



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

May 9, 2013

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

SUBJECT: PEACH BOTTOM ATOMIC POWER STATION - NRC INTEGRATED
INSPECTION REPORT 05000277/2013002 AND 05000278/2013002

Dear Mr. Pacilio:

On March 31, 2013, the U. S. Nuclear Regulatory Commission (NRC) completed an integrated inspection at your Peach Bottom Atomic Power Station (PBAPS), Units 2 and 3.

The enclosed integrated inspection report documents the inspection results, which were discussed on April 12, 2013, with Mr. Michael Massaro, Peach Bottom 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 report documents one NRC-identified finding of very low safety significance. If you disagree with the cross-cutting aspect assigned to the 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 the PBAPS.

In accordance with Title 10 of the *Code of Federal Regulations* (10 CFR), Section 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 component of the NRC's Agencywide Documents Access Management System (ADAMS). ADAMS is accessible from the NRC Website at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

/RA/

Mel Gray, Chief
Reactor Projects Branch 4
Division of Reactor Projects

Docket Nos.: 50-277, 50-278
License Nos.: DPR-44, DPR-56

Enclosure: Inspection Report 05000277/2013002 and 05000278/2013002
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U. S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket Nos.: 50-277, 50-278

License Nos.: DPR-44, DPR-56

Report No.: 05000277/2013002 and 05000278/2013002

Licensee: Exelon Generation Company, LLC

Facility: Peach Bottom Atomic Power Station, Units 2 and 3

Location: Delta, Pennsylvania

Dates: January 1, 2013 through March 31, 2013

Inspectors: S. Hansell, Senior Resident Inspector
A. Ziedonis, Resident Inspector
S. Barr, Senior Emergency Preparedness Specialist
E. Burket, Emergency Preparedness Specialist
T. Fish, Senior Operations Engineer
J. Furia, Senior Health Physicist
J. Laughlin, Emergency Preparedness Inspector, NSIR
G. Meyer, Senior Reactor Inspector
J. Tomlinson, Operations Engineer

Approved by: Mel Gray, Chief
Reactor Projects Branch 4
Division of Reactor Projects

Enclosure

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SUMMARY

IR 05000277/2013002, 05000278/2013002; 01/01/2013 – 03/31/2013; Peach Bottom Atomic Power Station (PBAPS), Units 2 and 3; Maintenance Risk Assessments and Emergent Work Control.

This report covered a three-month period of inspection by resident inspectors and announced inspections performed by regional inspectors. The inspectors identified one finding of very low safety significance (Green). The significance of most findings is indicated by their color (i.e., greater than Green, or Green, White, Yellow, Red) and determined using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP), dated June 2, 2011. Cross-cutting aspects are determined using IMC 0310, "Components Within Cross-Cutting Areas," dated October 28, 2011. All violations of Nuclear Regulatory Commission (NRC) requirements are dispositioned in accordance with the NRC's Enforcement Policy, dated June 7, 2012. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4.

Cornerstones: Barrier Integrity

- Green. The inspectors identified a Green finding for PBAPS's failure to follow the operability determination (OD) process described in Procedure OP-AA-108-115, "Operability Determinations." Specifically, on February 24, 2013, between 6:15 a.m. and 10:30 a.m., an immediate determination of operability was not made in a timely manner, and was not initially documented in accordance with the corrective action process (CAP), following discovery that Unit 2 was operating outside of the analyzed limits specified in the core operating limits report (COLR) with the power load unbalance (PLU) circuit out of service (OOS). Consequently, operators entered the Unit 2 minimum critical power ratio (MCPR) technical specification limiting condition for operation (TS LCO) 3.2.2, Condition A, after exceeding the two-hour required action completion time. The inspectors determined that the immediate determination of operability was not performed in a matter commensurate with the safety significance of the two-hour LCO required action completion time. The inspectors determined that this was not a violation of TSs because subsequent analysis by a third party vendor determined that MCPR thermal limits were satisfied between 85 percent and 100 percent reactor power with the PLU circuit OOS on Unit 2.

This finding is more than minor because it is associated with the design control attribute of the barrier integrity cornerstone and adversely affected the cornerstone objective of providing reasonable assurance that the physical design barriers (fuel cladding) protect the public from radionuclide releases caused by events. Using IMC 0609, Attachment 4, "Phase 1 – Initial Screening and Characterization of Findings," and IMC 0609, Appendix A, "The SDP for Findings At-Power," the inspectors determined that this issue screened to Green, because it was associated only with the fuel cladding barrier. The inspectors determined that this finding had a cross-cutting aspect in the area of Human Performance, decision-making, because PBAPS did not use conservative assumptions in decision making and did not adopt a requirement to demonstrate that the proposed action was safe in order to proceed rather than a requirement to demonstrate that it is unsafe in order to disprove the action [H.1(b)]. (Section 1R13)

Other Findings

None.

Enclosure

REPORT DETAILS

Summary of Plant Status

Unit 2 began the inspection period at 100 percent power. On February 1, 2013, operators reduced power to approximately 60 percent to perform planned activities that included a control rod pattern adjustment, control rod testing, main turbine valve testing, main steam isolation valve (MSIV) testing, and reactor feed pump (RFP) maintenance and testing. The unit was returned to 100 percent RTP the next day. The unit remained at rated thermal power (RTP) through the end of the inspection period, except for brief periods to support planned testing and control rod pattern adjustments.

Unit 3 began the inspection period at 100 percent power. On January 13, 2013, operators reduced power to approximately 60 percent to perform planned activities that included control rod pattern adjustment, control rod testing, main turbine valve testing, MSIV testing, and RFP maintenance and testing. The unit was returned to 100 percent RTP the next day. The unit remained at RTP through the end of the inspection period, except for brief periods to support planned testing and rod pattern adjustments.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01 – 2 samples)

.1 External Flooding (1 External Flooding sample)

a. Inspection Scope

On February 13 and 14, 2013, the inspectors performed an inspection of the external flood protection measures for PBAPS. The inspectors reviewed TSS, procedures, design documents, and Updated Final Safety Analysis Report (UFSAR) Chapter 2.4.3.5, which depicted the design flood levels and protection areas containing safety-related equipment to identify areas that may be affected by external flooding. The inspectors conducted a walkdown of the internal and external features of the safety-related pump structure for Units 2 and 3, to ensure that PBAPS's flood protection measures were controlled in accordance with the flood protection design basis. The inspectors also reviewed operating procedures for mitigating external flooding during severe weather to determine if PBAPS planned or established adequate measures to protect against external flooding events.

b. Findings

No findings were identified.

.2 Readiness for Impending Adverse Weather Conditions (1 Adverse Weather sample)

a. Inspection Scope

The inspectors reviewed PBAPS's preparations for the onset of adverse weather on March 5 and 6, 2013. The inspectors reviewed the implementation of adverse weather preparation procedures before the onset of, and during, a winter snow and ice storm with high wind conditions. The inspectors walked down the emergency diesel generators (EDGs), ESW systems, high pressure service water (HPSW) systems, and emergency auxiliary transformers to ensure system availability. The inspectors verified that operator actions defined in PBAPS's adverse weather procedure maintained the readiness of essential systems. The inspectors discussed readiness and staff availability for adverse weather response with operations and work control personnel.

b. Findings

No findings were identified.

1R04 Equipment Alignment (71111.04 - 5 samples)

.1 Partial System Walkdowns (71111.04 - 4 samples)

a. Inspection Scope

The inspectors performed partial walkdowns of the following four systems:

- Unit 2 reactor core isolation cooling (RCIC) with high-pressure coolant injection (HPCI) OOS on January 3
- Unit 2 'A' core spray (CS) with 'B' CS OOS on January 7
- Unit 3 HPCI with RCIC OOS (yellow risk) on January 22
- E-1 and E-2 EDGs before diesel run on January 29

The inspectors selected these systems based on their risk-significance relative to the reactor safety cornerstones at the time they were inspected. The inspectors reviewed applicable operating procedures, system diagrams, the UFSAR, TSs, work orders (WOs), condition reports (CRs), and the impact of ongoing work activities on redundant trains of equipment in order to identify conditions that could have impacted system performance of their intended safety functions. The inspectors also performed field walkdowns of accessible portions of the systems to verify system components and support equipment were aligned correctly and were operable. The inspectors examined the material condition of the components and observed operating parameters of equipment to verify that there were no deficiencies. The inspectors also reviewed whether PBAPS staff had properly identified equipment issues and entered them into the CAP for resolution with the appropriate significance characterization.

b. Findings

No findings were identified.

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

a. Inspection Scope

On March 21 - 22, 2013, the inspectors performed a complete system walkdown of accessible portions of the Unit 3 CS room. The inspectors reviewed operating

procedures, surveillance tests (STs), drawings, equipment line-up check-off lists, and the UFSAR to verify the system was aligned to perform its required safety functions. The inspectors also reviewed electrical power availability, component lubrication and equipment cooling, hangar and support functionality, and operability of support systems. The inspectors performed field walkdowns of accessible portions of the systems to verify system components and support equipment were aligned correctly and operable. The inspectors examined the material condition of the components and observed operating parameters of equipment to verify that there were no deficiencies. Additionally, the inspectors reviewed a sample of related CRs and WOs to ensure PBAPS appropriately evaluated and resolved any deficiencies.

b. Findings

No findings were identified.

1R05 Fire Protection (71111.05 - 5 samples)

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

a. Inspection Scope

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

- Unit 2 RCIC on January 4
- Unit 2 and Unit 3 pump structures on February 13
- Unit 2 reactor building (RB), elevation 135'
- Unit 3 RB, elevation 135'

.2 Fire Protection – Drill Observation (71111.05A - 1 sample)

a. Inspection Scope

The inspectors observed a fire brigade drill scenario conducted on February 20, 2013, that involved a simulated fire in the Unit 2 turbine building (TB), elevation 116', hot rigging room (fire zones 78B and 81). The inspectors evaluated the fire brigade's initial response time, proper retrieval of required gear and equipment, and implementation of fire-fighting strategies. The inspectors verified that PBAPS personnel identified deficiencies, openly discussed them in a self-critical manner at the debrief, and took appropriate corrective actions to improve performance. The inspectors evaluated specific attributes as follows:

- Proper use of turnout gear and self-contained breathing apparatus
- Employment of appropriate fire-fighting techniques

- Sufficient fire-fighting equipment brought to the scene
- Effectiveness of command and control
- Search for victims and propagation of the fire into other plant areas
- Smoke removal operations
- Utilization of pre-planned strategies
- Adherence to the pre-planned drill scenario
- Drill objectives met

b. Findings

No findings were identified.

