until after the twelfth control rod had been withdrawn. Exelon did not enter the appropriate TS action statement and did not perform the required TS actions. Additionally, the finding was more than minor because it was associated with the Design Control attribute of the Barrier Integrity cornerstone objective to provide reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events.

In accordance with IMC 0609.04 (Table 4a), "Phase 1 – Initial Screening and Characterization of Findings," the finding was determined to be of very low safety significance (Green) because the finding affected the barrier integrity cornerstone and was a fuel barrier issue.

The performance deficiency had a cross-cutting aspect in the area of human performance, decision making [H.1(a)], because Exelon did not make a safety significant decision using a systematic process when faced with uncertain or unexpected plant conditions. Specifically, Exelon did not consider the operability criteria in procedure 409, "Operation of the Rod Worth Minimizer," when faced with a malfunctioning RWM during the reactor startup on July 15, 2009.

Enforcement

Oyster Creek Nuclear Generating Station Technical Specification 6.8.1, "Procedures and Programs" states, in part, that written procedures shall be established, implemented, and maintained covering the items referenced in Appendix "A" of Regulatory Guide (RG) 1.33, of which operation of the rod worth monitor system is one of the items mentioned. Contrary to the above, during a reactor startup on July 15, 2009, Exelon personnel did not evaluate malfunctions of the RWM, which occurred during the withdrawal of the first twelve control rods, against the criteria for operability contained in Procedure 409, "Operation of the Rod Worth Minimizer", did not declare the RWM inoperable at the time of the malfunctions, and did not enter the correct technical specification action statement and ensure that all the required actions were completed.

Because the finding was of very low safety significance (Green) and was entered into Exelon's corrective action program in condition report IR 1062747, this violation is being treated as an NCV, consistent with section IV.A of the NRC Enforcement Policy. **(NCV 04000219/201002-02, Failure To Declare The Rod Worth Minimizer Inoperable At The Time Operability Criteria Was Not Met And Enter The Correct Technical Specification Action Statement).**

Enclosure

1R18 Plant Modifications (71111.18)a. Inspection Scope (1 temporary modification sample)

The inspectors reviewed one temporary plant modification that was implemented by Exelon personnel at Oyster Creek. The inspectors reviewed the following modification:

- Dilution Plant Powered from Q121 Line (temporary modification SP-10-01);

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 reviewed the modifications to ensure they were performed in accordance with Exelon's modification process. The inspectors also ensured that revisions to 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 the modification. Documents reviewed for this inspection activity are listed in the Supplemental Information attachment to this report.

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing (71111.19)a. Inspection Scope (5 samples)

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

- SGTS #1 following corrective maintenance on January 6 (C2021781);
- SGTS #2 exhaust fan EF 1-9 on January 28 (C2022347);
- Core spray system #2 following pump alignment on February 9 (R2134924);
- Turbine building closed cooling water '1-2' heat exchanger following cleaning on February 24 (R2140574); and
- CRD pump 'B' following oil sample on March 10 (R2155020).

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 of significance were identified.

1R22 Surveillance Testing (71111.22)a. Inspection Scope (4 In-service Test (IST) samples and 3 Routine Surveillance samples)

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

- 'A' standby liquid control pump and valve operability and in-service test (IST) on January 5;
- Containment spray/ESW system #2 operability and IST on January 11;
- SGTS #2 charcoal filter in place leak test on January 26;
- Technical Support Center ventilation surveillance on January 27,
- 'A' and 'B' CRD Pump operability and IST on February 3;
- Core spray system #2 valve operability and IST on February 9;
- Emergency diesel generator #2 load test surveillance on March 9.

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 corrective action program condition reports 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

No findings of significance were identified.

Cornerstone: Emergency Preparedness [EP]1EP6 Drill Evaluation (71114.06)a. Inspection Scope (2 samples)

The inspectors observed one site EP drill and one operator requalification activity.

