



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

July 30, 2007

Mr. Christopher M. Crane
President and CNO
Exelon Nuclear
Exelon Generation Company, LLC
200 Exelon Way
Kennett Square, PA 19348

SUBJECT: PEACH BOTTOM ATOMIC POWER STATION - NRC INTEGRATED
INSPECTION REPORT 05000277/2007003 AND 05000278/2007003

Dear Mr. Crane:

On June 30, 2007, the United States Nuclear Regulatory Commission (NRC) completed an 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 July 20, 2007, with Mr. J. Grimes and other members of your staff.

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

The report documents three self-revealing findings of very low safety significance (Green). Two of these findings were determined to involve violations of NRC requirements. Additionally, three licensee-identified violations which were determined to be of very low safety significance are listed in this report. However, because of the very low safety significance and because they are entered into your corrective action program (CAP), the NRC is treating these findings as non-cited violations (NCVs) consistent with Section VI.A.1 of the NRC Enforcement Policy. If you contest any NCV in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, D.C. 20555-0001; with copies to the Regional Administrator, Region I; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, D.C. 20555-0001; and the NRC Resident Inspector at Peach Bottom.

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

Sincerely,

/RA/

Paul G. Krohn, Chief
Reactor Projects Branch 4
Division of Reactor Projects

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

Enclosures: Inspection Report 05000277/2007003 and 05000278/2007003
w/Attachment: Supplemental Information

cc w/encl:

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w/Attachment: Supplemental Information

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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.: 05000277/2007003 and 05000278/2007003

Licensee: Exelon Generation Company, LLC

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

Location: Delta, Pennsylvania

Dates: April 1, 2007 through June 30, 2007

Inspectors: F. Bower, Senior Resident Inspector
M. Brown, Resident Inspector
R. Fuhrmeister, Senior Project Engineer
R. Nimitz, Senior Health Physicist
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Approved by: Paul G. Krohn, Chief
Reactor Projects Branch 4
Division of Reactor Projects

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SUMMARY OF FINDINGS

IR 05000277/2007-003, 05000278/2007-003; 04/01/2007 - 06/30/2007; Peach Bottom Atomic Power Station (PBAPS), Units 2 and 3; Event Followup.

The report covered a 3-month period of inspection by resident inspectors, a senior project engineer, and announced inspections by a senior health physicist, a senior emergency response coordinator, and an emergency preparedness inspector. Three Green findings, two of which were NCVs, were identified. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP). Findings for which the SDP does not apply may be Green or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4, dated December 2006.

A. NRC-Identified and Self-Revealing Findings

Cornerstone: Mitigating Systems

- Green. A self-revealing finding was identified for inadequate implementation of work order (WO) instructions to verify the correct breaker frame size during the overhaul of a compatible spare breaker for installation into the '4T4' 480 volt load center. This condition resulted in a poor electrical connection between the primary disconnect fingers and the switchgear bus stabs for one breaker in the '4T4' load center that ultimately resulted in a fire that led to a plant transient and declaration of an Unusual Event (UE).

This finding is greater than minor because it affected the human performance attribute of the Initiating Event Cornerstone, in that, an incorrect frame size breaker was installed into a cubicle for which it was not sized. This mismatch caused an electrical fault that led to a fire and a plant transient that upset plant stability. The finding was of very low safety significance (Green) because it did not increase both the likelihood of a reactor scram and that mitigation equipment or functions would not be available. The inspectors determined that this finding had a cross-cutting aspect in the area of human performance (work practices component) because maintenance technicians did not follow WO instructions to specifically verify the frame size of a breaker during its overhaul (IMC 0305 aspect H.4(b)). (Section 4OA3.1)

- Green. A self-revealing NCV of Technical Specification (TS) 5.4.1, was identified when operators inadequately implemented a surveillance test by missing a procedure step. The missed step placed the E-3 emergency diesel generator (EDG) in the isochronous mode of operation while it was synchronized to off-site power and resulted in an unexpected over-loading of the E-3 EDG.

This finding is more than minor because it was associated with the human performance attribute of the Mitigating Systems Cornerstone, and impacted the cornerstone objective of ensuring the availability of the E-3 EDG to respond to initiating events. This finding is of very low safety significance (Green) because all other EDGs remained operable and the actual loss of safety function of the E-3 EDG was less than the TS allowed outage time of seven days. The inspectors

determined that this finding had a cross-cutting aspect in the area of human performance (work practices component) because PBAPS personnel did not follow procedures when the E-3 EDG was placed in the isochronous load control mode with the E-3 EDG in parallel with the off-site power source (IMC 0305 aspect H.4(b)). (Section 4OA3.2)

- Green. A self-revealing NCV of TS 5.4.1, was identified when operators manipulated a diesel-driven fire pump (DDFP) cooling water valve outside of procedure guidance. The improper manipulation led to misalignment of the DDFP cooling water that subsequently damaged the engine during operations without cooling water.

The failure to use a procedure for cleaning and restoring the DDFP cooling water strainer was a more than minor finding because it was associated with the degradation of a fire protection feature, in that, the DDFP was rendered inoperable by damage to the engine. Using the Fire Protection SDP, the finding was determined to be of very low safety significance due to the motor-driven fire pump remaining operable during the five days the DDFP was inoperable, and the small number of fire scenarios which would impact the power supply to the motor-driven fire pump. This finding had a cross-cutting aspect in the area of human performance (resources component) because procedure ST-O-37D-340-2 did not provide complete and accurate instructions for cleaning the DDFP cooling water strainer (IMC 0305 aspect H.2©). (Section 4OA3.3)

B. Licensee-Identified Violations

Three violations of very low safety significance (Green), that were identified by the licensee, have been reviewed by the inspectors. Corrective actions taken or planned by the licensee have been entered into the licensee's CAP. The violations and corrective actions are listed in Section 4OA7 of this report.

REPORT DETAILS

Summary of Plant Status

Unit 2 began the inspection period at 100 percent full rated thermal power (RTP) until April 27, 2007, when power was reduced to 58 percent for planned waterbox cleaning, control rod testing, 2 'A' reactor feed pump (RFP) maintenance, and other planned maintenance and testing. On April 28, 2007, the unit returned to full power where it remained until the end of the inspection period, except for brief periods to support planned testing and rod pattern adjustments.

Unit 3 began the inspection period at 100 percent full RTP until April 16, 2007, when an unplanned power reduction to 84 percent was performed in response to rapidly increasing 3 'A' reactor recirculation pump shaft seal temperatures. The unit returned to full power on April 18, 2007. On May 4, 2007, power was reduced to 59 percent for planned waterbox cleaning, control rod testing, and 3 'C' RFP maintenance. The unit returned to full power on May 5, 2007. On May 11, 2007, power was reduced to 65 percent for a planned control rod pattern adjustment and RFP testing, and the unit returned to full power on May 12, 2007. On June 15, 2007, power was reduced to 82 percent for a rod pattern adjustment and planned maintenance on a feedwater heater drain line. The unit was returned to full power on June 16, 2007, where it remained until 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 (711111.01 - 1 System Sample; 1 Site Sample)

.1 Summer Seasonal Readiness

a. Inspection Scope

The inspectors performed one seasonal readiness sample that included a review of three ventilation systems. Specifically, the inspectors reviewed the procedures listed in Attachment 1 to the report, and verified summer ventilation system alignment for the diesel generator building, circulating water pump structure, and circulating water pump screen house.

b. Findings

No findings of significance were identified.

Enclosure

.2 Adverse Weather Event Review

a. Inspection Scope

On June 13, 2007, a tornado warning was issued for an adjacent county. The inspectors reviewed PBAPS's actions taken to respond to potential adverse environmental conditions from severe thunderstorms that entered the area. High winds, lightning, rain, and reports of hail were experienced at the site. The inspectors observed that PBAPS's personnel consulted procedure OP-PB-108-111-1001, "Preparation for Severe Weather," increased the online risk assessment to "Yellow," and subsequently implemented procedure AO 53.2-0, "Equipment Checks After a Thunderstorm."

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment (71111.04Q - 3 Partial Walkdown Samples)

.1 Partial Walkdown

a. Inspection Scope

The inspectors performed a partial walkdown of three systems to verify the operability of redundant or diverse trains and components when safety-related equipment was inoperable. The inspectors performed walkdowns to identify any discrepancies that could impact the function of the system and potentially increase risk. The inspectors reviewed applicable operating procedures, walked down system components, and verified that selected breakers, valves, and support equipment were in the correct position to support system operation. The inspectors also verified that PBAPS had properly identified and resolved equipment alignment problems that could cause initiating events or impact the capability of mitigating systems or barriers and entered them into the CAP. The three systems reviewed were:

- E-3 Diesel Generator and 3 Startup Transformer with the 2 Startup Transformer Out-of-Service;
- Unit 2 Reactor Core Isolation Cooling (RCIC) with Unit 2 High Pressure Coolant Injection (HPCI) Out-of-Service; and
- 'B' Emergency Service Water (ESW) with 'A' ESW Out-of-Service.

b. Findings

No findings of significance were identified.