1R07 Heat Sink Performance (71111.07 – 4 samples)

.1 Heat Sink Performance Annual Review (71111.07A - 1 sample)

a. Inspection Scope

The inspectors reviewed the Unit 2 CS system room coolers to determine its readiness and availability to perform its safety function. The inspectors reviewed the design basis for the component and verified PBAPS's commitments to NRC Generic Letter 89-13, "Service Water System Problems Affecting Safety-Related Equipment." The inspectors reviewed the results of previous testing for the Unit 2 CS system room coolers to identify potential adverse trends and verify system performance. The inspectors discussed the results of the most recent testing with the engineering staff and reviewed fouling factor calculations associated with the room coolers. The inspectors verified that PBAPS initiated appropriate corrective actions for identified deficiencies. The inspectors also verified that the number of tubes plugged within the room coolers did not exceed the maximum allowed number.

b. Findings

No findings were identified.

.2 Heat Sink and Heat Exchanger Sample Selection (71111.07 - 3 samples)

a. Inspection Scope

Based on Exelon's risk ranking of safety-related heat exchangers (HXs), a review of past triennial heat sink inspections, recent operational experience, and resident inspector input, the inspectors selected one heat sink sample (Unit 2 – ESW) and two HX samples (E-2 and E-4 EDGs, and Unit 3 'H' CS room cooler) for inspection. For each sample, the inspectors reviewed program and system health reports, and self-assessments completed by Exelon staff.

ESW System

The inspectors completed an ultimate heat sink inspection of the ESW system in accordance with applicable steps of Inspection Procedure (IP) 71111.07, sections 02.02(d)(4) and 02.02(d)(7). The ESW system takes a suction on the Conowingo Pond and removes heat from safety-related plant systems.

The inspectors determined that PBAPS has established adequate controls and maintenance and chemistry procedures to detect and prevent system degradation due to macrofouling of the ESW system. Biocide treatments of the ESW system are controlled in accordance with industry standards to maintain low biocide levels to eliminate system fouling from biotic species. System biocide treatments are monitored, trended, and evaluated to ensure biotic control. The inspectors reviewed associated chemistry procedures, macrofouling summary reports, macrofouling trending reports, quarterly heat sink meeting minutes, and interviewed responsible chemistry and engineering personnel.

The inspectors determined that PBAPS controls silting in the intake structure by full cleaning and inspection during each refueling outage, and partial cleaning and inspection once per refueling cycle. The inspectors reviewed the records for both units from 2005, and interviewed responsible engineering personnel.

The inspectors performed a walkdown of accessible portions of the ESW system, including the Unit 2 intake structure, E-2 and E-4 EDGs, and Unit 3 'H' CS room cooler.

Directly Cooled HXs

The inspectors reviewed the programs and procedures for maintaining the safety functions of the E-2 and E-4 EDGs, and the 3 'H' CS room cooler, which are directly cooled by ESW. Each EDG has three HXs (jacket cooling, lubrication oil, and air cooling), which are monitored by means of cleaning and inspection. The room coolers are monitored by means of performance testing.

The inspectors reviewed the results from the most recent inspections and cleaning of the six E-2 and E-4 EDG HXs, the trending of tube plugging, and engineering calculations of tube plugging limits. The inspectors walked down and observed conditions of the six E-2 and E-4 EDG HXs.

The inspectors reviewed the two most recently completed test procedures for the 3 'H' CS room cooler and walked down the cooler with the system manager, including condition of the cooler and associated controls and instrumentation. The inspectors reviewed the cooler flushing and fouling factor tracking information.

Review of Corrective Action Reports

The inspectors selected and reviewed a sample of CAP reports related to the ESW system, E-2 and E-4 EDG HXs, and safety-related room coolers. The review verified that Exelon staff are appropriately identifying, characterizing, and correcting problems related to these systems and components, and that the planned or completed corrective actions for the reported issues were appropriate. The reports reviewed are listed in Attachment 1.

b. Findings

No findings were identified.

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

.1 Quarterly Review of Licensed Operator Regualification Testing and Training (71111.11Q - 1 sample)

a. Inspection Scope

The inspectors observed licensed operator regualification simulator training on February 6, 2013, which included a response to security threats, as well as response to a design basis loss of coolant accident (LOCA). The inspectors evaluated operator performance during the simulated events and verified completion of risk significant operator actions, including the use of abnormal and emergency operating procedures. The inspectors assessed the clarity and effectiveness of communications, implementation of actions in response to alarms and degrading plant conditions, and the oversight and direction provided by the control room supervisor. The inspectors verified the accuracy and timeliness of the emergency classification made by the shift manager and the TS action statements entered by the control room supervisor. Additionally, the inspectors assessed the ability of the crew and training staff to identify and document crew performance problems.

b. Findings

No findings were identified.

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

a. Inspection Scope

The inspectors observed control rod scram time testing, control rod stroke timing, MSIV partial closure reactor protection system (RPS) testing, as well as planned power ascension from approximately 60 percent to approximately 80 percent reactor power following planned maintenance and testing. The inspectors observed test performance to verify that procedure use, crew communications, and coordination of activities between work groups met established expectations and standards. Additionally, the inspectors observed reactivity manipulations to verify that they were performed in a safe controlled manner, with the appropriate level of peer verification and supervisory oversight.

b. Findings

No findings were identified.

.3 Licensed Operator Regualification Examinations (71111.11B - 1 sample)

a. Inspection Scope

The following inspection activities were performed using NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," Revision 9, Supplement 1, and IP Attachment 71111.11, "Licensed Operator Requalification Program and Licensed Operator Performance."

Examination Results

Requalification exam results (operating test, only) for year 2013 were reviewed to determine if pass/fail rates were consistent with the guidance of NRC Manual Chapter 0609, Appendix I, "Operator Requalification Human Performance Significance Determination Process."

The review verified the following:

- Individual pass rate on the dynamic simulator scenarios was greater than 80 percent. (Pass rate was 100 percent.)
- Individual pass rate on the job performance measures (JPMs) of the operating exam was greater than 80 percent. (Pass rate was 100 percent.)
- Individual pass rate on the written examination was greater than 80 percent. (The written exam was previously administered in February and March 2012.)
- More than 80 percent of the individuals passed all portions of the requalification exam. (Pass rate was 100 percent.)
- Crew pass rate was greater than 80 percent. (Pass rate was 100 percent.)

Written Examination Quality

The inspectors reviewed a sample of comprehensive written exams that facility staff previously administered to the operators in February and March 2012.

Operating Test Quality

The inspectors reviewed operating tests (scenarios and JPMs) associated with three different examination weeks.

Licensee Administration of Operating Tests

The inspectors observed facility training staff administer dynamic simulator exams and JPMs during the week of March 11, 2013. These observations included facility evaluations of crew and individual operator performance during the simulator exams and individual performance of JPMs.

Exam Security

The inspectors assessed whether facility staff properly safeguarded exam material, and whether test item repetition was excessive.

Remedial Training and Re-examinations

The inspectors reviewed one remedial training package and the associated re-exam for an operator who failed the simulator scenario portion of the 2012 operating test.

Conformance with License Conditions

License reactivation and license proficiency records were reviewed to ensure that Title 10 CFR 55.53 license conditions and applicable program requirements were met. The inspectors also reviewed a sample of records for requalification training attendance, and a sample of medical examinations for compliance with license conditions and NRC regulations.

Simulator Performance

Simulator performance and fidelity were reviewed for conformance to the reference plant control room. A sample of simulator deficiency reports was also reviewed to ensure facility staff addressed identified modeling problems.

Problem Identification and Resolution

The inspectors reviewed recent operating history documentation found in inspection reports, licensee event reports (LERs), the licensee's CAP, NRC End-of-Cycle and Mid Cycle reports, and the most recent NRC plant issues matrix. The resident staff was also consulted for insights regarding licensed operators' performance. The inspectors focused on events associated with operator errors that may have occurred due to possible training deficiencies.

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12Q – 2 samples)

a. Inspection Scope

The inspectors reviewed the samples listed below to assess the effectiveness of maintenance activities on structures, systems, and components (SSCs) performance and reliability. The inspectors reviewed system health reports, CAP documents, maintenance WOs, and maintenance rule (MR) basis documents to ensure that PBAPS was identifying and properly evaluating performance problems within the scope of the MR. For each sample selected, the inspectors verified that the SSC was properly scoped into the MR in accordance with 10 CFR 50.65 and verified that the (a)(2) performance criteria established by the PBAPS staff were reasonable. As applicable, for SSCs classified as (a)(1), the inspectors assessed the adequacy of goals and corrective actions to return these SSCs to (a)(2). Additionally, the inspectors ensured that PBAPS staff was identifying and addressing common cause failures that occurred within and across MR system boundaries.

- E-3 EDG planned maintenance overhaul

- Recirculation pump seal disassembly and inspection following partial first stage seal failure during the previous Unit 2 operating cycle

b. Findings

No findings were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13 - 6 samples)

a. Inspection Scope

The inspectors reviewed station evaluation and management of plant risk for the maintenance and emergent work activities listed below to verify that PBAPS performed the appropriate risk assessments prior to removing equipment for work. The inspectors selected these activities based on potential risk significance relative to the reactor safety cornerstones. As applicable for each activity, the inspectors verified that PBAPS personnel performed risk assessments as required by 10 CFR 50.65(a)(4) and that the assessments were accurate and complete. When PBAPS performed emergent work, the inspectors verified that operations personnel promptly assessed and managed plant risk. The inspectors reviewed the scope of maintenance work and discussed the results of the assessment with the station's probabilistic risk analyst to verify plant conditions were consistent with the risk assessment. The inspectors also reviewed the TS requirements and inspected portions of redundant safety systems, when applicable, to verify risk analysis assumptions were valid and applicable requirements were met.

- Unit 2 elevated risk with HPCI OOS on January 2 and 3
- Unit 3 elevated risk with 'A' residual heat removal (RHR) OOS on January 15 and 16
- Unit 2 and Unit 3 common 343-start up inoperable concurrent with E-3 inoperable on February 4
- Unit 2 PLU device emergent troubleshooting on February 24
- Unit 2 and 3 elevated risk with one of two qualified off-site sources OOS risk on March 5
- Unit 3 'C' feedwater heater isolation on March 25

b. Findings

Introduction. The inspectors determined that PBAPS's failure to follow the operability determination process described in OP-AA-108-115, "Operability Determinations," constituted a Green finding. Specifically, on February 24, 2013, between 6:15 a.m. and 10:30 a.m., an immediate determination of operability was not made in a timely manner. The issue was not initially documented in accordance with the CAP following the discovery that Unit 2 was operating outside of the analyzed limits specified in the COLR with the PLU circuit OOS.

Description. On February 24, 2013, night shift operations personnel conducted the Unit 2 monthly functional test RT-O-01D-411-2, of the Power Load Unbalance (PLU) circuit. The Unit 2 PLU circuit did not indicate a trip signal as required with the keylock switch in the "test" position. Operators notified shift management, initiated a CR, and contacted on call reactor engineering staff at 1:57 a.m. as directed in the procedure to evaluate the impact on fuel thermal limits.