The inspectors observed the EP drill from the control room simulator, the technical support center (TSC), operations support center (OSC) and the emergency operations facility (EOF) on February 17. The inspectors evaluated the conduct of the drill, facility equipment issues, and Exelon personnel performance related to developing classification, notification, and protective action recommendations. The inspectors observed Exelon's drill critique of the TSC and EOF facilities to ensure Exelon appropriately identified performance issues.

The inspectors also observed an operator requalification activity on January 28, 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 of significance were identified.

4. **OTHER ACTIVITIES [OA]**

4OA2 Identification and Resolution of Problems (71152)

.1 Review of Items Entered Into the Corrective Action Program

The inspectors performed a daily screening of items entered into Exelon's corrective action program 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.

.2 Annual Sample Reviews (2 annual samples)

The inspectors reviewed Exelon's evaluations and corrective actions associated with the following issues. Documents reviewed for this inspection activity are listed in the Supplemental Information attachment to this report.

Reactor recirculation system flow oscillations

a. Inspection Scope

The inspectors reviewed Exelon's evaluation and corrective actions associated with a small power transient resulting from a change in the 'D' recirculation pump flow rate (IR 1009804). The inspectors reviewed relevant corrective action program condition reports to ensure that the full extent of the issue was identified, appropriate evaluations were performed, and corrective actions were specified and prioritized commensurate with the significance of the issue. The inspectors discussed this issue with operations and engineering personnel. The inspectors reviewed industry and NRC guidance on adherence to licensed power limits and Oyster Creek procedure 202.1, "Power Operations," to verify the licensee's compliance with operating license limits and to ensure that the issue was prioritized correctly.

b. Findings and Observations

No findings of significance were identified.

Compliance with license condition 2.B.17, "Biological Opinion"

a. Inspection Scope

The inspectors reviewed Exelon's implementation of the terms and conditions associated with license condition 2.B.17 "Biological Opinion," associated corrective

action program documents and the reporting requirements contained in the biological opinion and in technical specifications. The inspectors reviewed relevant corrective action program condition reports to ensure that the full extent of the issue was identified, that appropriate evaluations were performed, that reports were submitted to the National Marine Fisheries Service (NMFS) and the NRC as required by the operating license and environmental technical specifications, and corrective actions were specified and prioritized. In general, Exelon met the programmatic and reporting requirements of TSS and the biological opinion. The inspectors identified several issues with the implementation of the requirements contained in the biological opinion:

- The information recorded and submitted in conjunction with an incidental intake of a sea turtle was not in the format contained in the biological opinion and did not contain all the requested information.
- The biological opinion requires that rescue equipment and spot lights be staged at both the dilution and circulating system intakes. Exelon stages this equipment only during turtle season (June 1 through October 31).
- The posted procedure for sea turtle resuscitation is not the current version specified in the biological opinion and is not posted at the operating stations for the intake and dilution plant trash rakes.
- The required annual summary report does not meet the reporting requirements contained in the biological opinion as it does not contain all the requested information.

The inspectors reviewed the issues with NRC and NMFS biologists on March 29 and determined that due to their administrative nature, these issues represented minor violations of license condition 2.B.17. The inspectors discussed this issue with Oyster Creek environmental and regulatory affairs personnel and reviewed intake and dilution plant raking and sea turtle handling procedures. Issues identified by the inspectors were entered into Exelon's corrective action program as IR 1046066.

b. Findings and Observations

No findings of significance were identified.

40A3 Event Followup (71153) (1 samples)

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

.1 Capacitor bank #2 feeder breaker did not open on demand.

a. Inspection Scope

On January 08, control room operators noted that the feeder breaker for the #2 capacitor bank did not open upon demand by the grid system operator. Attempts by the control operators to open the breaker from the Oyster Creek control room were unsuccessful. Jersey Central Power and Light (JCP&L) maintenance technicians were dispatched to the switchyard and were unsuccessful in opening the breaker locally.