.2 Complete System Walkdown (71111.04S - 1 Sample)

a. Inspection Scope

During the week of June 25, 2007, the inspectors performed one complete Unit 2 high pressure service water (HPSW) system walkdown of the accessible portions of the

system. The full walkdown was performed to identify any discrepancies which could impact the Unit 2 HPSW system function. The inspectors reviewed system operating procedures, piping and instrumentation drawings, walked down control system components, and verified that circuit breakers and valves were in the appropriate positions.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05Q - 10 Samples)

Fire Protection - Tours

a. Inspection Scope

The inspectors reviewed PBAPS's Fire Protection Plan, Technical Requirements Manual (TRM), and the respective pre-fire action plan procedures to determine the required fire protection design features, fire area boundaries, and combustible loading requirements for the areas examined during this inspection. The fire risk analysis was reviewed to gain risk insights regarding the areas selected for inspection. The inspectors performed walkdowns of ten areas to assess the material condition of active and passive fire protection systems and features. The inspection was also performed to verify the adequacy of the control of transient combustible material and ignition sources, the condition of manual firefighting equipment, fire barriers, and the status of any related compensatory measures. The following ten fire areas were reviewed for impaired fire protection features:

- Unit 3 Reactor Building (RB), RCIC Room, 88' Elevation (Fire Zone 63);
- Standby Gas Treatment Room, Radwaste Building, 91'6" Elevation (Fire Zone 70);
- Unit 3 RB, North Control Rod Drive (CRD) Equipment and West Corridor (Fire Zone 13H);
- Unit 3 Refuel Floor (Fire Zone 55);
- Unit 3 'A' and 'C' Core Spray Rooms (Fire Zones 13D & 13E);
- Unit 2 Emergency Battery/Switchgear Rooms (Fire Zone 127);
- Unit 2 RCIC (Fire Zone 60);
- Unit 2 Main Transformer Yard (Fire Zone 151);
- 2 Startup Switchgear Building (Fire Zone 164); and
- Diesel Generator Building, 127' Elevation (Fire Zone 132).

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification Program (71111.11Q - 1 Sample)Resident Inspector Quarterly Reviewa. Inspection Scope

On June 12, 2006, the inspectors observed operators in PBAPS's simulator during licensed operator requalification training to verify that operator performance was adequate and that evaluators were identifying and documenting crew performance issues. The inspectors verified that performance issues were discussed in the crew's post-scenario critiques. The inspectors also observed operator implementation of procedures. The inspectors discussed the training, simulator scenarios, and critiques with the operators, shift supervision, and the training instructors. The evaluated scenario observed for this one sample involved the events listed below:

- Small Break Loss of Coolant Accident; and
- An Anticipated Transient Without Scram.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12Q - 2 Samples)a. Inspection Scope

The inspectors reviewed two samples of PBAPS's evaluation of degraded conditions involving safety-related structures, systems, and components (SSCs) for maintenance effectiveness during this inspection period. The inspectors reviewed PBAPS's implementation of the Maintenance Rule (MR), and verified that the conditions associated with the referenced condition reports (CRs) were evaluated against applicable MR functional failure criteria as found in the licensee's scoping documents and procedures. The inspectors also discussed these issues with system engineers and MR coordinators to verify that they were tracked against performance criteria and that the systems were classified in accordance with MR implementation guidance. Documents reviewed during the inspection are listed in the Attachment. The following conditions were reviewed:

- Issue Report (IR) 587171, ESW Check Valve (CHK-0-33-515A) - Not Seated Causes ESW ST-O-033-300-2 to be Aborted; and
- IR 622560, Maintenance Preventable Functional Failure for Loss of '4T4' 480 Volt Load Center.

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13 - 8 Samples)

a. Inspection Scope

The inspectors evaluated PBAPS's implementation of their maintenance risk program to verify that PBAPS managed risk in accordance with 10 CFR Part 50.65(a)(4). Procedure WC-AA-101, "On-line Work Control Process," was also reviewed. This inspection included reviews of PBAPS's use of the Paragon online risk monitoring software. The inspectors reviewed equipment tracking documentation, daily work schedules, and performed plant tours. The following activities selected were based on plant maintenance schedules and systems that contributed to risk. The inspectors completed eight evaluations of maintenance activities on the following:

- Troubleshooting, Rework and Testing (TRT) Control Form No. 07-18, Monitor 3 'A' Recirculation Pump Seal Parameters During Recirculation Pump Speed Changes;
- TRT No. 07-020, Re-align CRD Pump Suction to the Condensate Storage Tank (CST) from the Condensate System;
- WO C0220911, Calibrate, Repair & Replace E-2 EDG Temperature Switch;
- WO A1613202, 3 'B' Recirculation Pump 2nd Stage Seal Pressure;
- IR 623723, Bolt and Heli-coil Found Damaged at Disassembly on 00T634;
- IR 626534, Equipment Not Protected As Required;
- WO R0736769-01, Core Spray Loop 'A' Full Flow Test Valve Operator, MO-2-14-026A-OP, Perform Motor Operator Preventive Maintenance; and
- IR 542109, 2 'C' Service Air Compressor Trip.

Additionally, the inspectors verified that an inspector-identified issue, IR 626534, "Equipment Not Protected As Required," was entered into the PBAPS's CAP.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15 - 5 Samples)

a. Inspection Scope

The inspectors reviewed five issues to assess the technical adequacy of the evaluations, the use and control of compensatory measures, and compliance with the licensing and design bases. Associated adverse condition monitoring plans, engineering technical evaluations, and operational and technical decision making documents were also reviewed. The inspectors verified these processes were performed in accordance with the applicable procedures. The inspectors used TS, TRM, the Updated Final Safety Analysis Report (UFSAR), and associated Design Basis Documents (DBDs) as references during these reviews. The issues reviewed included:

- Non-Safety Related Piece Installed in E-4 EDG Part (IR 615413);
- Rising 3 'A' Reactor Recirculation Pump (RRP) #2 Seal Temperature (IR 617988);
- Provide Supplemental Cooling to the 3 'A' RRP Seal (IR 618478);

Enclosure

Target Rock Safety/Relief Valve (SRV) Seal Welds: Potential Code Issue (IR 628251); and
 Small Leak on 2 'B' Main Steam Line Differential Pressure Instrument Line Snubber Threaded Cap (IR 627026).

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing (71111.19 - 7 Samples)

a. Inspection Scope

The inspectors observed selected portions of post-maintenance testing (PMT) activities and reviewed completed test records. The inspectors observed whether the tests were performed in accordance with the approved procedures and assessed the adequacy of the test methodology based on the scope of maintenance work performed. In addition, the inspectors assessed the test acceptance criteria to evaluate whether the test demonstrated that the tested components satisfied the applicable design and licensing bases and the TS requirements. The inspectors reviewed the recorded test data to verify that the acceptance criteria were satisfied. The inspectors reviewed seven PMTs performed in conjunction with the following maintenance activities:

- WO C0220911, Calibrate, Repair & Replace E-2 EDG Temperature Switch;
- WO R1049367, Unit 3 Hydraulic Control Unit (HCU) 50-43: HCU Overhaul;
- WO R1017055, DDFP (00P063-DR) Diesel Engine 6YR Overhaul;
- WO C0216504, RCIC Suction Pressure Switch (PS-2-13-067-01), Replace Pressure Switch;
- WO C0221445, Inspect/Repair/Replace Unit 2 'C' Main Steam Line Radiation Monitor (RIS-2-17-251C);
- WO C0215740, Replace Unit 2 'B' Reactor Protection System Motor Generator Set Endbell; and
- WO R0629147, Perform Motor Control Unit Inspection on the 'C' Glycol Pump.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22 - 5 Samples) [3 Routine Samples; 1 IST Sample; 1 Reactor Coolant System (RCS) Leakage Sample]

a. Inspection Scope

The inspectors reviewed and observed portions of selected surveillance tests (STs), and compared test data with established acceptance criteria to verify the systems demonstrated the capability of performing the intended safety functions. The inspectors also verified that the systems and components maintained operational readiness, met applicable TS requirements, and were capable of performing the design basis functions. The five STs reviewed and observed included:

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- ST-O-023-301-3, HPCI Pump, Valve, Flow and Unit Cooler Functional and In-Service Test [IST Sample];
- ST-O-020-560-2 & 3, Reactor Coolant Leakage Test [RCS Leakage Sample];
- ST-I-60A-230-3, Linear Power Range Monitor Gain Calibration;
- SI2T-MIS-8547-C1CQ, Calibration/Functional Check of Channel 'C' Group 1, 4 and 5 of Primary Containment Isolation Valve (PCIV) Logic for TSs-80547C; and
- ST-R-003-485-3, CRD Scram Insertion Timing of Selected Control Rods.

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications (71111.23 -1 Sample)

a. Inspection Scope

The inspectors reviewed one temporary modification to verify that implementation of the modification did not place the plant in an unsafe condition. The review was also conducted to verify that the design bases, licensing bases, and performance capability of risk significant SSCs had not been degraded as a result of the modification. The inspectors verified the modified equipment alignment through control room instrumentation observations; the UFSAR; drawings; procedures; WO reviews; and plant walkdowns of accessible equipment. The following temporary modification was reviewed:

- TCCP 07-00172, Install Cooling Unit to Assist 3 'A' RRP Seal Cooling.

b. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness

1EP2 Alert and Notification System (ANS) Evaluation (71114.02 - 1 Sample)

a. Inspection Scope

An onsite review was conducted to assess the maintenance and testing of the PBAPS's ANS. During this inspection, the inspectors interviewed emergency preparedness (EP) staff responsible for implementation of the ANS testing and maintenance. IRs pertaining to the ANS were reviewed for causes, trends, and corrective actions. The inspectors further discussed with PBAPS, the ANS siren system and its performance from July 2005 through May 2007. The inspectors reviewed the licensee's procedures and the ANS design report to ensure compliance with those commitments for system maintenance and testing. The inspection was conducted in accordance with NRC Inspection Procedure (IP) 71114, Attachment 2. Planning standard, 10 CFR 50.47(b)(5) and the related requirements of 10 CFR 50, Appendix E were used as reference criteria.

b. Findings

No findings of significance were identified.