As background, the purpose of the PLU circuit is to prevent a main turbine overspeed condition by anticipating rapid turbine acceleration during a postulated main generator load rejection event. The PLU circuit compares main turbine power to the main generator load and actuates protective relays when there is an unbalance above a specified value. PLU circuit actuation results in fast closure of the turbine control valves and a reactor scram signal. This anticipatory scram signal limits reactor pressure, neutron flux, and provides margin to the fuel cladding MCPR safety limit to ensure it is not exceeded. The PLU circuit is not safety-related, and is not listed in the PBAPS TSs or COLR.

After several discussions between reactor engineering and Exelon staff, the on-call reactor engineer responded to the operations night shift manager that the impact to the thermal limits with the PLU circuit OOS was not analyzed above 55 percent thermal power in the cycle-specific transient analysis performed to support the Unit 2 COLR, and effectively placed Unit 2 in TS LCO 3.2.2, Condition A. TS LCO 3.2.2, Condition A, requires action within two hours to restore MCPR within the operating limits specified in the COLR. Verbal discussions were followed by an informational email at 6:15 a.m. from reactor engineering to confirm and provide the specific technical information regarding the unanalyzed condition above 55 percent thermal power with the PLU circuit OOS, and subsequent applicability of the MCPR TS LCO 3.2.2, Condition A.

At 10:30 a.m. on February 24, operators entered TS LCO 3.2.2, Condition A, for Unit 2, and took action within two hours to place the PLU device keylock switch from "test," to "normal," with the intention of restoring functionality to the circuitry associated with the PLU device. The inspectors independently concluded that entry into TS LCO 3.2.2, Condition A, required two necessary and sufficient conditions to be satisfied: non-functionality of the PLU circuit, and subsequent non-conforming MCPR thermal limit conditions as a result of the PLU non-functionality. Operators then declared the PLU circuit functional with the keylock switch in "normal," because it was not known with certainty that the PLU circuit had failed verses a failure of the test circuitry. The inspectors questioned operators regarding the technical basis for this conclusion. The inspectors also determined this conclusion and the technical basis were not documented in a CR, contrary to Section 4.1.4 of Procedure OP-AA-108-115. Operations staff informed the inspectors that instrument and control (I&C) troubleshooting would confirm whether the problem was in the PLU test circuit. The inspectors noted this did not appear to be consistent with PBAPS Procedure OP-AA-108-115, Section 4.1.6, which indicates operability determinations should not be delayed awaiting results of detailed evaluations. The inspectors determined, from discussions with shift operations as well as direct observation and inspection, that no additional relevant technical information was discussed between 6:15 a.m. and 10:30 a.m. regarding the applicability of TS LCO 3.2.2, Condition A, that was not already communicated via phone conversations and a 6:15 a.m. email.

At 12:30 p.m. on February 24, operators received verbal confirmation from the reactor fuel vendor that the MCPR thermal limits were satisfied between 90 percent and 100 percent reactor power with the Unit 2 PLU circuit OOS. This was subsequently provided in writing and confirmed that the MCPR thermal limits were satisfied between 85 percent and 100 percent reactor power with the PLU circuit OOS. Between 55 percent and 85 percent reactor power, the application of thermal limit penalties would be required and could require control rod pattern adjustment, depending on various operational parameters, and potentially result in lower steady state reactor power levels.

Subsequently at approximately 6:00 p.m. on February 24, I&C staff confirmed the PLU circuit card failed and the problem was not with the test circuit. The problem was later corrected through circuit card replacement.

The inspectors noted that the procedure guidance to contact reactor engineering if the PLU test failed to evaluate fuel limits was not effective when short term TS action statements may be involved. Notwithstanding, the inspectors determined operators had sufficient information, as of 6:15 a.m. on February 24, to make an immediate determination of PLU functionality and subsequent MCPR thermal limit impact, and document the basis for their decision. The inspectors determined that PBAPS operators did not follow the OD process as described in Procedure OP-AA-108-115, "Operability Determinations." Specifically, sections 4.1.5 and 4.1.6 state an SRO member of the operating crew shall make an immediate determination of operability and document the determination in a CR in accordance with the CAP. Section 4.1.6 also states operability should be determined immediately upon discovery of a degraded or nonconforming condition, and that the determination should be made without delay and in a controlled manner using the best information possible. Contrary to section 4.1.6, on February 24, 2013, an immediate determination of the LCO 3.2.2 was not made between 6:15 a.m. and 10:30 a.m., after the operating crew SROs were informed in writing that Unit 2 core operating limits were not analyzed above 55 percent reactor power with the PLU device OOS. Contrary to section 4.1.5, TS LCO 3.2.2 operability status was not documented in the CR. For any condition which MCPR is not within the limits specified in the COLR, LCO 3.2.2 requires action to restore MCPR to within limits within two hours. Consequently, operations entered into the Unit 2 MCPR LCO after exceeding the two-hour required action completion time. The inspectors determined an immediate determination of operability was not performed in a matter commensurate with the safety significance of the two-hour LCO required action completion time. The inspectors concluded this was not a violation of TSs because subsequent analysis by a third party vendor determined that MCPR thermal limits were satisfied between 85 percent and 100 percent reactor power with the PLU circuit OOS on Unit 2.

Analysis. The inspectors determined that PBAPS staff not following their OD procedure was a performance deficiency. Specifically, on February 24, 2013, between 6:15 a.m. and 10:30 a.m., a SRO member of the operating crew did not perform an immediate OD of the Unit 2 MCPR LCO 3.2.2, and did not document the determination in accordance with the CAP. Consequently, operations entered LCO 3.2.2, Condition A, after exceeding the two-hour required action completion time. This finding was more than minor because it was associated with the design control attribute of the barrier integrity cornerstone and adversely affected the cornerstone objective of providing reasonable assurance that the physical design barriers (fuel cladding) protect the public from radionuclide releases caused by events. Additionally, the inspectors determined that this issue was similar to examples 3.j and 3.k contained in IMC 0612, Appendix E, "Examples of Minor Issues." Specifically, examples 3.j and 3.k illustrate that actual LCO action statement entry (i.e., inoperability) is not a prerequisite to an issue being more than minor, and illustrate the need for further detailed analysis to confirm compliance with MCPR limits did adversely affect the cornerstone objective. Using IMC 0609, Attachment 4, "Phase 1 – Initial Screening and Characterization of Findings," and IMC 0609, Appendix A, "The SDP for Findings At-Power," the inspectors determined that this issue screened to Green, because it was associated only with the fuel cladding barrier. Additionally, subsequent analysis performed by a third-party vendor and accepted by

PBAPS concluded that the existing MCPR limits were applicable and bounded operation between 85 percent and 100 percent RTP without the application of penalties. Therefore, there was no actual adverse impact to the fuel cladding barrier. The inspectors reviewed the third party vendor analysis report, and determined that it was appropriate to the circumstances.

The inspectors determined that this finding had a cross-cutting aspect in the area of Human Performance, decision-making, because PBAPS did not use conservative assumptions in decision making and did not adopt a requirement to demonstrate that the proposed action was safe in order to proceed rather than a requirement to demonstrate that it is unsafe in order to disprove the action [H.1(b)]. Specifically, PBAPS did not use conservative decision making to make an immediate determination regarding TS LCO 3.2.2, Condition A, nor to make a functionality determination of the PLU circuit at 10:30 a.m. Regarding TS LCO 3.2.2, PBAPS did not immediately demonstrate that the continued operation outside of the analyzed limits specified in the COLR was safe, but rather required a demonstration that it was unsafe in order to disprove the operating conditions. Regarding PLU circuit functionality determination at 10:30 a.m., PBAPS did not demonstrate that the PLU circuit was functional, but rather required a demonstration that it was non-functional.

Enforcement. This finding does not involve an enforcement action because no violation of a regulatory requirement was identified. PBAPS entered this issue in the CAP in accordance with issue report (IR) 1501290. Because this finding does not involve a violation and is of very low safety significance, it is identified as **(FIN 05000277/2013002-01, Inadequate Operability Determination in Response to Power Load Unbalance Device Failure).**

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

a. Inspection Scope

The inspectors reviewed six ODs for the following degraded or non-conforming conditions:

- Unit 2 control rod drive mechanism foreign material exclusion
- Unit 2 and Unit 3 motor operated valve (MOV) control wire splicing for multiple spurious operation project
- Unit 2 steam jet-air ejector (SJAЕ) TRM functionality following main steam line (MSL) radiation monitor failure on January 30
- E-3 EDG fuel oil storage tank pitting on February 6
- E-3 EDG jacket water pump non-Q gasket on February 14
- Unit 2 standby liquid control tank level on March 14

The inspectors selected these issues based on the risk significance of the associated components and systems. The inspectors evaluated the technical adequacy of the ODs to assess whether TS operability was properly justified and the subject component or system remained available such that no unrecognized increase in risk occurred. The inspectors compared the operability and design criteria in the appropriate sections of the TSs and UFSAR to PBAPS's evaluations to determine whether the components or systems were operable. Where compensatory measures were required to maintain operability, the inspectors determined whether the measures in place would function as

intended and were properly controlled by PBAPS. The inspectors determined, where appropriate, compliance with bounding limitations associated with the evaluations.

b. Findings

No findings were identified.

1R18 Plant Modifications (71111.18 - 2 samples)

.1 Temporary Modifications

a. Inspection Scope

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

- Unit 3 control rod blade racks on February 7 and 8
- Unit 2 and Unit 3 main control room (MCR) habitability program changes on February 20 and 22

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing (71111.19 - 6 samples)

a. Inspection Scope

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

- Unit 2 HPCI ramp generator signal condition (RGSC) on January 4 and January 7
- MCR door on January 10
- Unit 2 scram timing on January 13 and January 14
- Unit 2 average power range monitor (APRM) on January 15

- Unit 2 'A' MSL radiation monitor on January 31
- E-3 EDG on February 24

b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22 - 6 samples)

a. Inspection Scope (4 routine surveillances; 1 RCS sample; 1 IST sample)

The inspectors observed performance of STs and/or reviewed test data of selected risk-significant SSCs to assess whether test results satisfied TSs, the UFSAR, and PBAPS procedure requirements. The inspectors verified that test acceptance criteria were clear, tests demonstrated operational readiness and were consistent with design documentation, test instrumentation had current calibrations and the range and accuracy for the application, tests were performed as written, and applicable test prerequisites were satisfied. Upon test completion, the inspectors considered whether the test results supported that equipment was capable of performing the required safety functions. The inspectors reviewed the following STs:

- Unit 2 HPCI Pump, Valve, and Flow Test on January 7 (IST)
- MSIV Partial Closure Test on January 13 and 14
- 3 'A' RHR Test on January 18
- Unit 3 RCIC Quarterly Pump, Valve, and Flow Test on January 24
- E-3 Fast Start and Full Load Test on February 14 and February 15
- Unit 2 and Unit 3 RCS Test on February 19 (RCS)

b. Findings

No findings were identified.