The inspectors monitored Exelon's interactions with JCP&L and actions in developing a course of action to deenergize #2 capacitor bank safely while maintaining power to the dilution plant to prevent adverse environmental effects for aquatic life living in the discharge canal. The inspectors verified that Exelon responded in accordance with their procedures and managed risk by reviewing the control room narrative logs, corrective action program condition reports, and through interviews of engineering and operations personnel. The inspectors also reviewed TS requirements to ensure that Oyster Creek was operated in accordance with its operating license. Exelon successfully deenergized #2 capacitor bank on February 1, allowing JCP&L to commence repairs to the #2 capacitor bank feeder breaker. The failure of the capacitor bank feeder breaker is described and evaluated in corrective action program condition report IR 1014371.

b. Findings

No findings of significance were identified.

2. (Closed) URI 05000219/2009009-01, Review Exelon's Root Cause Analysis for the Q121 Circuit Breaker Failure to Open on July 12, 2009 and LER 05000219/2009-005-00 and -01, Reactor Scram following a Transmission Line Lightning Strike

a. Inspection Scope

The inspectors reviewed the unresolved item (URI) pending issues which included reviewing Exelon's root cause report for the failure of the Q121 circuit breaker to open to isolate a fault within its designed time on July 12, 2009 and to review the licensee's applicability of that failure and a previously unknown failure of the same circuit breaker in June 2009, to the Oyster Creek Maintenance Rule Program. The inspectors also reviewed the associated licensee event report (LER) and the corrective action program documentation.

The LER and root cause analysis concluded that the circuit breaker did not open as designed because the trip linkage latch ball bearing had degraded due to lack of lubrication. Exelon's root cause analysis included the results of a laboratory examination of the breaker trip latch ball bearing by JCP&L, who owns and maintains all the circuit breakers in the Oyster Creek switchyards. Upon removal of this double shielded ball bearing, it was stiff and hard to turn. After disassembly of the bearing, it appeared that the grease had lost its lubrication ability, potentially due to contamination with a spray lubricant.

In reviewing the JCP&L digital fault recorder (DFR) information provided after the July 12, 2009 scram, Exelon identified that the Q121 breaker had not responded properly following a June 2009 line lightning strike. In the June 2009 event, it opened in about 20 seconds after it was first demanded. The lightning strike was near the Whiting substation at the other end of the line and did not result in the actuation of the secondary protection relays in the Oyster Creek switchyard. When the breaker opened in June 2009, the control room (CR) operator closed it as directed by JCP&L to repower the line. Subsequently, when JCP&L asked the CR operator to reopen the Q121 breaker to allow line work following the June event, it did not open from the CR. The circuit breaker was successfully opened from the circuit breaker relay house to isolate the line. The operators initiated an issue report (IR 930778) documenting the problem, which was

attributed to a previously identified issue concerning a problem in the wiring between the CR switch and the circuit breaker rather than any actual circuit breaker operational issue. Absent the DFR information from JCP&L, Exelon did not know that Q121 had experienced a failure to operate as designed.

The Q121 circuit breaker is not safety-related, but is included as part of the switchyard system in the Oyster Creek maintenance rule program, along with the other offsite power and generator output circuit breakers (which included the 230 KV and 34.5 KV switchyards) in the Oyster Creek maintenance rule system program. Prior to the July 12, 2009, reactor scram, the switchyard system was in maintenance rule category a(2), and Exelon was not aware of any recent problems with the Q121 breaker ability to open if required to isolate a fault. The only known issue concerned the ability to open the breaker using the control room switch. Following the July 12, 2009 scram and the identification of the June 2009 failure to operate as designed, the switchyard system was appropriately placed in the a(1) status, with corrective actions underway to return it to a(2) status, including a review of JCP&L preventive maintenance and periodic testing activities.

The other corrective actions documented in IR 940992 appeared adequate to prevent recurrence, including a review of the past performance of the similar circuit breakers in the 34.5KV switchyard. Exelon identified that it had not been the practice of asking JCP&L to inform Exelon of circuit breaker timing issues if there was not a direct impact on offsite power availability and took additional actions to improve the interface and transmittal of information concerning the operation of components within the scope of the maintenance rule.

b. Findings

No findings of significance were identified.