1EP3 Emergency Response Organization (ERO) Staffing and Augmentation System
(71114.03 - 1 Sample)

a. Inspection Scope

A review of Peach Bottom's ERO augmentation staffing requirements and the process for notifying the ERO was conducted. This was performed to ensure the readiness of key staff for responding to an event and to ensure timely facility activation. The inspectors reviewed procedures and IRs associated with the ERO notification system and drills, and reviewed records from call-in drills. The inspectors interviewed personnel responsible for testing the ERO augmentation process, and reviewed the training records for a sampling of the ERO to ensure training and qualifications were up-to-date. The inspectors reviewed procedures for ERO administration and training, and verified a sampling of the ERO participated in exercises in 2005 and 2006. The inspectors also reviewed records of offsite agency training and the June 2007 Respirator Qualification Report. The inspection was conducted in accordance with NRC IP 71114, Attachment 3. Planning standard, 10 CFR 50.47(b)(2) and related requirements of 10 CFR 50, Appendix E were used as reference criteria.

b. Findings

No findings of significance were identified.

1EP4 Emergency Action Level (EAL) and Emergency Plan Changes (71114.04 - 1 Sample)

a. Inspection Scope

Since the last NRC inspection of this program area, Emergency Plan (Plan), Revision 26, was implemented based on PBAPS's determination, in accordance with 10 CFR 50.54(q), that the changes resulted in no decrease in 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 50. The inspectors conducted a sampling review of the Emergency Plan changes, and changes to the lower-tier Emergency Plan implementing procedures, to evaluate the changes for potential decreases in effectiveness of the Emergency Plan. However, this review was not documented in a safety evaluation report and does not constitute formal NRC approval of the changes. Therefore, these changes remain subject to future NRC inspection in their entirety.

b. Findings

No findings of significance were identified.

1EP5 Correction of Emergency Preparedness Weaknesses (71114.05 - 1 Sample)

a. Inspection Scope

The inspectors reviewed a sampling of self-assessment procedures and reports to assess PBAPS's ability to evaluate their performance and programs. The inspectors reviewed a sampling of IRs from July 2006 through May 2007, initiated by Exelon Nuclear at Peach Bottom from drills, self-assessments, and audits. Other drill reports reviewed included: medical/health physics, fire, integrated, and call-in. Additionally, the inspectors reviewed the three UE Evaluation Reports generated since the last inspection, and audits for 2006 and 2007 required by 50.54(t). This inspection was conducted in accordance with NRC IP 71114, Attachment 5. Planning standard, 10 CFR 50.47(b)(14) and the related requirements of 10 CFR 50, Appendix E were used as reference criteria.

b. Findings

No findings of significance were identified.

1EP6 Drill Evaluation (71114.06 - 1 Sample)

Off-Year Exercise (Drill)

a. Inspection Scope

The inspectors conducted this inspection to assess: training quality and conduct; emergency plan procedure implementation; facility and equipment readiness; personnel performance in drills and exercises; organizational and management changes; and communications equipment readiness. The primary focus of this inspection was to verify PBAPS's critique of classification, notification, and protective action recommendation (PAR) development.

On May 15, 2007, the inspectors observed a full scale drill. The primary focus of this inspection was to verify PBAPS's critique of classification, notification, and PAR development. Selected portions of the drill were observed in the control room simulator and later in the technical support center (TSC). The drill scenario began with a simulated internal flooding event in the 2 'A' residual heat removal (RHR) pump room that degraded the performance of the associated safety system. The drill scenario continued with a simulated reactor event that started with a reduction of coolant flow to the core and progressed until three fission product barriers (fuel cladding, RCS, and containment) were lost. The inspectors observed licensed operator and ERO personnel adherence to the Emergency Plan implementing procedures. The ERO personnel responses to simulated degraded plant conditions were inspected to identify weaknesses and deficiencies in classification and notification. The inspectors also observed the transition of responsibility for the ERO from the shift manager in the simulated control room to the TSC. The inspectors observed PBAPS's critique of the drill to evaluate PBAPS's identification of weaknesses and deficiencies. The inspectors compared PBAPS's identified issues against the inspectors' observations to determine whether PBAPS adequately identified problems and entered them into the CAP. This inspection activity represented one

sample. The documents and procedures reviewed during the inspection are listed in the Attachment.

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY

Cornerstone: Public Radiation Safety

2PS2 Radioactive Material Processing and Transportation (71122.02 - 5 Samples)

.1 Inspection Planning/In-Office Inspection

a. Inspection Scope

The inspectors reviewed the solid waste system description in the UFSAR and recent radiological effluent release reports for information on the types and amounts of radioactive waste.

The inspectors reviewed Exelon's audit program in the area of radioactive waste characterization, transportation, and disposal. The inspectors also reviewed the status of the NRC approved quality assurance program in this area. (Section 2PS2.6)

b. Findings

No findings of significance were identified.

.2 Radioactive Waste System Walkdown

a. Inspection Scope

The inspectors walked down accessible portions of the station's radioactive liquid and solid waste collection, processing, and storage systems and locations to determine if: systems and facilities were consistent with descriptions provided in the UFSAR; to evaluate their general material conditions; and to identify changes made to systems. Areas visually inspected included tank and pump rooms, the de-watering facility, in-plant and outside waste storage areas, outside tank areas, and the low level-waste storage facility. Visual inspection records and previous surveys were also reviewed. The inspector also discussed operation of the radwaste systems with cognizant licensee personnel.

The inspectors reviewed the status of any non-operational or abandoned radioactive waste process equipment; the adequacy of administrative and physical controls for those systems; changes made to radioactive waste processing systems and potential radiological impact, including conduct of safety evaluations of the changes, as necessary.

The inspectors reviewed the current processes for transferring radioactive waste resin and sludge to shipping containers and mixing and sampling of the waste, as appropriate, to evaluate waste mixing, adequacy of sampling, and the methodology for waste concentration averaging. The inspector also reviewed radioactive waste and material storage and handling practices; sources of radioactive waste at the station (waste streams) and processing (as appropriate) and handling of the waste; and the general condition of facilities and equipment.

The review was against criteria contained in the station's UFSAR, 10 CFR Part 20, 10 CFR 61, the Process Control Program (PCP), and applicable station procedures.

b. Findings

No findings of significance were identified.

.3 Waste Characterization and Classification

a. Inspection Scope

The inspector reviewed the following matters:

- Radio-chemical sample analysis results for radioactive waste streams;
- Development of scaling factors for difficult to detect and measure radionuclides;
- Methods and practices to detect changes in waste streams;
- Classification and characterization of waste relative to 10 CFR 61.55 and 10 CFR 61.56;
- Implementation of applicable NRC branch technical positions (BTPs) on waste classification, concentration averaging, waste stream determination, and sampling frequency;
- Current waste streams and their processing relative to descriptions contained in the UFSAR and the station's approved PCP;
- Current processes for transferring radioactive waste resin and sludge discharges into shipping/disposal containers to determine adequacy of sampling;
- Revisions of the PCP and the UFSAR to reflect changes (as appropriate); and
- Waste processing topical report (de-watering).

The inspector discussed the adequacy of samples collected from the waste transfer and de-watering system.

The review was against criteria contained in 10 CFR 20, 10 CFR 61, 10 CFR 71, the UFSAR, the PCP, applicable NRC BTPs, and Exelon procedures.

b. Findings

No findings of significance were identified.

.4 Shipment Preparation

a. Inspection Scope

The inspector observed a non-exempt radioactive material shipment (PM-07-057) in preparation. The inspector reviewed associated transportation documents, reviewed radiological surveys to support transportation, reviewed license requirements, and discussed preparation with cognizant Exelon personnel. The inspector also reviewed personnel training relative to NRC Bulletin 79-19 and 49 CFR 172, Subpart H. The inspector reviewed and discussed technical training presented to workers. The inspector verified that a training program was provided to personnel responsible for the conduct of radioactive waste processing and radioactive waste shipping activities.

b. Findings

No findings of significance were identified.

.5 Shipment Records and Documentation

a. Inspection Scope

The inspector selected and reviewed the records associated with six non-excepted shipments of radioactive material made since the previous inspection in this area (Shipment Nos. PM-07-057, PW-07-010, PW-06-030, PW-07-007, PW-07-001, PW-07-003). The shipments were selected based on waste classification and waste-stream characteristics. The following aspects of the radioactive waste, radioactive material packaging, and radioactive material shipping activities were reviewed:

- Implementation of applicable shipping requirements including completion of waste manifests;
- Implementation of the specifications in applicable Certificates of Compliance, as appropriate, for the approved shipping casks including limits on package contents;
- Classification and characterization of waste relative to 10 CFR 61.55 and 61.56, as appropriate;
- Implementation of up-to-date NRC and Department of Transportation (DOT) shipping requirements;
- Implementation of 10 CFR 20, Appendix G;
- Implementation of specific radioactive material shipping requirements;
- Packaging of shipments;
- Labeling of shipping containers;
- Placarding of transport vehicles;
- Conduct of vehicle checks;
- Provision of driver exclusive use and emergency instructions, as applicable;
- Completion of shipping paper/disposal manifest;
- Evaluation of package against package performance standards, as appropriate;
- Conformance with procedures for cask loading, closure and use requirements including consistency with cask vendor approved procedures; and
- Use of latest revision documents.