Cornerstone: Emergency Preparedness

1EP2 Alert and Notification System Evaluation (71114.02 - 1 sample)

a. Inspection Scope

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

b. Findings

No findings were identified.

1EP3 Emergency Response Organization Staffing and Augmentation System (71114.03 – 1 sample)

a. Inspection Scope

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

b. Findings

No findings were identified.

1EP4 Emergency Action Level and Emergency Plan Changes (71114.04 – 1 sample)

a. Inspection Scope

NRC staff from the Office of Nuclear Security and Incident Response (NSIR) performed an in-office review of the latest revisions of various Emergency Plan Implementing Procedures (EPIPs) and the Emergency Plan located under ADAMS accession numbers ML123260651, ML12355A287 and ML130180297, as listed in the Attachment.

Exelon determined that in accordance with 10 CFR 50.54(q), the changes made in the revisions resulted in no reduction in the effectiveness of the Plan, and that the revised Plan continued to meet the requirements of 10 CFR 50.47(b) and Appendix E to 10 CFR Part 50. The NRC review was not documented in a safety evaluation report and did not constitute approval of licensee-generated changes; therefore, this revision is subject to future inspection. The specific documents reviewed during this inspection are listed in the Attachment.

b. Findings

No findings were identified.

1EP5 Maintaining Emergency Preparedness (71114.05 – 1 sample)

a. Inspection Scope

The inspectors reviewed a number of activities to evaluate the efficacy of Exelon's efforts to maintain the Peach Bottom Emergency Preparedness Program. The inspectors reviewed: Letters of Agreement and/or Memorandums of Understanding with offsite agencies; the 10 CFR 50.54(q) Emergency Plan change process and practice; licensee maintenance of equipment important to EP; and provisions for, and implementation of, primary, backup, and alternate ERF maintenance. The inspectors also verified Exelon's compliance at Peach Bottom with new NRC EP regulations regarding: emergency action levels for hostile action events; protective actions for on-site personnel during events; emergency declaration timeliness; ERO augmentation and alternate facility capability; evacuation time estimate updates; and, ANS back-up means. The inspectors further evaluated Exelon's ability to maintain their EP program through their identification and correction of EP weaknesses, by reviewing a sample of drill reports, actual event reports, self-assessments, 10 CFR 50.54(t) audits, and EP-related CRs. The inspectors reviewed a sample of EP-related CRs initiated at PBAPS from February 2011 through February 2013. The inspection was conducted in accordance with NRC IP 71114.05. Title 10 CFR 50.47(b) and the related requirements of 10 CFR Part 50, Appendix E, were used as reference criteria.

b. Findings

No findings were identified.

2. RADIATION SAFETY

Cornerstone: Occupational/Public Radiation Safety (PS)

2RS1 Radiological Hazard Assessment and Exposure Controls (71124.01)

a. Inspection Scope

During the week of February 4-8, 2013, the inspectors reviewed and assessed Exelon performance in assessing the radiological hazards in the workplace associated with licensed activities and the implementation of appropriate radiation monitoring and exposure control measures for both individual and collective exposures. The inspectors verified that Exelon staff are properly identifying and reporting Performance Indicators (PIs) for the occupational radiation safety cornerstone and identifying those performance deficiencies that were reportable as a PI and which may have represented a substantial potential for overexposure of the worker. The inspectors used the requirements in Title 10 of the CFR Part 20 and guidance in Regulatory Guide (RG) 8.38, "Control of Access to High and Very High Radiation Areas (VHRAs) for Nuclear Plants," the TSs, and Exelon's procedures required by TS as criteria for determining compliance.

Radiological Hazard Assessment

The inspectors determined if, since the last inspection, there have been changes to plant operations that may result in a significant new radiological hazard for onsite workers or members of the public. The inspectors verified that Exelon staff have assessed the potential impact of these changes and has implemented periodic monitoring, as appropriate, to detect and quantify the radiological hazard.

The inspectors reviewed the last two radiological surveys from selected plant areas. The inspectors verified that the thoroughness and frequency of the surveys is appropriate for the given radiological hazard.

The inspectors conducted walkdowns of the facility, including radioactive waste processing, storage, and handling areas to evaluate material conditions and potential radiological conditions.

Radiological Hazards Control and Work Coverage

The inspectors examined the Exelon's physical and programmatic controls for highly activated or contaminated materials stored within spent fuel and other storage pools. The inspectors verified that appropriate controls were in place to preclude inadvertent removal of these materials from the pool.

The inspectors conducted selective inspection of posting and physical controls for high radiation areas (HRA) and VHRAs, to the extent necessary to verify conformance with the Occupational PI.

Risk-Significant HRA and VHRA Controls

The inspectors discussed with the radiation protection manager (RPM) the controls and procedures for high-risk HRAs and VHRAs. The inspectors verified that any changes to Exelon procedures did not substantially reduce the effectiveness and level of worker protection.

The inspectors discussed with first-line health physics supervisors the controls in place for special areas that have the potential to become VHRAs during certain plant operations. The inspectors verified that Exelon controls for all VHRAs, and areas with the potential to become a VHRA, ensured that an individual is not able to gain unauthorized access to the VHRA.

b. Findings

No findings were identified.

2RS2 Occupational As Low as Reasonably Achievable Planning and Controls (71124.02)

a. Inspection Scope

During the week of February 4-8, 2013, the inspectors used the requirements in 10 CFR Part 20, RG 8.8, "Information Relevant to Ensuring that Occupational Radiation Exposures at Nuclear Power Plants will be As Low As Reasonably Achievable (ALARA)," RG 8.10, "Operating Philosophy for Maintaining Occupational Radiation Exposure ALARA," the TS, and the licensee's procedures required by TS as criteria for determining compliance.

Radiological Work Planning

The inspectors compared the results achieved during the fall 2012 Unit 2 refueling outage with the intended dose established in Exelon's ALARA planning for these work

activities. The inspectors compared the person-hour estimates provided by maintenance planning and other groups to the radiation protection group with the actual work activity time requirements, and evaluated the accuracy of these time estimates. The inspectors determined the reasons for any inconsistencies between intended and actual work activity doses. The inspectors focused on those work activities with planned or accrued exposure greater than 5 person-rem.

The inspectors determined that post-job reviews were conducted and that identified problems were entered into Exelon's CAP.

b. Findings

No findings were identified.

2RS3 In-Plant Airborne Radioactivity Control and Mitigation (71124.03 – 1 sample)

a. Inspection Scope

The inspectors used the requirements in 10 CFR Part 20, the guidance in RG 8.15, "Acceptable Programs for Respiratory Protection," RG 8.25, "Air Sampling in the Workplace," NUREG-0041, "Manual of Respiratory Protection Against Airborne Radioactive Material," the TS, and Exelon procedures required by TS as criteria for determining compliance.

Engineering Controls

The inspectors selected installed systems to monitor and warn of changing airborne concentrations in the plant. The inspectors verified that alarms and set-points were sufficient to prompt Exelon/worker action to ensure that doses were maintained within the limits of 10 CFR Part 20 and ALARA. The inspectors verified that Exelon had established trigger points for evaluating levels of airborne beta-emitting and alpha-emitting radionuclides.

Use of Respiratory Protection Devices

The inspectors verified that respiratory protection devices used to limit the intake of radioactive materials are certified by the National Institute for Occupational Safety and Health/Mine Safety and Health Administration (NIOSH/MSHA) or had been approved by the NRC. The inspectors selected work activities where respiratory protection devices were used and verified that the devices were used consistent with their NIOSH/MSHA certification.

The inspectors reviewed Exelon procedures for maintenance, inspection, and use of respiratory protection equipment including self-contained breathing apparatus (SCBA). Additionally, the inspectors reviewed procedures for air quality maintenance.

The inspectors reviewed records of air testing for supplied-air devices and SCBA bottles. The inspectors verified that air used in these devices met or exceeded Grade D quality. The inspectors verified that plant breathing air supply systems met the minimum pressure and airflow requirements for the devices in use. The inspectors reviewed the quarterly breathing air quality checks for 2012.

The inspectors selected individuals qualified to use respiratory protection devices, and verified that they had been deemed fit to use the devices by a physician. The inspectors verified that these individuals knew how to safely use the device and how to properly respond to any device malfunction or unusual occurrence.

The inspectors chose respiratory protection devices staged and ready for use in the plant or stocked for issuance for use. The inspectors observed the physical condition of the device components and reviewed records of routine inspection for each.

SCBA for Emergency Use

Based on UFSAR, TS, and emergency operating procedure requirements, the inspectors reviewed the status and surveillance records of SCBAs staged in-plant for use during emergencies. The inspectors reviewed the monthly inspection and functional test records for the period from July through December 2012.

The inspectors selected individuals on control room shift crews, and individuals from designated departments currently assigned emergency duties. The inspectors determined that control room operators and other emergency response and radiation protection personnel were trained and qualified in the use of SCBAs. The inspectors determined that personnel assigned to refill bottles were trained and qualified for that task.

The inspectors verified that appropriate mask sizes and types were available for use. The inspectors selected on-shift operators, and verify that they had no facial hair that would interfere with the sealing of the mask to the face. The inspectors also verified that vision correction did not penetrate the face seal.

The inspectors reviewed the past two years of maintenance records for SCBA units used to support operator activities during accident conditions and designated as "ready for service."

The inspectors verified that problems associated with the control and mitigation of in-plant airborne radioactivity were being identified by Exelon at an appropriate threshold and were properly addressed for resolution in the CAP.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (71151 – 9 samples)

.1 Initiating Events (6 samples)

a. Inspection Scope

The inspectors reviewed a selected sample of the PBAPS's information submitted for the six Initiating Events PIs listed below to assess the accuracy and completeness of the

data reported to the NRC for these PIs. The PI definitions and the guidance contained in Nuclear Energy Institute (NEI) 99-02, "Regulatory Assessment Indicator Guideline," Revision 6, and Exelon procedure LS-AA-2001, "Collecting and Reporting of NRC PI Data," Revision 14, were used to verify that procedure and reporting requirements were met. The inspectors reviewed raw PI data collected from January 1, 2012 through December 31, 2012, and compared graphical representations from the applicable PI reports to the raw data to verify the data was included in the report. The inspectors also examined a selected sample of operations logs and plant computer thermal power data trends to verify the PI data was appropriately captured for inclusion into the PI report and that the individual PIs were correctly calculated.

Units 2 and 3

- Unplanned Scrams per 7,000 Critical Hours (IE06)
- Unplanned Scrams with Complications (IES07)
- Unplanned Power Changer per 7,000 Critical Hours (IE08)

b. Findings

No findings were identified.