.3 (Closed) LER 05000219/2009-006-00 and -01, EDG #1 Inoperable due to Failure of its Output Breaker to Close

a. Inspection Scope

This LER discusses the #1 EDG output circuit breaker not automatically closing as designed during routine testing on August 5, 2009, due to the failure of contacts to properly actuate in the generator breaker close (GBC) relay. NRC Special Inspection Report 05000219/2009-009 reviewed and dispositioned this issue. Exelon issued Revision 1 of this LER to report a GBC Agastat relay manufacturing defect under 10 CFR Part 21, Reporting of Defects and Non-compliances. Review of this LER identified no new issues.

b. Findings

No findings of significance were identified.

40A6 Meetings, Including Exit

Resident Inspector Exit Meeting. On April 29, 2010, the inspectors presented their overall findings to members of Exelon's management led by Mr. P. Orphanos, Plant Manager, and other members of his staff who acknowledged the findings. The

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inspectors confirmed that proprietary information reviewed during the inspection period was returned to Exelon.

40A7 Licensee-Identified Violations

None.

ATTACHMENT: SUPPLEMENTAL INFORMATION

Enclosure

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

M. Massaro, Site Vice-President
 P. Orphanos, Plant Manager
 D. Dicello, Director, Work Management
 J. Dostal, Director, Operations
 R. Peak, Director, Engineering
 R. Reiner, Director, Training
 J. Vaccaro, Director, Maintenance
 J. Barstow, Manager, Regulatory Assurance
 T. Keenan, Manager, Security
 R. Wiebenga, Senior Manager, System Engineering
 H. Ray, Senior Manager, Design Engineering
 M. McKenna, Shift Operations Superintendent
 D. Peiffer, Manager, Nuclear Oversight
 J. Kerr, Manager, Corrective Action Program
 J. Kandasamy, Manager, Environmental/Chemistry Manager
 J. Renda, Manager, Radiation Protection
 C. Barnes, Regulatory Assurance Specialist

Others:

State of New Jersey, Bureau of Nuclear Engineering

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSEDOpened/Closed

05000219/2010002-01	NCV	Adjustments to Maintenance Rule System Performance Criteria not made after Biannual Evaluation (Section 1R12)
05000219/2010002-02	NCV	Failure To Declare The Rod Worth Minimizer Inoperable At The Time Operability Criteria Was Not Met And Enter The Correct Technical Specification Action Statement (Section 1R15)

Closed

05000219/2009-005-00	LER	Reactor Scram Following a Transmission Line Lightning Strike (Section 4OA3)
05000219/2009-005-01	LER	Reactor Scram Following a Transmission Line Lightning Strike (Section 4OA3)

		A-2
05000219/2009-006-00	LER	EDG #1 Inoperable due to Failure of its Output Breaker to Close (Section 4OA3)
05000219/2009-006-01	LER	EDG #1 Inoperable due to Failure of its Output Breaker to Close (Section 4OA3)
05000219/2009009-01	URI	Review Exelon's Root Cause Analysis for the Q121 Circuit Breaker Failure to Open on July 12, 2009 (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 Protection

Procedures

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"
 OP-OC-108-109-1002, "Cold Weather Freeze Inspection"

Other Documents

ABN-31, High Winds
 ABN-32, Abnormal Intake Level

Section 1R04: Equipment Alignment

Procedures

607.4.009, "Containment Spray System I and System II IST Valve Position Check"
 310, "Containment Spray System Operation"
 617.4.001, "CRD Pump Operability Test"

Other

GE 148F740, Containment Spray System P&ID
 GU 3E-241-A1-001, ISI Boundary Sketch Containment Spray System
 BR 2005, Sheet 4, Emergency Service Water P&ID

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"
 OP-AA-201-009, "Control of Transient Combustible Material"
 OP-OC-201-208, Attachment 1, "Oyster Creek Nuclear Generating Station Pre-Fire Plan"
 NW-FA-23, Pre-Fire Plan "New Warehouse"
 SM-AA-102, "Warehouse Operations"
 NF-AA-300, "Special Nuclear Material Control and Accountability"
 TB-FA-3A, TB-FA-3B, Pre-Fire Plan, "4160V C & D Vaults"

Condition Reports (IR)