The review was against criteria contained in 10 CFR 20; 10 CFR 61; 10 CFR 71; applicable DOT requirements, as contained in 49 CFR 170-189 for the above areas; station procedures; applicable disposal facility licenses; and applicable Certificates of Compliance or vendor procedures for various shipping casks.

The inspector also selectively reviewed the 2006 Annual Radioactive Effluent Release Report, relative to types and quantities of radioactive waste shipped offsite and relative to changes to the PCP.

b. Findings

No findings of significance were identified.

.6 Audits and Assessments of Radioactive Waste Handling

a. Inspection Scope

The inspector reviewed audits and assessments of the radioactive waste handling, processing, storage, and shipping programs, including the PCP. The inspector also reviewed selected corrective action documents written since the previous inspection. The following documents were reviewed:

- Chemistry, Radwaste, and Process Control Audit, (NOSA-PEA-06-04 (IR 476157), May 3, 2006;
- Self-Assessment, ASSA-565928 A05, May 14, 2007; and
- Issue Reports (IRs) 632879, 626897, 626873, 618653, 612012, 605803, 592478486694, 240959, 642483, 642097, 642491, 632526, 486694.

The review was against criteria contained in 10 CFR 20 Appendix G, 10 CFR 71.101, and applicable station audit and surveillance procedures.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

Cornerstones: Barrier Integrity & Emergency Preparedness

4OA1 Performance Indicator (PI) Verification (71151 - 7 Samples)

.1 Barrier Integrity PIs (71151 - 4 Samples)

a. Inspection Scope

The inspectors reviewed a sample of PBAPS's submittals for the four Barrier Integrity PIs listed below to verify the accuracy of the data reported. The PI definitions and the guidance contained in Nuclear Energy Institute (NEI) 99-02, "Regulatory Assessment Indicator Guideline," Revision 4, and Exelon procedure LS-AA-2001, "Collecting and

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Reporting of NRC Performance Indicator Data,” were used to verify that the reporting requirements were met. The inspectors reviewed raw PI data collected since January 2006 to December 2006 and compared graphical representations from the most recent PI report to the raw data to verify the data was included in the report. The PIs reviewed were:

- Unit 2 and Unit 3 RCS Specific Activity; and
- Unit 2 and Unit 3 RCS Leakage.

b. Findings

No findings of significance were identified.

.2 Emergency Preparedness (EP) PIs (71151 - 3 Samples)

a. Inspection Scope

The inspectors reviewed data for the following EP PIs:

- Drill and Exercise Performance (DEP);
- ERO Drill Participation; and
- ANS Reliability.

The inspectors reviewed supporting documentation from drills and tests from April 2006 through March 2007, to verify the accuracy of the reported data. The review of these PIs was conducted in accordance with NRC IP 71151. The acceptance criteria used for the review were 10 CFR 50.9 and NEI 99-02, Revision 4, "Regulatory Assessment Performance Indicator Guidelines."

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems (71152 - 1 Sample)

.1 Routine Review of Items Entered Into the CAP

a. Inspection Scope

As required by IP 71152, "Identification and Resolution of Problems," and in order to help identify repetitive equipment failures, human performance issues or program issues for follow-up, the inspectors performed routine screening of issues entered into PBAPS's CAP. This review was accomplished by selectively reviewing copies of IRs and accessing PBAPS's computerized database.

b. Findings

No findings of significance were identified.

.2 Review of Operator Work-Arounds (OWAs) (71152 - 1 Work-Around Sample)

a. Inspection Scope

As required by IP 71152, "Identification and Resolution of Problems," the inspectors conducted a review of the OWA program to verify that PBAPS was identifying OWAs problems at an appropriate threshold, have entered them in the CAP, and proposed or implemented appropriate corrective actions. The inspectors reviewed the list of OWAs and operator challenges (OCs) identified and managed in accordance with Exelon procedure, OP-AA-102-103, "Operator Work-Around Program." Specifically, the review was conducted to determine if any OWAs for mitigating systems affected the mitigating system's safety functions or affected the operator's ability to implement abnormal and emergency operating procedures. The inspectors reviewed the following open OWAs being tracked by PBAPS:

- Unit 3 Steam Jet-Air Ejector (SJAE) Suction Valves Fail to Open When Placing the SJAE In-Service (Action Request (AR) A1536806).

The inspectors also reviewed the lists of open OCs (deficiencies that are obstacles to normal plant operations), periodically walked down the panels in the main control room, and reviewed control room deficiencies to identify and be cognizant of: (1) OWAs that have not been evaluated by PBAPS, and (2) OWAs that increase the potential for personnel error, including OWAs that:

- Require operations contrary to past training or require more detailed knowledge of the system than routinely provided;
- Require a change from longstanding operational practices;
- Require operation of a system or component in a manner dissimilar from similar systems or components;
- Create the potential for the compensatory action to be performed on equipment or under conditions for which it is not appropriate;
- Impair access to required indications, increase dependence on oral communications, or require actions under adverse environmental conditions; and
- Require the use of equipment and interfaces that had not been designed with consideration of the task being performed.

b. Findings

No findings of significance were identified.

.3 Semi-Annual Review to Identify Trends (71152 - 1 Semi-annual Trend Sample)

.a Inspection Scope

As required by IP 71152, Identification and Resolution of Problems, the inspectors reviewed a list of approximately 5,000 IRs that Exelon initiated at PBAPS from December 1, 2006 through June 1, 2007, to perform the semi-annual PI&R trend review. Approximately, 30 IRs were reviewed in detail to verify that the issues were adequately identified, appropriately evaluated and corrected. The inspectors review was focused on

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human performance issues. The review also included issues documented within PBAPS's Station Trend Review for the fourth quarter of 2006 and the first quarter of 2007.

b. Assessments and Observations

Although no findings of significance were identified, the inspectors observed that the plant is being challenged by human performance deficiencies. Specifically, procedure adherence was the aspect of human performance that was most frequently challenged. Examples are documented in IRs 568038, 577381, 581258, 604364, 596616, 626534 and 633532. Procedure quality was another aspect of human performance that was challenged. Examples are documented in IRs 635028, 633532, and 600686. However, the inspectors did not identify any new trends that were not previously identified by PBAPS under their quarterly Station Trend Review reports. The inspectors noted that the Station Trend Review report had identified procedure adherence issues as an emerging trend. The inspectors also noted that improving human performance was identified as one of five Station Focus areas for 2007.

4OA3 Event Followup (71153 - 5 Samples)

.1 (Closed) Unresolved Item (URI) 05000277/2007002-04, Incorrect Size Breaker Resulted in a Fire in the '4T4' 480 Volt Load Center

a. Inspection Scope

URI 05000277/2007002-04 was opened in NRC Inspection Report 050000277; 05000278/2007002. PBAPS had preliminarily determined that the fire resulted from an apparent mismatch between the ratings of one breaker and its cubicle in the '4T4' 480 volt load center. PBAPS's report also documented that operators responded to the equipment losses caused by the fire by initiating a transient of controlled reactor power reductions to stabilize the plant at approximately 50 percent of rated power. The URI was opened pending the NRC staffs' characterization of this issue following review of PBAPS's causal evaluation and corrective actions. PBAPS's root cause report (RCR) and the associated IR 596616 for this event were reviewed to assess the identified issues. The characterization of this issue as a finding and its risk significance are discussed below. This URI is closed.

b. Findings

Introduction. A Green self-revealing finding was identified for inadequate implementation of WO instructions to verify the correct breaker frame size during the overhaul of a compatible spare breaker for installation into the '4T4' 480 volt load center. This condition resulted in a poor electrical connection between the primary disconnect fingers and the switchgear bus stabs for one breaker in the '4T4' load center that ultimately resulted in a fire that led to a plant transient and declaration of an Unusual Event (UE).

Description. On February 27, 2007, operators reduced Unit 3 reactor power from 100 percent to 50 percent RTP in response to the effects of a fire in the '4T4' 480 volt load center. PBAPS's RCR stated that the fire was caused by an electrical fault in one breaker cubicle that occurred due to a poor electrical connection between the breaker primary

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disconnect fingers and the switchgear bus stabs. This poor electrical connection resulted from a configuration error that placed the wrong frame size breaker into the cubicle in the '4T4' 480 volt load center creating a high resistance, high temperature connection.

The RCR identified that a root cause for the configuration error was that standards, policies, and administrative controls (SPAC) were not used. Specifically, SPAC were not used, in that, the maintenance technicians did not strictly adhere to WO instructions to specifically verify the frame size during the overhaul of a spare breaker that was intended to be placed into the breaker cubicle.

The inspectors determined that this issue was a performance deficiency because maintenance technicians did not follow WO instructions to verify the correct breaker frame size during the overhaul of a spare breaker.

Analysis. This finding is greater than minor because it affected the human performance attribute of the Initiating Event Cornerstone, in that, the incorrect frame size breaker was installed in cubicle for which it was not sized. This mismatch caused an electrical fault that led to a fire and a transient that upset plant stability.