.2 Emergency Preparedness Performance Indicators (3 samples)

a. Inspection Scope

The inspector reviewed data for the three EP PIs, which are: (1) Drill and Exercise Performance; (2) ERO Drill Participation; and, (3) ANS Reliability. The last NRC EP inspection at PBAPS was conducted in the first calendar quarter of 2012. Therefore, the inspector reviewed supporting documentation from EP drills and equipment tests from the first calendar quarter of 2012 through the fourth calendar quarter of 2012 to verify the accuracy of the reported PI data. The review of the PIs was conducted in accordance with NRC IP 71151. The acceptance criteria documented in NEI 99-02, "Regulatory Assessment Performance Indicator Guidelines," Revision 6, was used as reference criteria.

b. Findings

No findings were identified.

4OA2 Problem Identification and Resolution (71152 - 2 samples)

.1 Routine Review of Problem Identification and Resolution Activities

a. Inspection Scope

As required by IP 71152, "Problem Identification and Resolution," the inspectors routinely reviewed issues during baseline inspection activities and plant status reviews to verify that PBAPS entered issues into the CAP at an appropriate threshold, gave adequate attention to timely corrective actions, and identified and addressed adverse trends. In order to assist with the identification of repetitive equipment failures and specific human performance issues for follow-up, the inspectors performed a daily

screening of items entered into the CAP and periodically attended CR screening meetings.

b. Findings and Observations

No findings were identified.

.2 Annual Sample: Corrective Actions to Address Degraded Boraflex in the Spent Fuel Pool Racks (1 sample)

a. Inspection Scope

The inspectors performed an in-depth review of PBAPS's corrective actions in response to NRC NCV 2012-002-03, Untimely Corrective Actions Resulted in Spent Fuel Pool (SFP) Boraflex Degradation Exceeding Design Limits. The inspectors assessed PBAPS's administrative controls to monitor boraflex degradation in the SFP racks, and remove cells from service prior to exceeding the allowable degradation specified in Operability Evaluation (OE) 10-007. OE 10-007 was performed to reduce the design basis limiting fuel assembly reactivity (K_{inf}) in response to non-conservative TS 4.3.1.1.a, while PBAPS pursued a license amendment request (LAR) to change TS 4.3.1.1.a, in accordance with NRC Administrative Letter 98-10, "Dispositioning of TSs that are Insufficient to Assure Plant Safety." In addition to changing the allowable K_{inf} value specified in TS 4.3.1.1.a, the LAR is seeking approval for the use and design analysis credit of neutron-absorbing rack inserts in the SFP cells to replace design analysis credit of the degrading boraflex.

b. Findings and Observations

No findings were identified. The inspectors determined that PBAPS was taking appropriate corrective actions in response to NRC NCV 2012-002-003.

The inspectors reviewed OE 10-007. The inspectors determined that PBAPS was appropriately monitoring SFP rack boraflex degradation, and was taking appropriate action to predict boraflex degradation and remove cells from service by performing spent fuel moves in the SFP prior to exceeding the allowable degradation limits specified in OE 10-007. The inspectors noted that at the end of 2012, there were 260 cells removed from service on Unit 2, and 121 cells removed from service on Unit 3. At the time of inspection, the inspectors noted that PBAPS projected approximately 100 to 200 additional cells per year that would have to be removed from service. PBAPS has a total of 3,819 SFP cells per Unit.

The inspectors noted that PBAPS began to install the neutron-absorbing rack inserts in the SFP cells in accordance with 10 CFR 50.59, but requires approval of the LAR in order to take design analysis credit for the neutron absorption capability of the inserts. The inspectors reviewed PBAPS's modification packages and associated 50.59 screening to verify that PBAPS was making changes to plant in accordance with 10 CFR 50.59. The inspectors observed installation of several neutron-absorbing rack inserts in the Unit 2 SFP. The inspectors reviewed PBAPS's schedule for SFP rack insert installation, and noted that installation began in 2013 on Unit 2, and is scheduled to complete in both SFPs by 2016, as documented in IR 1127773, assignment 11.

.3 Annual Sample: Maintenance Rule Program Functional Failure Screening Process
(1 sample)

a. Inspection Scope

The inspectors performed an in-depth review of PBAPS's corrective actions in response to an NRC-identified deficiency in the MR program functional failure review process, as described in ER-AA-310-1004, "MR – Performance Monitoring," and ER-PB-310-1010, "MR Implementation PBAPS." The inspectors noted that the CAP does not require a system number to be assigned to IRs written for conditions adverse to the quality of SSCs. ER-AA-310-1004 requires system engineers to perform maintenance rule functional failure (MRFF) determinations within 30 days of the IR generation date. The inspectors noted that PBAPS uses an electronic MR database to screen IRs for MRFF review based on the system number in the associated IR, and the database generates MRFF review assignments to the associated system engineer. The inspectors identified that the electronic MR database will not generate MRFF review assignments for IRs without an associated system number. Consequently, 9,152 IRs were not screened for MRFF reviews during a two-year rolling period from November 29, 2010 to November 29, 2012.

PBAPS documented this programmatic deficiency in the CAP under IR 1445266, and promptly completed all MRFF reviews. A detailed review of all 9,152 IRs was performed by the MR program coordinator, as well as the relevant system engineers, by December 15, 2012. The purpose of this annual inspection sample was for the inspectors to perform an independent sampling of the 9,152 IRs, as well as a review of the corrective actions to address this programmatic deficiency.

b. Findings and Observations

No findings were identified. The inspectors determined that PBAPS took appropriate corrective actions to correct this performance deficiency (PD), as documented in the assignments associated with IR 1445266.

As a result of the detailed MRFF review of all 9,152 IRs, PBAPS identified 84 IRs that involved SSCs in the scope of the MR, and one issue that was determined to be a MRFF. The MRFF was associated with the Annunciator system, and the functional failure did not result in the system exceeding the (a)(1) performance monitoring criteria. Based on the inspector's independent sampling review of the 9,152 IRs, the inspectors determined that PBAPS's review was timely, thorough, and accurate. The inspectors did not identify any additional MRFFs, and did not identify any additional IRs that involved SSCs in the scope of the MR.

The inspectors determined that the failure to perform MRFF reviews of the 84 IRs that involved SSCs in the scope of the MR, constituted a failure to meet section 4.3.4 of ER-AA-310-1004, which requires system managers to perform the review within 30 days of IR origination date. The inspectors determined that this PD screened to minor in accordance with IMC 0612, Appendix E, "Examples of Minor Issues," example 3.j, and 3.k, because this issue did not constitute a significant programmatic deficiency. The inspectors determined that PBAPS was effectively implementing the MR program, and was effectively controlling the performance of SSCs in the scope of the MR through the performance of appropriate preventive maintenance.

4OA5 Other Activities

.1 Institute of Nuclear Power Operations Report Review

a. Inspection Scope

The inspectors reviewed the final report for the PBAPS Institute of Nuclear Power Operations (INPO) assessment conducted in January 9, 2013. The inspectors reviewed this report to ensure that any issues identified were consistent with NRC perspectives of PBAPS performance and to determine if INPO identified any significant safety issues that required further NRC follow-up. No findings were identified.

b. Findings

No findings were identified.

4OA6 Meetings, Including Exit

Quarterly Resident Exit Meeting Summary

On April 12, 2013, the resident inspectors presented the inspection results to Mr. Michael Massaro, Site Vice President, and other PBAPS staff, who acknowledged the findings. Mr. M. Gray, Chief, USNRC, Region 1, Division of Reactor Projects, Branch 4, attended this quarterly inspection exit meeting. The inspectors verified that no proprietary information was retained by the inspectors or documented in this report.

ATTACHMENT: SUPPLEMENTARY INFORMATION

SUPPLEMENTARY INFORMATION**KEY POINTS OF CONTACT**Exelon Generation Company Personnel

M. Massaro, Site Vice President
 P. Navin, Plant Manager
 N. Alexakos, Emergency Preparedness Manager
 J. Armstrong, Regulatory Assurance Manager
 R. Bolding, Respiratory Physicist
 J. Bowers, Training Director
 B. Henningan, Operations Training Manager
 M. Herr, Operations Director
 R. Holmes, Radiation Protection Manager
 J. Kovalchick, Security Manager
 T. Moore, Site Engineering Director
 P. Rau, Work Management Director
 R. Reiner, Chemistry Manager
 R. Shortes, Radiological Engineering Manager
 D. Striebig, Emergency Preparedness Coordinator

NRC Personnel

M. Gray, Branch Chief
 S. Hansell, Senior Resident Inspector
 A. Ziedonis, Resident Inspector
 S. Barr, Senior Emergency Preparedness Specialist
 E. Burket, Emergency Preparedness Specialist
 T. Fish, Senior Operations Engineer
 J. Furia, Senior Health Physicist
 J. Laughlin, Emergency Preparedness Inspector, NSIR
 G. Meyer, Senior Reactor Inspector
 J. Tomlinson, Operations Engineer

LIST OF ITEMS OPENED, CLOSED, DISCUSSED, AND UPDATED⁹Opened/Closed

05000277/2013002-01	FIN	Inadequate Operability Determination in Response to Power Load Unbalance Device Failure (Section 1R13)
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Opened

None

Closed

None

Discussed/Updated

None

LIST OF DOCUMENTS REVIEWED

* -- Indicates NRC-identified

Section 1R01: Adverse Weather Protection

Procedures

OP-PB-108-111-1001, Preparation for Severe Weather, Revision 9

OP-AA-108-111-1001, Severe Weather and Natural Disaster Guidelines, Revision 9

CRs

1477876, External Flood Seal Required

1477894, Scheduled Fukushima Flood Penetration Seals Not Worked

Section 1R04: Equipment Alignment

Procedures

SO 13.1.A-2 COL, RCIC System Alignment for Automatic or Manual Initiation, Revision 13

SO 13.1.A-2 COL, RCIC System Alignment for Automatic or Manual Initiation, Revision 21

SO 14.1.A-3 'A' COL, CS System Loop A, Revision 13

SO 14.1.A-3 'B' COL, CS System Loop B, Revision 11

CRs

1464027, 3 'B' CS Loop Pressure Oscillating

Section 1R05: Fire Protection

Procedures

OP-AA-201-003, Attachment 1, Fire Drill Record, Revision 12, Performed 02/20/13

PF-81, Unit 2 TB, Hot Rigging Room – Elevation 116', Revision 9

RT-F-101-922-2, Fire Drill, Revision 3, Performed 02/20/13

TQ-AA-224-F020, Course Attendance Sheet, Revision 2, Performed 02/20/13

PF-5H, Unit 2 RB, General Area North – Elevation 135'-0", Revision 3

PF-5P, Unit 2 RB, Elevation 135' South, Revision 4

PF-13P, Unit 3 RB; South CRD Equipment & East Corridor - Elevation 135'-0", Revision 5

PF-13H, Unit 3 RB; North CRD Equipment & West Corridor - Elevation 135'-0", Revision 5