930341	966388	985244	985437	994712	1004274
1009057	1010086	1024496	1024183	1032418	843821

Work Orders (AR)

R2149793

Other Documents

Information Notice 88-34

Section 1R06: Flood Protection MeasuresProcedures

ABN-18, "Service Water Failure"

ABN-20, "TBCCW Failure Response"

ABN-35, "Loss of Instrument Air"

Drawings

GU 3E-151-02-001, "General Arrangement: Turbine Building Plan Floor Elevation 0'0" and 3'6"

Other Documents

White Paper 28063-005, "Design and Licensing Bases for Flooding at OCGS"

Oyster Creek Nuclear Generating Station Internal Flood Evaluation Summary and Notebook

Section 1R07: Heat Sink PerformanceProcedures

ER-AA-340-2000, "Balance Of Plant Heat Exchanger Inspection, Testing, and Maintenance Guide"

MA-AA-716-210, "Performance Centered Maintenance (PCM) Process"

ER-AA-310-1001, "Maintenance Rule – Scoping"

Drawings

3D-251-29-002, "Spent Fuel Pool CCW Sys Fuel Pool Heat Exchanger H-18-00B Tube Plugging Record"

Condition Reports (IR)

981410	569463	330592	1000013	1001438	1014877
899258	827783	994162	1047733	O2005-0482	1047117
1049072	1050240	1046032	1033028	1030466	1034294

Work Orders (AR)

A2166992	A2142392	R2118286	R0805597	R0800595	C2021841
A2220467					

Other Documents

MA-AA-716-210-1001, PCM Template, "Heat Exchanger – Tube Type", dated February 8, 2010

C-1302-251-5360-003, "Spent Fuel Pool Cooling with One SFPC Train"

Oyster Creek UFSAR, Section 9.1.3, "Spent Fuel Pool Cooling System"

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

OC-7, "Functional Failure Definition for System and Train 251"

Maintenance Rule Scope and Performance Monitoring for SSC Number 251, "Spent Fuel Pool Cooling System"

OC-2010-S-0054, "50.59 Screening for Plugging of A Spent Fuel Pool Heat Exchanger Tube"

Section 1R11: Licensed Operator Requalification Program

Procedures

EP-AA-125-1002, "ERO Performance – Performance Indicators Guidance"

EP-AA-125-1003, "ERO Readiness – Performance Indicators Guidance"

EP-MA-114-100-F-03, "State and Local Notification Form"

Other Documents

EOP User's Guide (2000-BAS-3200.02)

Scenario 2612.CREW.10-02.1

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"

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

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

651.4.003, "Standby Gas Treatment System 10-Hour Run – System 2"

ER-AA-301-1002, "Maintenance Rule – SSC Risk Significance Determination"

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

Condition Reports (IR)

1022923	913953	915058	942417	994135	1005221
1014398	1019082	1017583	1016986	996357	601473
992354	965580	953843	947291	941010	916766

Work Orders (AR)

C2022347

Other Documents

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

Section 1R13: Maintenance Risk Assessments and Emergent Work Control

Procedures

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"

Condition Report (IR)

1048255 1048269

Work Orders

A2101779

Section 1R15: Operability EvaluationsProcedures

OP-AA-108-115, "Operability Determination"
 654.2.001, "Reactor Building Ventilation Supply Valve Position Indication Check"
 312.10, "Secondary Containment Control"
 MA-AA-716-004, "Conduct of Troubleshooting"
 409, "Operation of the Rod Worth Minimizer"

Drawings

GU-3E-822-21-1000, "Standby Gas Treatment Flow Diagram"

Condition Reports (IR)

1022923	1013381	1012511	1030141	1037327	1030483
946105	915052	916062	928693	963053	955582
958719	958763	O2004-3977-3			

Work Orders (AR)