The inspectors evaluated the finding in accordance with IMC 0609, Appendix A, "SDP of Reactor Inspection Findings for At-Power Situations." The SDP Phase 1 screening identified that the finding was of very low safety significance (Green) because it did not increase both the likelihood of a reactor scram and that mitigation equipment or functions would not be available.

The inspectors determined that this finding had a cross-cutting aspect in the area of human performance (work practices component) because maintenance technicians did not follow WO instructions to specifically verify the frame size of a breaker during its overhaul (IMC 0305 aspect H.4(b)).

Enforcement. The inspectors determined that the finding did not represent a violation of regulatory requirements because it involved the '4T4' 480 volt load center, a non-safety related electrical bus. This finding will be tracked as FIN 05000278/2007003-01, Inadequate Implementation of Work Order Instructions Caused the Installation of an Incorrect Size Breaker and Resulted in a Fire in the '4T4' 480 Volt Load Center

- .2 (Closed) URI 05000277/2007002-05, Missed Procedure Step Resulted in Unplanned Overloading of the E-3 EDG

URI 05000277/2007002-05 was opened in NRC Inspection Report 050000277; 05000278/2007002, pending the NRC staffs' characterization of this issue following a review of PBAPS's root cause analyses, corrective actions taken or planned, approved procedures, and other documents. The characterization of this issue as a finding and its risk significance are discussed below. This URI is closed.

b. Findings

Introduction. A self-revealing (Green) NCV of Technical Specification (TS) 5.4.1, was identified when operators inadequately implemented a surveillance test by missing a

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procedure step. The missed step placed the E-3 EDG in the isochronous mode of operation while it was synchronized to off-site power and resulted in an unexpected overloading of the E-3 EDG.

Description. During the conduct of a E-3 EDG ST on March 15, 2007, a licensed operator missed the performance of a required step in a supporting system operating (SO) procedure. The omission of the procedure step placed the E-3 EDG in the isochronous mode while synchronized with off-site power through a 4 kilovolt (kV) vital bus. This condition resulted in unexpectedly loading the E-3 EDG beyond its 30-minute load rating. The ST-O-052-123-2, "E3 Diesel Generator RHR Pump Reject Test," and the supporting SO 52.A.1.B, "Diesel Generator Operations," directed the synchronization of the E-3 EDG, in the droop mode, to a selected 4 kV bus to pick up the bus loads. The SO 52.A.1.B procedure subsequently directed opening the off-site power feeder breaker to the 4 kV vital bus (the missed step) before placing the EDG in the isochronous mode in accordance with ST-O-052-123-2.

The inspectors reviewed PBAPS's root cause investigation report (IR 604364) to understand the underlying causes for this event. The inspectors noted that PBAPS identified two root causes for this self-revealing event. First, the plant reactor operator (PRO) did not adhere to the requirements of HU-AA-104-101, "Procedure Use and Adherence" for "Level 1 - Continuous Use," procedures which requires that each procedure step be read prior to being performed, performing each step in the sequence specified, and signing off each step as complete prior to proceeding to the next step. Specifically, procedure adherence broke down because the PRO allowed himself to be distracted and lost his place in SO 52.A.1.B. Therefore, the off-site feeder breaker to the E-33 bus was not opened in accordance with the SO prior to transferring the E-3 EDG to the isochronous load control mode per the ST.

The second root cause for this event was inadequate supervisory oversight during a critical transition between the ST and SO procedures. Specifically, the peer checker and the control room supervisor were not directly observing the operation of the E-3 EDG at the main control room panel during the critical transition between procedures. The transition between procedures should have been identified as a critical step in the testing evolution. This breakdown in crew teamwork resulted in the PRO performing a critical step, without direct oversight, during an infrequently performed test of safety-related equipment. As a result, no one challenged the PRO's decision to transfer the E-3 EDG to the isochronous load control mode when system conditions did not support it.

Based on the above, the inspectors determined that inadequately implementing a surveillance test by missing a procedure step was a performance deficiency.

Analysis. The inspectors concluded the finding was more than minor because it was associated with the human performance attribute of the Mitigating Systems Cornerstone, and impacted the cornerstone objective of ensuring the availability of E-3 EDG to respond to initiating events, in that, after the EDG was overloaded, additional unavailability was incurred to inspect the EDG for damage before it was returned to service. The E-3 EDG was inoperable for an additional 46 hours and was unavailable for an additional 12.5 hours. Traditional enforcement does not apply since there were no actual safety

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consequences or potential for impacting the NRC's regulatory function, and the finding was not the result of any willful violation of NRC requirements.

The inspectors completed a significance determination of this issue using IMC 0609, "SDP," Appendix A, "Determining the Significance of Reactor Inspection Findings for At-Power Situations." The inspectors concluded that this finding affected the Mitigating Systems Cornerstone and answered "No" to all relevant questions. Specifically, all other EDGs remained operable and the actual loss of safety function for E-3 EDG was shorter than its TS allowed outage time of seven days. Therefore, this finding was considered to be of very low safety significance (Green).

The inspectors determined that this finding had a cross-cutting aspect in the area of human performance (work practices component) because PBAPS personnel did not follow procedures when the E-3 EDG was placed in the isochronous load control mode with the E-3 EDG in parallel with the off-site power source. (IMC 0305 aspect H.4(b))

Enforcement. TS 5.4.1 requires that procedures be implemented covering the activities in Regulatory Guide (RG) 1.33. RG 1.33, Appendix A, Section H.2.b requires that surveillance procedures be developed for testing EDGs. Applicable ST-O-052-123-2, Step 6.3.1, instructed the operators to synchronize and load the E-3 EDG to the 4 kV bus being tested in accordance with SO 52A.1.B. Step 4.4.16 of SO 52A.1.B directed the operators to open the off-site power source feeder breaker to the E-33 bus before placing the EDG controls in the isochronous load control mode.

Contrary to the above, on March 15, 2007, operators missed SO 52A.1.B, Step 4.4.16, and did not open the applicable off-site power breaker before returning to ST-O-052-123-2, Step 6.3.2. Therefore, when the PRO placed the E-3 EDG in the isochronous load control mode in Step 6.3.2, there was an unexpected increase in E-3 EDG load and a trip of the E-3 EDG output breaker.

PBAPS placed this issue in the CAP by initiating IR 604364. The corrective actions for this event included: 1) the selective implementation of additional peer checking of procedure performance place-keeping; and, 2) the E-3 EDG was inspected for potential damage and tested before being returned to an operable status on March 17, 2007. Because this violation was of very low safety significance (Green) and documented in PBAPS's CAP as IR 604364, this finding is being treated as an NCV, consistent with Section VI.A of the NRC Enforcement Policy: **NCV 05000277/2007003-02; 05000278/2007003-02, Missed Procedure Step Resulted in Unplanned Overloading of the E-3 EDG.**

.3 Personnel Performance - Failure of DDFP

a. Inspection Scope

The inspectors reviewed corrective action documents listed in the Attachment to this report, and discussed the events surrounding the failure of the DDFP with the site fire protection engineer. The inspectors reviewed Revisions 10 and 12 of ST-O-37D-340-2, "DDFP Flow Rate Test," and Revision 2 of NOM-C-7.1, "Procedure Use."

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b. Findings

Introduction. A self-revealing Green NCV was identified for failure to comply with TS 5.4.1, "Procedures," which required that procedures be established, implemented, and maintained for the Fire Protection Program.

Description. PBAPS TS 5.4.1.a, requires that procedures be established, implemented and maintained as recommended in Appendix A to RG 1.33, dated November 1972. RG 1.33, Appendix A, Section 1, "Administrative Procedures," includes the fire protection program. The Nuclear Operations Manual (NOM)-C-7.1, "Procedure Use," requires that procedures be used for any task which has the potential to cause a system or component to become inoperable.

On May 23, 2007, during performance of ST-O-37D-340-2, the DDFP was declared inoperable due to low discharge pressure. After running the DDFP, the procedure directed cleaning of the cooling water strainer, but did not provide specific instructions on how to perform this task. Without procedure guidance or instructions, operations personnel performing the DDFP test closed an upstream hand valve to isolate the strainer for cleaning. After reassembling the strainer, the operations personnel did not re-open the hand valve. The cooling water was not properly realigned for service because equipment manipulations were performed outside of procedure guidance. On May 24, 2007, ST-O-37D-340-2 was re-performed with the cooling water supply isolated. The engine was damaged during operation without cooling water as a result of the valve mis-alignment.

The DDFP was subsequently returned to service on May 30, 2007, following repairs. Additionally, the DDFP flow rate test procedure was revised to include specific instructions for cleaning the cooling water strainer. The procedure was also revised to include instructions for monitoring the engine cooling water and lubricating oil parameters during engine operation.

Based on the above, the inspectors determined that manipulating the DDFP cooling water valve without procedure guidance was a performance deficiency.

Analysis. The inspectors concluded that the failure to use a procedure for cleaning and restoring the DDFP cooling water strainer was a more than minor finding because it was associated with the degradation of a fire protection feature, in that, the DDFP was rendered inoperable by damage to the engine. Traditional enforcement does not apply since there were no actual safety consequences or potential for impacting the NRC's regulatory function, and the finding was not the result of any willful violation of NRC requirements.