ARs

AR 1477779, Hot Rigging Room Key Did Not Work

AR 1481108, Housekeeping Zone #6, 2 RB, 135' / SIVR Housekeeping Walkdown

CRs

CR 1482824, Combustible Material in Combustible Free Area

Miscellaneous

Fire Drill Scenario 2013-05, Class C Fire in the Unit 2 Hot Rigging Room

PF-60, Unit 2 RB, RCIC Room – Elevation 88'-0"

PF-144, Circulating Water Pump Structure, Revision 5
Unified Control Room Log, dated February 13, 2013

Section 1R07: Heat Sink Performance

Procedures

RT-I-033-632-3, CS Room Cooler ESW Heat Transfer Test, Revision 12
CY-AA-120-4110-F-08, Revision 0, Peach Bottom Raw Water Treatment and Control
ER-AA-340, Revision 6, GL 89-13 Program Implementing Procedure
ER-AA-5400-1001, Revision 5, Raw Water Corrosion Program Guide
RT-0-031-910-2, Revision 20, Chemical Treatment for Unit 2 Service Water (SW) Systems

Completed Tests and Inspections:

HX Inspection Report, 0BE376 (E2) Jacket Coolant Cooler, February 9, 20112
HX Inspection Report, 0BE377 (E2) Lube Oil Cooler, February 9, 20112
HX Inspection Report, 0BE378 (E2) Air Coolant Cooler, February 9, 20112
HX Inspection Report, 0BE376 (E4) Jacket Coolant Cooler, May 15, 20112
HX Inspection Report, 0BE377 (E4) Lube Oil Cooler, May 15, 20112
HX Inspection Report, 0BE376 (E4) Air Coolant Cooler, May 15, 20112
RT-I-033-632-3, CS Room Cooler ESW Heat Transfer Test, Revision 12,
March 25, 2011; March 5, 2013
RT-M-033-675-2, Unit 2 Pump Intake Structure Inspection and Cleaning;
September 25, 2006 (Revision 3); September 28, 2008 (Revision 3); September 25,
2010 (Revision 3); and September 24, 2012 (Revision 4)
RT-M-033-675-3, Unit 3 Pump Intake Structure Inspection and Cleaning;
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(Revision 3); and September 19, 2011 (Revision 4)
A1611416, Unit 2 Intake Bay Inspection/cleaning, June 20, 2007
A1647886, Unit 2 Intake Bay Inspection/cleaning, August 21, 2009
A1654068, Unit 3 Intake Bay Inspection/cleaning, September 5, 2008

Engineering Calculations:

A0137845, E-2 EDG Jacket Coolant Cooler Tube Plugging Limit
A0156707, E-2 EDG Lube Oil Cooler Tube Plugging Limit
A0156719-02, E-2 EDG Air Coolant Cooler Tube Plugging Limit
A01794649, E-2 EDG Lube Oil Cooler - Leakage

ARs:

01068222, E-4 Jacket Coolant Supply Temperature
01099661, Uncompleted E-4 Work in WW 1032
01232297, Unit 2 HPSW Corrosion Control Chemical Treatment
01324381, E-2 EDG HX Inspection Lessons Learned
01365008, E-4 EDG Lube Oil Cooler - Broken Flange
01417878, A ESW Bay Silt Levels
01429793, 2012 Fall Clamtrol Cancelled
01456135, ESW Op Eval Completed Late
01459656, Raw Water NDE Deferred

IRs:

01491016, GL 89-13 Commitment – Intake Soundings
01491017, Intake Pump Structure Silt Levels

Miscellaneous:

GL 89-13 Program Health Reports, 4th Quarter 2011 to 4th Quarter 2012
 ESW System Health Reports, Units 2 and 3, 4th Quarter 2012
 HPSW System Health Reports, Units 2 and 3, 4th Quarter 2012
 SW System Health Report, 4th Quarter 2012
 PBAPS GL 89-13 FASA (Focused Area Self Assessment), A01303794-03
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 Normandeau Environmental Consultants, September 2012 Macrofouling Summary Report
 PEA-60863, EDG E1 Jacket Coolant HX Tubing Wall Thickness Evaluation,
 November 25, 2009
 CS Room Cooler Flushing Tracking Information
 CS HX 3 'H' Fouling Factor Tracking Information

Section 1R11: Licensed Operator Requalification Program

Procedures

OT-100, Reactor Low Level, Revision 12
 RT-R-003-961-2, CRD Friction Monitoring – Settle and Full Stroke Insertion Testing, Revision 2
 ST-O-60F-405-3, MSIV Partial Closure and RPS Input Functional Test, Revision 18
 SE-23, Response to Security Threats – Procedure, Revision 16
 OP-AA-105-101, Administrative Process for NRC License and Medical Requirements
 OP-AA-105-102, NRC Active License Maintenance
 TQ-AA-150, Operator Training Programs
 TQ-AA-201, Examination Security and Administration
 TQ-AA-155, Conduct of Simulator Training and Evaluation
 TQ-AA-306, Simulator Management Revision 5
 Simulator Performance Testing 2011-2012
 LS-AA-126-1001, LOR Self Assessment

CRs

1459276, AR for SPE Troubleshooting Scheduled Incorrectly
 1460268, NOS ID: 0630 DPS Meeting Package Does Not Reflect Date Change
 1461628, Packing Leak on HV-3-06C-71B (3B RFP Discharge Check Bypass)
 1461870, CV-3-06A-3041A has an Active Packing Leak
 1461871, Solenoid Valve Found Blowing Out Exhaust Port
 1461872, Solenoid Valve Found Blowing Through Exhaust Port
 1461873, Lube Oil Leaking from Ceiling in Moisture Separator Mezzanine
 1461874, CV-3-06A-3041B Has an Active Packing Leak
 1461876, CV-3-06A-3039C Packing Leak (Water) / Stem Seal Leak (Air)
 1461877, CV-3-01E-3012D Packing Leak
 1461881, Steam Leak Coming from CV-3-08A-3239A
 1461951, 3 'A' RFPT Mechanical Overspeed Trip Reset Failure
 1461977, Unit 3 FW Heater CV-3040C
 1462029, Omitted 3 'B' RFPT Testing from RT-O-06D-400-3
 1462077, No Replacement for 116-93008. Need AR for ECR per POME
 1462230, Feedwater Delta Temperature OOS per RT-O-59C-560-3
 1462648, Unit 3 Load Drop Summary
 1463005, 2 'A' RFP HP Bearing Metal High Temp Alarm
 1463162, ALARA Suggestion – Use of RMS 3 'A' SJAE Room
 1463326, 5 'C' FWH Dump Valve Split Indication
 1466601, Calibration Check of PI-2189A 2 'A' RFPT Bearing Pressure

1466615, Adjust 2 'A' RFPT Bearing Oil Supply Pressure
 1469854, 2 'A' RFPT HP Bearing Metal Temp Troubleshooting
 1470911, IR to Track Scheduling of Next RT-R-003-961-2 Performance
 1271780, RHR RV-3-10-072D Leakage OD
 1378769, U3 Control Rod 18-27 Inserted Beyond Its Target Position
 1427846, NOS ID: Shift SRO Review Failed to Identify Inoperability
 1486625, Training: Simulator Failure during 2013 LORT Annual Exam
 1486218, Training: Gap in Simulator OBE Critique Identified

Job Performance Measures

JPM-054P	JPM-234C	JPM-254C	JPM-334PA
JPM-313PA	JPM-259C	JPM-363CA	JPM-030C
JPM-044C	JPM-128P	JPM-235C	JPM-081C
JPM-271C	JPM-339PA	JPM-345CA	JPM-100C
JPM-305CA	JPM-155C	JPM-324PA	JPM-236C
JPM-287C			

Comprehensive Written Exams (Previously administered in 2012)

LORT-Exam Week B (SRO)
 LORT-Exam Week D (SRO)
 LORT-Exam Week E (SRO)

Simulator Scenarios

PSEG-0717R	PSEG-0738R	PSEG-0752R
PSEG-0734R	PSEG-0753R	PSEG-0709R
PSEG-0725R	PSEG-0742R	PSEG-0756R

Simulator Testing

Scenario Based Testing - Scenarios used in 2012:
 701R 705R 711R 714R 722R 1002R
 702L 704L 722L 733R 747R

Simulator Deficiency Reports

SDR-14093
 SDR-14362
 SDR-13833
 SDR-14169
 SDR-14509

Section 1R12: Maintenance Effectiveness

CRs

1472625, Manufacturer Defective Part for E-3 D/G Airstart
 1472648, E-3 D/G Fuel Oil Tank Hi/Low Alarm clear
 1472740, CCP-OIO on "Permanent Protected Equipment"
 1472710, Grease Fitting Found Degraded / Tachometer Drive Bearing E-3 EDG
 1472718, Damage Fitting / E-3 EDG #4 Forward CS Fuel Pump
 1472749, RWCU Pump/Motor 3AP049 Removal for Repair/Replacement
 1473047, Shaft Seal Leak
 1473200, E-3 D/G Jacket Coolant Engine Driven Pump Oil Leak
 1473234, Broken Heat Shield Mounting Tab
 1473286, E-3 EDG Speed Indication Reads Low
 1473349, PSO4 EOS Critique for Day Shift 2.08.13 to 2.10.13

1474034, PSO1 End of Shift Critique for Nightshift February 8th to 11
1474391, Potential Unevaluated Non-Q Gasket Used in EDG Q Application
1484783, Communication Breakdown for Priority Work List Item
1486138, Discovery during Disassembly of Old 2 'B' Recirc Seal

Section 1R13: Maintenance Risk Assessments and Emergent Work Control

Procedures

OP-AA-108-117, Protected Equipment Program, Revision 3
OP-PB-108-101-1002, Control of Protected Equipment Tracking Sheet, Revision 7
OP-PB-108-101-1002, PBAPS Protected Equipment Tracking Sheet, Attachment A
GP-5, Power Operations, Revision 76
OP-AA-108-115, ODs, Revision 11
LS-AA-120, Issue Identification and Screening Process

CRs

*1324453, NRC-Identified Enhancement to Protected Equipment Practices
1459938, Exceptions to OP-A-108-117, Protected Equipment Program
*1461292, NRC-Identified – Protected Equipment Enhancement Actions
1472508, PSO2 End of Shift Critique Day Shift 2/4-2/7, 2013
269057, GE SC04-15 Part 21 Off-Rated Transient Analysis QDC/DRE
269546, Part 21 – Turbine Control Assumptions in Transient Analysis
270464, Turbine Control System Impact in Transient Analysis
274815, GENE 10 CFR Part 21 Communication SC04-15
432107, Non-Conservative ARTS Off-Rated Thermal Limits for LGS
1191498, MSV #3 Failed to Close from MCR
1333178, Equipment OOS Impact on Analysis Assumptions
1479328, RT-O-01D-411-2 "Power Load Unbalance Test" Unsatisfactory
1479427, Power Load Unbalance Circuit Requirements
1479471, Conditional TC Change to GP-5
1479958, PSO2 End of Shift Critique 2-22/26-13 (Night Shift)
1483471, PSO5 End of Shift Critique for Night Shift March 1st – 5th
1484880, PSO3 End of Shift Critique
*1501290, NRC 1Q13 Inspection – Untimely Operability Call