A2241611	C2022853	A2243308	R2155723	A2225881
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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"
 C-1302-822-5450-050, "Reactor Building Corner Room Response to Electrical Heat Loads During LOCA"
 OC-2010-OE-0001, "Reactor Building Ventilation System V-28-28 Orifice Purge Inlet Valve"
 1022923, Troubleshooting Log, V-28-28, Orifice Purge Inlet Valve to SBGTS (System II)"
 SDBD-OC-822, "Design Basis Document for Standby Gas Treatment System/Secondary Containment"
 Oyster Creek Updated Final Analysis Report, Section 6.5.1, "Engineered Safety Feature (ESF) Filter Systems"
 Oyster Creek Updated Final Analysis Report, Section 6.2.5, "Combustible Gas Control in Containment"
 Oyster Creek Updated Final Analysis Report, Section 8.2, "Offsite Power System"
 Oyster Creek Updated Final Analysis Report, Figure 8.2.2, "230kV Substation – One Line Diagram"
 Oyster Creek Technical Specification 3.7, "Auxiliary Electrical Power"
 Oyster Creek Technical Specification 3.5, "Containment"
 Oyster Creek Technical Specification 4.5.1, "Inerting Surveillance"
 IMC Part 9900 10 CFR Guidance, "10 CFR 50.59 Changes, Tests and Experiments"
 NEI 96-07, "Guidelines for 10 CFR 50.59 Implementation"
 Regulatory Guide 1.187, "Guidance for Implementation of 10 CFR 50.59 Changes, Tests, and Experiments"
 Plant Process Computer printout "Rod Worth Minimizer Message Summary", dated July 15, 2009
 Oyster Creek Nuclear Generating Station Log Entries Report, dated July 15, 2009
 VM-RW-1312, "Rod Worth Minimizer Operators Manual"
 VM-RW-1295, "Rod Worth Minimizer Programmers Notes"
 OP-PPC-SRS-0006, "System Requirements Specification for the Oyster Creek Rod Worth Minimizer PPC Functions"
 VM-RW-1316, "Rod Worth Minimizer Detailed Design Manual"
 OC1C22SU-06.0, "1F21 Startup per ReMA OC1C22-17.0, Sequence Step 1"

Section 1R18: Plant Modifications

Procedures

SP-10-01, "Dilution Plant Powered from Q121 Line"
EN-AA-103, "Environmental Review"

Drawings

P6-50-00, "OYSTER CK SUB & SW PT AND RADWASTE SUB, Central NJ"

Condition Report (IR)

1014371

Other

EN-AA-103, Attachment 1, Environmental Review Checklist for SP-10-01
EN-AA-103-0001, Attachment 1, Environmental Review Form, "Dilution Plant Powered by Q121 Line, OC SP-10-01"
OC-2010-S-0008, 50.59 Screening Form "Procedure SP-10-01"
Oyster Creek Technical Specification 3.7, "Auxiliary Electrical Power"

Section 1R19: Post-Maintenance Testing

Procedures

MA-AA-716-012, "Post Maintenance Testing"
OP-MA-109-101, "Clearance and Tagging"
610.4.022, "Core Spray System 2 Pump Operability and Quarterly In-Service Test"

Condition Report (IR)

1022923 1013381

Work Order (AR)

C2022347	R2155020	R2140574	R2155723	R2134924	C2021781
R2134924	C2019797	C2140574	C2022942		

Other

VM-OC-0142, "Variable Frequency Motor-Generator Set and Associated Control Equipment"

Section 1EP6: Drill Evaluation

Procedures

EP-AA-125-1002, "ERO Performance – Performance Indicators Guidance"
EP-AA-125-1003, "ERO Readiness – Performance Indicators Guidance"
EP-MA-114-100-F-03, "State and Local Notification Form"

Other Documents

EOP User's Guide (2000-BAS-3200.02)

Section 1R22: Surveillance Testing

Procedures

SA-AA-129, "Electrical Safety"
MA-AA-1000, "Conduct of Maintenance"
612.4.001, "Standby Liquid Control Pump and Valve Operability and In-Service Test"
304, "Standby Liquid Control System Operation"
607.4.006, "Containment Spray and Emergency Service Water Pump System 2 Operability and Comprehensive/Preservice/Post-Maintenance In-Service Test"