The inspectors assessed the finding using the Fire Protection SDP (Appendix F to IMC 0609) and determined the finding to be of very low safety significance (Green). The finding was of low significance due to the motor-driven fire pump remaining operable during the five days the DDFP was inoperable, and the small number of fire scenarios which would impact the power supply to the motor-driven fire pump.

The inspectors determined that this finding had a cross-cutting aspect in the area of human performance (resources component) because procedure ST-O-37D-340-2 did not provide complete and accurate instructions for cleaning the DDFP cooling water strainer. (IMC 0305 aspect H.2©)

Enforcement. TS 5.4.1.a and NOM-C-7.1 require that procedures be used for equipment manipulations which could cause fire protection components to become inoperable. Contrary to the above, procedures were not used when manipulating the DDFP cooling water isolation valves on May 23, 2007, resulting in the DDFP being run on May 24, 2007, without cooling water and sustaining engine damage. Because this failure to comply with TS 5.4.1.a is of very low safety significance (Green) and has been entered into PBAPS's CAP as IR 633532, this violation is being treated as an NCV, consistent with Section VI.A of the NRC Enforcement Policy: **NCV 05000277, 278/2007003-03, Inadequate Procedure Adherence Results in Damage to the DDFP.**

.4 (Closed) Licensee Event Report (LER) 05000277/2006002-00, Automatic Depressurization System (ADS) SRV Deficiencies

On September 28, 2006, engineering personnel determined that the 71B and 71G SRVs did not meet their allowable leak rate for the pneumatic actuation controls for the ADS feature of the SRVs. Additionally, the 71C SRV, Serial Number 9S/N 83, did not properly re-close on the fourth actuation during laboratory testing. The cause of the 71B and 71G ADS SRV pneumatic leakage is attributed to leakage from each of the SRV's actuator diaphragm and solenoid valve. These leaks only occurred when the SRV solenoid valves were energized. The diaphragms and solenoid valves associated with the 71B and 71G ADS SRVs were replaced under work orders C0219044 and C0219034. As-left leak testing was performed and the valves were restored to an operable condition prior to plant startup from the P2R16 Refueling Outage. A refurbished SRV was installed in the 71C SRV location to replace the S/N 83 SRV. The corrective actions to resolve the underlying causes of this event are in the CAP (IR 539277).

This licensee-identified violation was more than minor since it was associated with the Equipment Performance attribute of the Mitigating Systems Cornerstone and impacts the cornerstone objective of ensuring the reliability, availability, and capability of systems that respond to initiating events, in that, if the ADS system was called upon to actuate it's operability would not be ensured. The inspectors evaluated this finding using IMC 0609, Appendix A, "SDP of Reactor Inspector Findings for At-Power Situations," Phase 1 screening. Specifically, using the Mitigating Systems Cornerstone column, the inspectors determined that a Phase 2 evaluation was required because the finding represented a loss of system safety function. The inspectors concluded that the finding was of very low safety significance (Green) because the success criteria for depressurization, on each of the applicable worksheets, only required the use of 2 of 11 SRVs. A regional senior reactor analyst reviewed and concurred with the inspectors risk assessment. This licensee-identified finding involved a violation of TS 3.5.1, "Emergency Core Cooling Systems." The enforcement aspects of this violation are discussed in Section 4OA7 of this report. This LER is closed.

.5 (Closed) LER 05000277/2006004-00, Plant Modification Created Diesel Generator Building Carbon Dioxide Suppression Room Flooding Vulnerability

On November 17, 2006, engineering personnel determined that a potential flood vulnerability had existed in the EDG building carbon dioxide suppression room. A plant modification performed in 1985 had installed a catch basin at the EDG building fuel oil filling station, which is located outside the EDG building. The catch basin discharge was tied into the EDG building's oily waste separator tank, upstream of the flood protection isolation valve. This constituted an unanalyzed condition that degraded plant safety. In the event of a design basis flood, a potential pathway existed for flood water to enter the building through the floor drains. It was determined that the maximum credible flow rate would have exceeded the capability of the floor drain sump and sump pumps. Under design basis flood conditions, the ESW system booster pumps and return valves, and the HPSW system return valves would be challenged to perform their safety function. Corrective actions recommended for this issue were documented in IR 554800 and included revision of the applicable special event procedure for floods to mitigate this condition.

This finding is more than minor because it was associated with a degraded condition that could concurrently influence mitigation equipment. Specifically, with the degraded flood barrier for the EDG building carbon dioxide suppression room, the ESW system booster pumps and return valves and the HPSW system return valves would be challenged to perform their safety function under design basis flood conditions. The NRC IMC 0609, Appendix G, "Shutdown Operations SDP," applies because the plant would be shutdown, at 112', in accordance with plant procedures, before flooding of EDG building would begin to occur at the 128' elevation, as noted in the LER. Also, as noted in the LER, the design basis flood would be expected to reach the 132' elevation. A Phase 1 SDP was performed using Checklist 5 of IMC 0609, Appendix G, Attachment 1. The inspectors determined that a Phase 2 or 3 SDP was required because the finding:

- Increased the likelihood that a loss of decay heat removal will occur due to a failure of its support systems;
- Would degrade the ability to cope with a loss of offsite power; and
- Would degrade the ability to establish an alternate core cooling path if decay heat removal cannot be re-established for 24 hours.

The inspectors determined that the finding was of very low safety significance (Green) because of: the very low likelihood of occurrence of a design basis flood reaching the 132' elevation; flood alarms in the EDG building carbon dioxide suppression room that would enable operators to take actions to stop the flooding; or operators could manually operate the service water system return valves. A regional senior resident analyst reviewed and concurred with the inspectors risk assessment. This licensee-identified finding regarding the installation of a modification that placed the station in an unanalyzed condition involved a violation of 10 CFR 50.59. The enforcement aspects of this violation are discussed in Section 4OA7 of this report.

4OA5 Other Activities

As a plant status activity, the inspectors used guidance in NRC IP 60855.1, "Operation of an Independent Spent Fuel Storage Installation at Operating Plants," to selectively verify that PBAPS performed dry cask loading in a safe manner and in compliance with approved procedures and work order instructions.

4OA6 Meetings, Including Exit

.1 Exit Meeting Summary

On July 20, 2007, the resident inspectors presented the inspection results to Mr. J. Grimes and other PBAPS staff, who acknowledged the findings. The inspectors asked the licensee whether any of the material examined during the inspection should be considered proprietary. No proprietary information was identified.

.2 Annual Assessment Meeting

On April 4, 2007, Mr. Paul Krohn, Mr. Mel Gray, the resident inspection staff, and other NRC staff held a public meeting with Mr. Joe Grimes and other PBAPS staff, to discuss the results of the NRC's assessment of performance at PBAPS for the period January 1, 2006 through December 31, 2006. The handouts from the meeting are available electronically from the NRC's document system (ADAMS) under accession number ML071000066. Following the meeting, the NRC staff held a session to accept public comments and respond to public questions.

4OA7 Licensee-Identified Violations

The following violations of very low safety significance (Green) were identified by the licensee and are violations of NRC requirements which meet the criteria of Section VI of the NRC Enforcement Policy, NUREG-1600, for being dispositioned as NCVs.

- 10 CFR 50.54(q) requires that the licensee shall follow and maintain in effect emergency plans which meet the standards in 50.47(b) and the requirements in Appendix E. The Exelon Nuclear Standardized Radiological Emergency Plan for Peach Bottom, Part II, Section E.2 b.1 states for State/Local Agencies: A notification shall be made within fifteen (15) minutes of the initial emergency classification. Contrary to this, on February 27, 2007, during an emergency event, Peach Bottom personnel failed to notify one local county within 15 minutes of an initial emergency declaration (Unusual Event); the notifications were completed in 18 minutes. The notification was not made in a timely manner because the primary phone link to the county was not available. Plant procedures require the notifications to be made using a backup phone. This finding is of very low safety significance (Green) because the notification was late by only 3 minutes, backup communication equipment was available, and procedures were available to use the backup communication equipment. This was entered in PBAPS's CAP as IR 596641.

- 10 CFR 50.59, “Changes, Tests, and Experiments,” requires, in part, that the licensee may make changes in the facility as described in the safety analysis report without prior Commission approval, unless the proposed change involves a change in the TSs incorporated in the license or an unreviewed safety question (USQ). A proposed change shall be deemed to involve a USQ, in part, if the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report may be increased. Contrary to this, in 1985, a change to the facility was made that remained in place until November 2006, without analyzing whether a USQ existed. Specifically, as documented in Section 4OA3.5, a plant modification performed in 1985 introduced a potential flood vulnerability for the EDG building carbon dioxide suppression room. The flood vulnerability posed by this change constituted an unanalyzed condition that degraded plant safety. This was identified in PBAPS’s CAP as IR 554800. This finding is of very low safety significance (Green) because the likelihood of a design basis flood that could affect mitigation equipment is very small and manual operator action could be taken to mitigate the effects of a design basis flood.
- TS 3.5.1, “Emergency Core Cooling Systems,” requires that the ADS function of five SRVs be operable. TS 3.5.1, Action H, requires the plant to be brought to Mode 3 in 12 hours if two or more SRVs are inoperable. Contrary to the above, on September 28, 2006, the pneumatic actuation controls for the ADS function of two SRVs (71B and 71G) did not meet their allowable leak rate acceptance criteria. Specifically, the as-found leak rates for the 71B and 71G SRVs were documented as off-scale and were in excess of the allowable the leak rate limit of 100 cc/min. Unit 2 was shutdown and in a refueling outage when the event was discovered. However, Unit 2 had been operating for the previous 367 days. This issue was entered in PBAPS’s CAP as IR 539277. As documented in Section 4OA3.4, a Phase 2 SDP determined that the finding was of very low safety significance (Green) because the success criteria for depressurization, on each of the applicable SDP notebook worksheets, only required the use of 2 of 11 SRVs.