Miscellaneous

NUMARC 93-01, Industry Guideline for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants, Revision 4A
PCM Templates, Terry (Style) Turbine, Release Date: 7/30/2008
Unified Control Room Log, dated February 20, 2013
Unified Control Room Log, dated February 21, 2013
10 CFR Part 21.21(b) Transfer of Information SC04-15, Turbine Control System Impact in Transient Analysis, October 31, 2004
GE Hitachi Nuclear Energy 0000-0158-4237-R0, Evaluation of PLU OOS for Peach Bottom Unit 2 Cycle 20
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Limerick MCR Logs, March 25, 2011
NRC Part 9900 Technical Guidance: ODs and Functionality Assessments for Resolution of Degraded and Nonconforming Conditions Adverse to Quality or Safety
Outage Control Center Log, Saturday, February 23, 2013
PBAPS Short Duration Time Clock Log, Unit 2, February 24, 2013
PBAPS TS 3.2.2, MCPR

PBAPS TS Bases B3.2.2, MCPR
PBAPS TS 5.6.5, COLR
PBAPS TS Bases B3.3.1.1, RPS Instrumentation
PBAPS TS 3.3.4.2, EOC-RPT Instrumentation
PBAPS TS Bases B3.3.4.2, EOC-RPT Instrumentation
PBAPS UFSAR Section 7.2.3.6.e, Scram Functions and Bases for Trip Settings: Turbine Control Valve Fast Closure
PBAPS UFSAR Section 3.7.6.2, Design Minimum Critical Power Ratio
PBAPS UFSAR Section 3.7.8, Verification and Testing
PBAPS UFSAR Section 14.2, Unacceptable Safety Results for Abnormal Operational Transients
PBAPS UFSAR Section 14.5.1.1, Electrical Load Rejection (Turbine Control Valve Fast Closure) with Bypass Failure
PBAPS UFSAR Section 14.5.1.2.2, Turbine Trip from Lower Power without Bypass
PBAPS UFSAR Section 14.5.1.2.4, End-of-Cycle Recirculation Pump Trip (EOC-RPT) System
PBAPS UFSAR Section 14.7, Conclusions
Safety Guide (RG) 1.33, Quality Assurance Requirements, November 3, 1972
RT-O-01D-411-2, PLU Circuit Test, Revision 8, performed February 24, 2013
TC 13-0024, Temporary Change to GP-5, dated February 24, 2013
TODI NF ID# NF1300060, Administrative Guidance for PB2C20 PLUOOS
TODI NF ID# NF1300087, Administrative Guidance for PB3C19 PLUOOS

Section 1R15: Operability Evaluations

Procedures

OP-AA-108-115, Open ODs, dated 02/11/13

CRs

1465288, OP-Eval 12-008 CA's Not Correctly Scheduled
1464278, 10 CFR Part 21 Foreign Material in CRDM (GEH SC 13-01)

WOs / ARs

Miscellaneous

SC 13-01, GE Part 21 Communication, Foreign Material in Control Rod Drive Mechanisms (U.S.), dated January 17, 2013

Section 1R18: Plant Modifications

CRs

1476917, Potential Time Critical Action Per OP-AA-102-106 Identified
1486417, CREV Radiation Monitors Are Obsolete
1485175, PORC-13-08 – CRB Rack Installation Procedure Remanded
1483601, SFP Sparger As Found Conditions Do Not Match Drawings
1486721, Unit 3 New CRB Racks Could Not Be Installed With Procedure As Written
1487274, Inadequate Clearance Available to Install New CRB Rack
1484321, RCR CAPR for Procedure Revision Removed From Procedure
1480988, Unit 3 New CRB Rack Install Work Stopped, Downstream Impacts
1472102, PB3 OEM Control Blade Serial Number Differences
1462927, SFP LLW Processing Equipment Start Delayed Processing ECR

Miscellaneous

ECR Number, PB 11-00286, CRE Habitability Evaluation and Licensing Basis Change
ECR No. 12-00464, New Control Rod Blade (CRB) Racks for the Unit 3 SFP

Section 1R19: Post-Maintenance Testing

Procedures

ST-R-003-485-3, CRD Scram Insertion Timing of Selected Control Rods, Revision 24
RT-X-023-210-2, HPCI Flow Control Stability Test, Revision 7
ST-O-013-301-2, RCIC Pump, Valve, Flow and Unit Cooler Functional and In-Service Test,
Revision 40
ST-O-023-301-2, HPCI Pump, Valve, Flow and Unit Cooler Functional and In-Service Test,
Revision 61

ARs

1638519

CRs

1427102, Potential Instability in Unit 2 HPCI EGM and Ramp Switch
1429185, Recommend Tuning of Unit 2 HPCI Governor Controls
1458294, RGSC Screw -4 Not Able to be Tighten Completely
1458430, Recommend Revision to S12M-23-GOV-XXC2
1458535, RGSC from Unit 2 HPCI Needs Refurbished and Returned to Stock
1460498, Security Door #324 (MCR) Will Not Latch
1460632, CREV Common Access Door in Leakage
1462374, APRM-LM-2-PB2 Failed During SI2N-60A-APRM-21C2
1462785, APRM 3 Failed to Give a Rod Block
1464466, OPEX Review – ICES 302284 APRM Inoperable Due to Failure
1467702, NOS ID: NIRB APRM Voter Unit Card Failures
1477701, Need New Summer Readiness AR
1479227, E-3 Diesel Running Alarm Clearing During Full Load Run
1479229, E-3 EDG Jacket Coolant PP Seal Leakage Above ACMP Threshold
1479243, E-3 EDG Lube Oil Sump Alarm
1479263, Red Hand High
1479274, Scheduled NRC Y Shift for 02/23/2013 Not Completed
1479287, Emergent Clearance Written for E-3 EDG
1479373, E-3 EDG Speed Switch Long Term Upward Drift
1480099, Replace Refurbished Logic Cards in APRM 2/4 Voter
1480105, Replace Refurbished Logic Cards in APRM 2/4 Voter
1480111, Replace Refurbished Logic Cards in APRM 2/4 Voter
1480109, Replace Refurbished Logic Cards in APRM 2/4 Voter

Miscellaneous

SI2M-23-GOV-XXC2, Calibration Check of HPCI Turbine Governor, Revision 5, Performed on
1/3/13
SI2N-60A-APRM-21C2, Calibration/Functional Check of Average Power Range Monitor (APRM)
“2,” Revision 6
TC #13-0005 for SI2M-23-GOV-XXC2, Revision 5, Performed on 01/04/13
6280-MIJJ-30, HPCI Vendor Manual
Unified Control Room Log, Wednesday, dated 01/09/13 Day Shift
PBAPS TSs, Section 3.7.4 MCREV System
PBAPS TS Bases, Section B 3.7.4, MCREV System

Section 1R22: Surveillance Testing

Procedures

ST-O-023-301-2, HPCI Pump, Valve, Flow and Unit Cooler Functional and In-service Test, Revision 61
ST-O-052-413-2, E-3 Diesel Generator Fast Start and Full Load Test, Revision 22
RT-X-023-210-2, HPCI Flow Control Stability Test, Revision 7
SM-AA-300, Procurement Engineering Support Activities, Revision 6
SM-AA-300-1001, Procurement Engineering Process and Responsibilities, Revision 13
M-052-002, Diesel Engine Maintenance, Revision 38
CC-AA-102, Design Input and Configuration Change Impact Screening, Revision 26

CRs

1428083, HPCI Drain Pot Vent Valve Leaking Into HPCI Room
1457524, Emergent Clearance Revision Required
1457936, Inadequate Thread Engagement during Banana Test Jack Install
1458688, Scheduled Duration for HPCI Governor Cal Reduced by 21 Hours
1459002, Alarm 221 D-2, HPCI Turbine Inlet Drain Hi LVL/INSTR
1459016, Indicated RCIC Flow on FC-2-13-091 during HPCI Operation
1459029, Unit 2 HPCI Turbine Thrust BRG Oil Press Low Out of Specification during PVF
1459032, Unit 2 HPCI CLG Wtr HDR Press Gauge Has Broken Indicator Needle
1464380, 3 'A' RHR Pump DP in the Action Range
1464435, Calibrated Gages not Zero'd Prior to Use
1474391, Potential Unevaluated Non-Q Gasket Used in EDG Q Application
1474861, Potential Unevaluated Non-Q Gasket Used in EDG Q Application

Miscellaneous

Fairbanks Morse EDG Vendor Manual
Unified Control Room Log, Day Shift, EDG E-3, dated Saturday, February 23, 2013
Unified Control Room Log, Night Shift, Performed SO52A.1.B Diesel Generator Operations, dated Saturday, February 23, 2013
Unified Control Room Log, Night Shift, Paragon Status Change, dated Saturday, February 23, 2013
Unified Control Room Log, Day Shift, 0-TS-13-0012 for AC Sources - Operating was Exited, dated Sunday, February 24, 2013

Section 1EP2: Alert and Notification System Evaluation

Consolidated Technical Review of Exelon East Updated Design Reports for Three Mile Island, Peach Bottom, Limerick, and Oyster Creek Nuclear Stations, dated 8/15/05
EP-MA-121-1006, Exelon East ANS Siren Monitoring, Troubleshooting, and Testing, Revision 8
PBAPS ANS test and Maintenance Records for 2012
Peach Bottom Nuclear Power Plant, Upgraded Public ANS Report, dated April 2005

Section 1EP3: Emergency Response Organization Staffing and Augmentation System

50.54(q) Program Evaluation and Effectiveness Review, Peach Bottom Station On-Shift Staffing Technical Basis, dated 12/3/12
EP-AA-1000, Exelon Nuclear Standard Radiological Emergency Plan, Revision 23
EP-AA-1007 Addendum 1, PBAPS On-Shift Staffing Technical Basis, Revision 0
EP-AA-1007, Exelon Nuclear Radiological Emergency Plan Annex for PBAPS, Revision 26
EP-AA-112-100-F-07, Mid-Atlantic ERO Notification or Augmentation, Revision G
Peach Bottom ERO Team Roster 2/11/13

TQ-AA-113, ERO Training and Qualification, Revision 20
 EP-AA-122-1001, Drill & Exercise Scheduling, Development and Conduct, Revision 15
 ERO Call-in Augmentation Drill Results 1st Quarter 2011 to 4th Quarter 20112