651.3.003, "STGTS Charcoal Filter In-Place Leak Test"
 651.4.002, "Standby Gas Treatment System 10-Hour Run – System 1"
 331.2, "Site Emergency Building HVAC System"
 636.4.013, "Diesel Generator #2 Load Test"
 617.4.001, "CRD Pump Operability Test"
 610.4.003, "Core Spray Valve Operability and In-Service Test"

Drawings

3E-843-21-1000, "Site Emerg Bldg HVAC/Glycol and Air Flow Diagram"

Condition Reports (IR)

980138	1014823	1012928	1034552	911077	1022215
952992	910300	330592	739164	1027679	1027606
811067					

Work Orders (AR)

R2152647	C2021781	A2239935	R2110766	R2155354	R2154370
R2127912	R2121969	A2193906	R2158558	R2156513	R2156514
C2022148	R2152919				

Other Documents

NRC Inspection Manual Part 9900 Technical Guidance, "Maintenance - Preconditioning of Structures, Systems, and Components before Determining Operability"
 Technical Specification 3.2.C
 Technical Specification 4.2.E.1
 Technical Specification 4.3.C
 Technical Specification 4.4.C.1
 Technical Specification 4.4.D.1
 Technical Specification 3.4
 Technical Specification 4.5.H.1(a)
 Technical Specification 4.5.H.1(c)
 Technical Specification 4.7.A
 UFSAR 9.3.5, "Standby Liquid Control System (Liquid Poison System)"
 UFSAR 6.2.2, "Containment Heat Removal Systems"
 GU-3E-822-21-1000, "Flow Diagram – Standby Gas Treatment System"
 UFSAR 6.5.1, "Engineer Safety Feature (ESF) Filter Systems"
 SDBD-OC-822, "Design Basis Document for Standby Gas Treatment System/Secondary Containment"
 NUREG-0696, "Functional Criteria for Emergency Response Facilities"
 UFSAR 6.4, "Habitability Systems"
 UFSAR 9.4, "Heating, Ventilation and Air Conditioning Systems"
 VM-OC-5471, "SEB HVAC HEPA Filtration System Equipment"
 C-1302-843-5360-001, "TSC – A/C Reduced Air Flow Rate"
 Regulatory Guide 1.52, "Design, Inspection, and Testing Criteria for Air Filtration and Adsorption Units of Post-Accident Engineered Safety Feature Atmosphere Cleanup Systems in Light-Water Cooled Nuclear Power Plants"

Section 4OA2: Identification and Resolution of Problems

Procedures

OP-AA-300-1540, "Reactivity Management Administration"
 MA-AA-716-210-1001, "Performance Centered Maintenance (PCM Templates)"

202.1, "Power Operation"
 106.12, "Sea Turtle Surveillance, Handling, and Reporting Instructions"
 344.2, "Intake Trash Rake Operation"
 324.1, "Thermal Dilution Trash Rake Operation"
 OP-AA-106-101, "Significant Event Reporting"
 LS-MA-1253, "Reportable Event Plant Specific OC-08: Sighting or Capture of Sea Turtle"

Condition Reports (IR)

1036684	1036443	1036083	1036083	1036083	1033054
1031799	1031411	1030745	1029419	1027484	1025083
1024126	1011485	1009804	1009396	1009075	1007052
1004447	1002306	984569	956671	956657	956657
953270	941191	941141	926391	918049	915338
907390	906431	882758	882758	873312	861168
857632	855843	848744	847797	847599	847599
845322	1046066	1042286	945358	943993	943876
943622	932481	925885	917672	943399	970510
927138	1047375	1041624	1041818	1042438	1047375
1041624					

Work Orders (AR)