ATTACHMENT: SUPPLEMENTAL INFORMATION

Enclosure

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Exelon Generation Company Personnel

J. Grimes, Site Vice President
M. Massaro, Plant Manager
N. Alexakos, Manager, Engineering-Programs
J. Armstrong, Regulatory Assurance Manager
C. Behrend, Engineering Director
G. Jardel, Manager, Emergency Preparedness
C. Jordan, Chemistry Manager
D. Lewis, Operations Director
H. McCrory, Radiation Protection Technical Support Manager
M. Ross, Radwaste, Environmental Supervisor
G. Stathes, Maintenance Director
S. Taylor, Manager, Radiation Protection
T. Van Wyen, Operations Training Manager
A. Wasong, Training Director

NRC Personnel

F. Bower, Senior Resident Inspector
M. Brown, Resident Inspector
R. Fuhrmeister, Senior Project Engineer
R. Nimitz, Senior Health Physicist
N. Perry, Sr. Emergency Response Coordinator
R. Cureton, Emergency Preparedness Inspector

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

None.

Opened and Closed

05000278/2007003-01	FIN	Inadequate Implementation of WO Instructions Caused the Installation of an Incorrect Size Breaker and Resulted in a Fire in the '4T4' 480 Volt Load Center (Section 4OA3.1)
05000277, 278/2007003-02	NCV	Missed Procedure Step Resulted in Unplanned Overloading of the E-3 EDG (Section 4OA3.2)

A-2

05000277, 278/2007003-03	NCV	Inadequate Procedure Adherence Results in Damage to the DDFP (Section 4OA3.3)
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Closed

05000277/2007002-04	URI	Incorrect Size Breaker Resulted in a Fire in the '4T4' 480 Volt Load Center (Section 4OA3.1)
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05000277/2007002-05	URI	Missed Procedure Step Resulted in Unplanned Overloading of the E-3 EDG (Section 4OA3.2)
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05000277/2006002-00	LER	ADS SRV Deficiencies (Section 4OA3.4)
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05000277/2006004-00	LER	Plant Modification Created Diesel Generator Building Carbon Dioxide Suppression Room Flooding Vulnerability (Section 4OA3.5)
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Discussed

None.

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather

WC-AA-107, Revision 4, Seasonal Readiness
OP-AA-108-111-1001, Revision 2, Severe Weather and Natural Disaster Guidelines
OP-PB-108-111-1001, Revision 3, Preparation for Severe Weather
RT-O-040-610-2, Revision 12, Outbuilding HVAC and Equipment Inspection for Summer Operation
SO 52A.1.B, Revision 39, Diesel Generator Operations

Section 1R04: Equipment Alignment

COL 52A.1.A-3, Revision 12, E-3 Diesel Generator Normal Standby
SO 53.7.A - App 1, Revision 0, Removal of 220-08 Line from Service
COL 13.1.A-2, Revision 19, RCIC System
COL 33.1.A-2, Revision 20, ESW System (Unit 2 and Common)
COL 32.1.A-2, Revision 10, HPSW System
SO 32.1.A-2, Revision 12, HPSW System Startup and Normal Operatoins

P&ID Diagram

M-315 Sheet 1, Revision 64, ESW and HPSW Systems
 M-315 Sheet 4, Revision 53, ESW and HPSW Systems
 M-315, Sheet 1, Revision 65, ESW and HPSW
 Systems
 M-330, Sheet 1, Revision 35, Emergency Cooling System
 M-361, Sheet1, Revision 80, RHR System
 M-361, Sheet 2, Revision 67, RHR System

Section 1R05: Fire Protection

PF-63, Revision 1, Prefire Strategy Plan Unit 3 Reactor Bldg. RCIC Room, 88' Elevation
 PF-70, Revision 2, Prefire Strategy Plan Standby Gas Treatment Room, Radwaste Building,
 91' 6" Elevation
 PF-13H, Revision 3, Prefire Strategy Plan North CRS Equipment and West Corridor, Unit 3
 Reactor Building, 135' Elevation
 PF-55, Revision 3, Prefire Strategy Plan, Fire Zone 55, Unit 3 Refuel Floor, Reactor Building,
 234' Elevation
 PF-13D, Revision 1, Prefire Strategy Plan 3 'A' & 3 'C' Core Spray Rooms, Reactor Building,
 91'6" Elevation, Fire Zones 13D & 13E
 PF-60, Revision 1, Prefire Strategy Plan, Unit 2 Reactor Building RCIC Room, 88' Elevation
 PF-127, Revision 4, Prefire Strategy Plan, Unit 2 Emergency Battery/ Switchgear Room and
 Radwaste Corridor, TB-135
 PF-132, Revision 4, Prefire Strategy Plan, Diesel Generator Building, Elevation 127', Fire
 Zone 132
 PF-151, Revision 3, Prefire Strategy Plan, Unit 2 Main Transformer Yard, Fire Zone 151
 PF-164, Revision 0, Prefire Strategy Plan, 2 Startup Switchgear Building, Fire Zone 164

Section 1R12: Maintenance Effectiveness

IR 607398, Functional Failure of 3AE015 During '4T4' Breaker Fire
 IR 596616, Fault at Unit 3 'B' Iso-Phase Cooler Fan Breaker in 4T4
 IR 614945, Potential Extent of Condition Concern for MCC Bucket Stabs
 IR 619579, 480 V Breaker Interference Angle Location Incorrect
 IR 617890, Conflicting Data on Cubicle Size of 2 'A' EHC Pump Breaker
 IR 599184, Extent of Condition Walkdown of Unit 2 480 V Load Center Bus
 IR 606397, Perform ITE Rejection Tab Walkdown
 IR 599203, Extent of Condition Walkdown of Unit 3 480 V Load Center Bus
 IR 599208, Extent of Condition Walkdown of Common 480 V Load Center Bus
 IR 634973, ITE Breaker Found With No Rejection Tab
 IR 634971, ITE Breaker Found With No Rejection Tab
 IR 634962, ITE Breaker Found With No Rejection Tab
 IR 634964, ITE Breaker Found With No Rejection Tab
 IR 634966, ITE Breaker Found With No Rejection Tab
 IR 634965, ITE Breaker Found With No Rejection Tab
 IR 600797, 2007 Buried Pipe Program Inspections
 IR 623638, EOC: Generate PM per PCM Template Requirements
 IR 623646, EOC: Generate PM per PCM Template Requirements

IR 623635, EOC: Generate PM per PCM Template Requirements
 IR 603279, Inspect and Clean ESW X-Tie Piping (HV-512A-B) WW 0730
 IR 632688, 2 'A' EHC PP Breaker Cubicle Frame Size Incorrect
 IR 589654, Potential For Silt Buildup in the ESW Pump Crosstie Piping
 ACPS 07-0-002, HV-0-33-512A, A ESW Pump Discharge Loop X-tie
 ST-O-033-300-2, Revision 31, ESW, Valve, Unit Cooler and ECT Functional Inservice Test
 ACPS 07-0-002, HV-0-33-512A, A ESW Pump Discharge Loop X-tie
 ST-O-033-300-2, Revision 31, ESW, Valve, Unit Cooler and ECT Functional Inservice Test
 Performance Monitoring - Unavailability - System 33 (ESW) - Jun 2005 -> Jun 2007
 Clearance 07000529, Emergency Cooling Water Pump Discharge Valve
 ER-AA-5400, Revision 0, Buried Piping and Raw Water Corrosion Program Guide
 ER-AA-5300, Revision 0, Raw Water Corrosion Program Guide
 ER-AA-5400-1002, Revision 0, Buried Piping Examination Guide

Section 1R13: Maintenance Risk Assessments and Emergent Work Control

WC-AA-101, "On-line Work Control Process"
 Adverse Condition Monitoring and Contingency Plan (CAMP), 3 'A' Recirculation Pump Seal
 Unstable Second Stage Seal Temperature and Increasing Second Stage Seal Pressure,
 Dated 04/17/2007
 AR A1612541, Rising 3 'A' Recirculation Pump #2 Seal Temperature
 AR A1610537, High Lube Oil Temperature Alarm During E-2 EDG Run
 AR A1613094-01, Technical Evaluation: CRD Suction Source Swap from Condensate to
 Unit 3 CST
 IR 623723, Bolt and Heli-coil Found Damaged at Disassembly on 00T634
 SF-220, Revision 21, Spent Fuel Cask Loading and Transport Operations
 A1406063, Review of Mod 79-028 Recirculation Seal Pressure Bleed Off
 EC 360901, Exelon Fleet Reactor Recirculation Pump Seal Condition Monitoring Template
 IR 620785, Continuous Venting of the Recirculation Seals not Evaluated
 AO 2A.16-3, Revision 2, Manual Adjustment of Recirculation Pump Seal Second Stage
 Pressure
 SO 2A.1.C-3, Revision 10, Operation of the Recirculation Pump Seal Purge System
 A1439223, 3AP034: Seal Hi Temp Alarm & Hi 2nd Stage Pressure
 ACMP - Unit 3, 3 'B' Recirculation Pump Seal Increasing Second Stage Seal Pressure
 A1613202, 3 'B' Recirculation Pump 2nd Stage Seal Pressure
 IR 619609, 3 'B' Recirculation Pump 2nd Stage Seal Pressure
 ARC 30C204M A-1, Revision 4 - A Recirculation Pump Seal Stage 2 Hi Flow
 ARC 30C204M A-2, Revision 6 - A Recirculation Pump Seal Stage 2 Lo Flow
 OP-PB-108-101-1002, "Guidelines for Control of Protected Equipment," Revision 4
 WC-AA-101, "On-Line Work Control Process," Revision 13
 IR 626534, Equipment Not Protected as Required.
 IR 624653, Protected Equipment List for 2SUE Outage Incomplete
 IR 617946, Protected Equipment List Issued 4/16/07 Initially Incomplete
 IR 504032, Exaggerated Paragon List of Protected Equipment
 IR 462364-18-04, Paragon Refresher Training
 IR 624599, U3 RHR Pump Testing Not Performed per Schedule
 IR 634657, PRA Support for Protecting Equipment
 IR 474569-17-08, Develop a Tutorial that Help Crews with Paragon
 IR 624599, U3 RHR Pump Testing Not Performed per Schedule
 IR 644648, Inadequate Guidance in WC-AA-101 for Protecting Equipment