Section 1EP4: Emergency Action Level and Emergency Plan Changes

EP-AA-1000, "Standardized Radiological Emergency Plan," Revision 22 and 23
 EP-AA-1007, "Radiological Emergency Plan Annex for PBAPS," Revisions 24, 25, 26

Section 1EP5: Correction of Emergency Preparedness Weaknesses

Check-In Self-Assessment, NRC EP Baseline Inspection and INPO Review Visit, dated 12/19/12
 EP-AA-1, Nuclear Policy – EP, Revision 0
 EP-AA-120-1001, 10 CFR 50.54(q) Change Evaluation, Revision 7
 EP-AA-121-F-07, Peach Bottom Equipment Matrix, Revision 1
 EP-AA-121, Emergency Response Facilities and Equipment Readiness, Revision 11
 Evacuation Time Estimates for the Peach Bottom Station Plume Exposure Pathway Emergency Planning Zone, December 2012
 Letter of Agreement between Maryland Emergency Management Agency and Exelon Nuclear, dated 1/3/13
 Letter of Agreement between the Delta-Cardiff Volunteer Fire Company and Exelon Nuclear, dated 1/16/12
 Letter of Agreement between the York Hospital and Exelon Generation, dated 1/18/12
 Letter of Agreement between Upper Chesapeake Health System/Harford Memorial Hospital and Exelon Nuclear, dated 1/3/13
 LS-AA-104-1002, 50.59 Applicability Review Form, Revision 4
 LS-AA-104, Exelon 50.59 Review Process, Revision 7
 Mutual Statement of Agreement between the Commonwealth of Pennsylvania and Exelon Nuclear, dated 2/6/12
 Peach Bottom 8/23/11 Unusual Event Report, September 15, 2011
 RT-E-101-911-2, Radiation Protection Emergency Kit Inventory, performed 2/7/13
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 NOSA-PEA-12-03, Peach Bottom EP Audit Report, dated 5/9/12
 NOSA-PEA-11-03, Peach Bottom EP Audit Report, dated 4/20/11
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CRs

1208829	1261117	1474298
1228256	1261193	1444711
1228257	1294009	1475282
1228259	1436178	1475401
1229826	1437118	1474766
1231639	1450329	

ARs

A1867898, Main Stack Rad Monitor Trouble Alarms in MCR, 7/20/12
 A1885753, Main Stack Rad Monitor Trouble Alarms in MCR, 11/28/12

Section 2RS1: Radiological Hazard Assessment and Exposure Controls

Procedures:

RP-AA-460, Controls for High and Locked HRAs, Revision 23
 RP-AA-460-001, Controls for VHRAs, Revision 4

RP-AA-460-002, Revision 1, Additional High Radiation Exposure Control
 RP-AA-460-003, Access to HRAs/LHRAs/VHRAs in Response to a Potential or Actual
 Emergency, Revision 2

Section 2RS2: Occupational ALARA Planning and Controls

PBAPS Radiation Protection Refuel Outage Report P2R19

ARs:

01451201;	01457176;	01470972;
01450683;	01457183;	01468871;
01450706;	01457194;	01469873;
01450740;	01457202;	01470400;
01450836;	01464262;	01471786
01457170;	01460961;	
01457163;	01465332;	
01451731;	01462237;	

Section 2RS3: In-Plant Airborne Radioactivity Control and Mitigation

Procedures:

RP-AA-301, Radiological Air Sampling Program, Revision 5
 RP-AA-440, Respiratory Protection Program, Revision 10
 RP-AA-441, Evaluation and Selection Process for Radiological Respirator Use, Revision 4
 RP-AA-441-1001, Respirator Field Use and Air Testing, Revision 5
 RP-AA-442, Selection of Respiratory Protection for Non-Radiological Use, Revision 4
 RP-AA-443, Quantitative Respirator Fit Testing, Revision 12
 RP-AA-444, Controlled Negative Pressure (CNP) Fit Testing, Revision 4
 RP-AA-825, Maintenance, Care and Inspection of Respiratory Protective Equipment, Revision 6
 RP-AA-825-1001, Inspection of Respiratory Protection Equipment, Revision 5
 RP-AA-825-1011, Inspection and Use of the Mururoa V4 MTH2 and V4 F1 Air Supplied
 Suits, Revision 4
 RP-PB-825-1011, Inspection and Use of the Mururoa V4 F1 RR Air Supplied Suit, Revision 0
 RP-AA-825-1013, Operation and Inspection of the 3M Air-Mate Hood and PAPR Blower
 Unit, Revision 3
 RP-AA-825-1014, Operation and Inspection of the 3M Versaflo TR-300 PAPR System,
 Revision 0
 RP-AA-825-1014-F-01, Use of the 3M S-403 Versaflo Economy Hood, Revision 0
 RP-AA-825-1014-F-02, Use of the 3M M-100 Series Versaflo Faceshield, Revision 0
 RP-AA-825-1014-F-03, Use of the 3M M-300 Series Versaflo Faceshield and Hard Hat,
 Revision 0
 RP-AA-825-1014-F-04, Use of the 3M S-800 Versaflo Series Hoods, Revision 0
 RP-AA-825-1020, Operation and Use of Air Line Supplied Respirators, Revision 0
 RP-AA-825-1033, Operation of the MSA Optimair MM 2K Mask Mounted Air Purifying
 Respirator, Revision 1
 RP-AA-825-1035, Issue and Control of Respirators, Revision 1
 SY-AA-1021, Millennium Protective Masks, Revision 5
 RT-H-099-905-2, Laboratory Confirmation of Breathing Air Quality, Revision 11
 RT-H-099-990-2, One Hour SCBA Pack Inspection and Functional Test, Revision 15

CRs/ ARs

AR: 014535354

Section 4OA1: Performance Indicator Verification

EP-AA-125-1001, EP PI Guidance, Revision 7
EP-AA-125-1002, ERO Performance – Pls Guidance, Revision 8
EP-AA-125-1004, Emergency Response Facilities & Equipment Pls Guidance, Revision 6
EP-AA-125-1003, ERO Readiness - Pls Guidance, Revision 7
PI Data – 1st quarter 2012 to 4th quarter 2012

Section 4OA2: Identification and Resolution of Problems

Procedures

M-019-002, Installation of NETCO Snap-In Absorber Inserts in the Spent Nuclear Fuel Storage Racks, Revision 1
ER-AA-310, Implementation of the MR, Revision 8
ER-AA-310-1004, MR – Performance Monitoring, Revision 11
ER-PB-310-1010, MR Implementation PBAPS, Revision 6

CRs

*1459607, High CS Loop Discharge Pressure While OOS
1458464, NRC-Identified Combustible Safety Netting in CFZ
1459275, Earthquake in Alaska Causes Potential Torus LVL Oscillation
1460454, EP Review of Fire Alarm Condition Per EP-AA-120
1460376, MCR Received 008 G1-A Fire Alarm
1477405, 10 CFR Part 21 Notification Review for 2012
1147062, Unit 2 Fuel Pool Rack Boraflex Upgrade Project
1484839, New NETCO Insert Fell In Unit 2 SFP
1445266, IR with No/Inaccurate Affected Systems Identified
1450689, Main Control Room Annunciator Panel Not Working
1452049, IR Not Reviewed for FF Within 30 Days
1452282, MRFF in Annunciator System
1459865, Quarterly MR SSC Evaluations Not Documented
1465540, MR Expert Panel Meeting January 18, 2013
1475902, Recommendation to Allow SOC to Add or Revise Unit Field

Miscellaneous

ECR 11-00077, Unit 2 Fuel Pool Rack Boraflex Upgrade Project, Revision 5
ECR 12-00045, Install NETCO Rack Inserts in the Unit 2 and Unit 3 SFP Racks, Revision 0
Operability Evaluation 10-007, Spent Fuel Pool Storage Rack Boraflex Panels
PBAPS LAR – Use of Neutron Absorbing Inserts in Unit 2 and Unit 3 Spent Fuel Storage Racks, dated November 3, 2011

LIST OF ACRONYMS

ADAMS	Agencywide Documents Access and Management System
ALARA	as low as is reasonably achievable
ANS	alert and notification system
APRM	average power range monitor
AR	action request
CAP	corrective action program
CFR	Code of Federal Regulations
COLR	core operating limits report
CRs	condition reports
CS	core spray
DBD	design basis document
DRS	Division of Reactor Safety
EDG	emergency diesel generator
EP	Emergency Preparedness
EPIP	Emergency Plan Implementing Procedures
ERF	Emergency Response Facility
ERO	Emergency Response Organization
ESW	emergency service water
FEMA	Federal Emergency Management Agency
PI	groundwater protection initiative
HEPA	high efficiency particulate air
HP	health physics
HPCI	high pressure coolant injection
HPSW	high pressure service water
HRA	high radiation area
HX	heat exchanger
I&C	instrument and control
IMC	inspection manual chapter
INPO	Institute of Nuclear Power Operation
IP	inspection procedure
IR	issue report
JPM	job performance measures
LAR	license amendment request\
LCO	limiting condition for operation
LDE	lens dose equivalent
LERs	licensee event reports
LOCA	loss of coolant accident
LORT	licensed operator requalification training
MCPR	minimum critical power ratio
MCR	main control room
MCREV	main control room emergency ventilation
MDA	minimum detectable activity
MOV	motor-operated valve
MR	maintenance rule
MRFF	maintenance rule functional failure
MSIV	main steam isolation valve
MSL	main steam line

NCV	non-cited violation
NDE	non-destructive evaluation
NEI	Nuclear Energy Institute
NIST	National Institute of Standards and Technology
NIOSH/MSHA	National Institute for Occupational Safety and Health/Mine Safety and Health Administration
NRC	Nuclear Regulatory Commission
NSIR	Office of Nuclear Security and Incident Response
NVLAP	National Voluntary Laboratory Accreditation Program
OA	other activities
OD	operability determination
ODCM	offsite dose calculation manual
OE	operability evaluation
OOS	out of service
OSLD	optically stimulated light dosimeter
PARS	publicly available records
PBAPS	Peach Bottom Atomic Power Station
PD	performance deficiency
PI	performance indicator
PLU	power load unbalance
PMT	post-maintenance testing
RAI	request for additional information
RB	reactor building
RCIC	reactor core isolation cooling
RCS	reactor coolant system
RETS	radiological effluents technical specification
RFP	reactor feed pump
RG	regulatory guide
RGSC	ramp generator signal conditioner
RHR	residual heat removal
RPM	radiation protection manager
RPS	reactor protection system
RTP	rated thermal power
SCBA	self-contained breathing apparatus
SDE	shallow dose equivalent
SDP	significance determination process
SFP	spent fuel pool
SJAE	steam jet air ejector
SRO	senior reactor operator
SSCs	structures, systems, and components
STs	surveillance tests
SW	service water
TB	turbine building
TCV	turbine control valve
TS	technical specification
UFSAR	updated final safety analysis report
VHRA	very high radiation area
WOs	work orders