A2231620	C2021855	A2245683	A2240450	A2241011	A2231011
A2221620					

Other Documents

NRC Regulatory Issue Summary 2007-01, "Adherence to Licensed Power Limits"
 NEI Position Statement, "Guidance on Complying with the Licensed Power Limit," dated June 12, 2008
 Safety Evaluation, "NEI Guidance Document to Licensees on Complying with the Licensed Power Limit," dated October 8, 2008
 Complex Troubleshooting Data Sheet for AR A2203437, "SC-RY0004C – C M-G Set"
 Complex Troubleshooting Failure Mode Tree "'C' Recirc Flow has experienced Flow Oscillations of up to 700GPM (A2231620)"
 1036684-02 PINV, Prompt Investigation: "'C' Reactor Recirc Pump Speed Controller failed to indicate properly."
 VM-OC-0142, "Variable Frequency Motor-Generator Set and Associated Control Equipment"
 828.0.0040, "Nuclear Plant Operator Initial Course: Recirc Flow Control"
 828.0.0038, "Nuclear Plant Operator Initial Course: Reactor Recirculation System"
 PCM Template, "Reactor Recirculation MG Set and Support Systems," dated January 22, 2007
 UFSAR 7.7.1.2, "Recirculation Flow Control"
 Oyster Creek Operations Logs, dated June 1 through October 31, 2009
 Oyster Creek Environmental Technical Specification 3.5.2, "Non-Routine Environmental Operating Reports"
 United State Department of Commerce letter, "Oyster Creek Nuclear Generating Station," dated March 3, 2010
 United States Department of Commerce letter "Oyster Creek Nuclear Generating Station," dated November 21, 2006
 Exelon Nuclear ltr, "Sea Turtle Incidental Take Report 2009-1," dated July 17, 2009.
 Exelon Nuclear ltr, "Sea Turtle Incidental Take Report 2009-2, 2009-03 and 2009-04," dated August 17, 2009.
 Exelon Nuclear ltr, "Sea Turtle Incidental Take Report 2009-5," dated September 2, 2009.

Exelon Nuclear ltr, "Sea Turtle Incidental Take Report 2009-6, 2009-7, 2008-8 and 2009-9," dated October 13, 2009.

Exelon Nuclear ltr, "Sea Turtle Incidental Take Report 2009-10 and 2009-11," dated November 9, 2009.

Exelon Nuclear ltr, "Annual Sea Turtle Incidental Take Report," dated December 31, 2009.

Section 40A3: Event Followup

Procedures

SP-10-01, "Dilution Plant Powered from Q121 Line"

Drawings

P6-50-00, "OYSTER CK SUB & SW PT AND RADWASTE SUB, Central NJ"

Condition Reports (IR)

1014371 O2004-1667 940992

Other Documents

NUREG-1022, "Event Reporting Guidelines 10 CFR 50.72 and 50.73"

Oyster Creek Technical Specification 3.7, "Auxiliary Electrical Power"

Exelon Email from Godknecht, "Plant Risk with Degraded CAP Bank Breaker Stuck Closed," dated January 13, 2010, 10:46 AM

Oyster Creek Root Cause Investigation Report, "Evaluation of Main Generator Trip and Reactor Scram on July 12, 2009," dated August 21, 2009

First Energy, BETA Laboratory, Failure Analysis Report, "JCP&L Trip Bearing Q121 Oil Circuit Breaker," dated January 8, 2010

LIST OF ACRONYMS

ADAMS	Agency-wide Documents Access and Management System
APRM	Average Power Range Meter
CFR	Code of Federal Regulations
CR	Control Room
CRD	Control Rod Drive
DFR	Digital Fault Recorder
GBC	Generator Breaker Close
IR	Issue Report
IST	Inservice Test
IMC	Inspection Manual Chapter
IPEEE	Individual Plant Examination for External Events
JCP&L	Jersey Central Power and Light
KV	Kilo-volt
LCO	Limited Condition for Operation
MPFF	Maintenance Preventable Functional Failure
NCV	Non-cited Violation
NI	Nuclear Instrument
NMFS	National Marine Fisheries Service
NRC	Nuclear Regulatory Commission
NUREG	NRC technical report designation (<u>N</u> uclear <u>R</u> egulatory Commission)
NWS	National Weather Service
PARS	Publicly Available Records
RWM	Rod Worth Minimizer
SDP	Significance Determination Process
SGTS	Standby Gas Treatment System
SSC	System, Structure or Component
TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report
URI	Unresolved Item
V	Volt
WO	Work Order