ARC-216 20C212L D-1, Revision 5, C Air Comp Trouble
SO 36A.7.A-2, Revision 3, Unit 2 'C' Air Compressor Shutdown
ON-119, Revision 14, Loss of Instrument Air
ARC-216 20C212L D-2, Revision 2 Service Air Header Lo Press
ARC-316 20C212L D-2, Revision 1, Service Air Header Lo Press
R1032642, 3CK001 - PM: Perform Annual PM on Compressor
SO 36A.1.A-2, Revision 2, Unit 2 'C' Air Compressor Return-to-Service and Service Air
Systems Return to Normal Operation
IR 642127, Critique IR on Loss of Service Air to Unit 2 and Unit 3

Drawings

P&I Diagram M-356, CRD Rod Drive Hydraulic System Part A, Sheet 2
P&I Diagram M-353, Reactor Recirculation Pump System

Section 1R15: Operability Evaluations

IR 615433, E-4 EDG - 10 CFR 21 Notification for Cam Roller Bushing Material Issue
Fairbanks Morse Engine Notification Report Serial Number 06-04, 10 CFR 21 Notification, Cam
Roller Bushing Incorrect Material, dated April 9, 2007
Event Notification Number 43294, Part 21 Notification - Diesel Cam Roller Bushing Failures
IR 388397-04, Prompt Investigation of 3 'A' RRP #2 Seal Cavity Temperature High
Adverse Condition Monitoring and Contingency Plan (CAMP), 3 'A' RRP Unstable Second
Stage Seal Temperature and Increasing Second Stage Seal Pressure, dated 04/17/2007
Operational and Technical Decision Making (OTDM) No. 07-01, 3 'A' RRP Seal Issues, dated
04/17/2007
Abnormal Operations (AO) procedure 2A.16-3, Manual Adjustment Recirculation Pump Seal
Second Stage Pressure
OTDM No. 07-02, 3 'A' RRP Seal Temperatures - Re-align CRD Suction Source from
Condensate System to U3 CST, dated 04/20/2007
AR A1613094-01, Technical Evaluation: CRD Suction Source Swap from Condensate to Unit 3
CST
PBAPS Technical Requirements Log, Item Number 07-3-080, PTRM 3.6, Function 7, Main
Steam Relief Valves, dated May 17, 2007
Adverse Condition Monitoring Plan: DPT-2-02-117DH Sensing Line Leakage, dated
May 24, 2007
A1615458, Small Leak on DPT-2-02-117D Line Snubber Threaded Cap
C0221439, Replace Snubber During an Outage
PB ECR 03-00326 000, Revise Instrument Rack Drawings with a Note for Snubbers

Section 1R19: Post-Maintenance Testing

AR A1610537, High Lube Oil Temperature Alarm During E-2 EDG Run
R1049367, Unit 3 HCU 50-43: HCU Overhaul
ST-R-003-480-3, Average Scram Times for ODYN/B Minimum Critical Power Ratio (MCPR)
Requirements
C0216504, PS-2-13-067-01: Replace Pressure Switch
ST-O-013-301-2, Revision 31, RCIC Pump, Valve, Flow and Unit Cooler Functional and
Inservive Test, Conducted on April 5, 2007

C0215740, 2BG002, Replace Endbell
MA-AA-716-230-1002, Revision 1, Vibration Analysis/ Acceptance Guideline
MA-AA-716-230-1003, Revision 1, Thermography Program Guide
SO 60F.1.A-2, Revision 9, Reactor Protection System MG Set and Power Distribution System
Startup from Dead Bus Condition
R0629147, 3R4-U-C (7033B), Perform MCU Inspection
A1619582, 3CP343: Pump/Motor Found Seized during Breaker PMT
IR 638369, 3C Glycol Pump found seized during breaker PMT
SO 8G.6.A-3, Revision 3, Placing a Standby Off-Gas Glycol Pump in Service and Placing the
InService Pump in Standby or Off

Section 1R22: Surveillance Testing

S12T-MIS-8547-C1CQ, Revision 13, Calibration/Functional Check of Channel C
Group 1, 4 and 5 of PCIV Logic for TSS-80547C
ST-R-003-485-3, CRD Scram Insertion Timing of Selected Control Rods, Revision 19,
completed May 5, 1997

Section 1R23: Temporary Plant Modifications

IR 618478, Provide Supplemental Cooling to the 3 'A' RR Seal Purge Line
IR 625092, Equipment Discovered on Floor Hatch H11 in Unit 3 Reactor Building
WO C0221034, TCCP 07-00172, Install Cooling Unit
AR A1613094, Provide Supplemental Cooling to the 3 'A' RR Seal Purge Line
SP SO.005-3, Revision 1, Routine Inspection of the 3 'A' Recirculation Seal Purge
Supplemental Cooling System

Section 1EP2: Alert and Notification System (ANS) Evaluation

Peach Bottom Nuclear Power Plant Upgraded Public Alert and Notification Report, April 2005
FEMA ANS Design Report, December 2005
EP-MA-121-1002 "Exelon East Alert and Notification System (ANS) Program," Revision 4
EP-MA-121-1004 "Exelon East ANS Corrective Maintenance," Revision 4
EP-MA-121-1005 "Exelon East ANS Preventive Maintenance Program," Revision 3
EP-MA-121-1006 "Exelon East ANS Siren Monitoring, Troubleshooting, and Testing,"
Revision 5
Corrective Maintenance Field Work Instructions for ANS Control Points, Repeaters and Sirens,
Approved December 2004
Preventative Maintenance Field Work Instructions for ANS Control Points, Repeaters
and Sirens

IRs:

00433494	00481763	00533157
00565056	00451040	00541478
00352078	00520830	00596641
00597065	00521321	

Section 1EP4: Emergency Action Level (EAL) and Emergency Plan Changes

- EP-AA-120-1001 "10 CFR 50.54(q) Change Evaluation," Revision 4
- 06-12 "ERO Training and Qualification" TQ-AA-113, Revision 7
- 06-16 "Radiological Emergency Plan" EP-AA-1000, Revision 17
- 06-33 "EP Plan Administration" EP-AA-120, Revision 7
- 06-96 "Emergency Preparedness Advisory Committee" EP-AA-120-1004, Revision 0
- 06-97 "Quarterly Satellite Phone Test" EP-MA-124-1004, Revision 0
- 06-99 "EP Fundamentals" EP-AA-1101, Revision 3
- 06-101 "Exelon East ANS Program" EP-MA-121-1002, Revision 4
- 06-102 "Exelon East ANS Corrective Maintenance Program" EP-MA-121-1004, Revision 4
- 06-103 "Exelon East ANS Preventative Maintenance Program" EP-MA-121-1005, Revision 3
- 06-108 "ERO Fundamentals" EP-AA-1102, Revision 2
- 06-110 "Mid-Atlantic ERO Notification or Augmentation" EP-AA-112-100-F-07
- 07-11 "Exelon East ANS Siren Monitoring, Troubleshooting, and Testing"
EP-MA-121-1006, Revision 4
- 07-12 "ANS Siren Monthly Test" RT-E-101-901-2, Revision 8
- 07-18 "Radiological Emergency Plan Annex for PBAPS" EP-AA-1007, Revision 14
- 07-39 "Exelon East ANS Siren Monitoring, Troubleshooting, and Testing"
EP-MA-121-1006, Revision 5

Section 1EP5: Correction of Emergency Preparedness Weaknesses

- EP-AA-125 "Emergency Preparedness Self Evaluation Process," Revision 4
- LS-AA-126 "Self-Assessment Program," Revision 5
- LS-AA-126-1001 "Focused Area Self-Assessments," Revision 4
- Unusual Event Evaluation Reports dated 10/4/06, 11/21/06, 4/16/07
- ASSAs: 547869, 565747-04
- NOSA:-PEA-06-03 dated 4/13/06
- NOSA-PEA-07-04 dated 5/9/07

IRs:

00433494	00451040	00596641
00565056	00520830	00597065
00352078	00533157	00521321
00481763	00541478	

Section 1EP6: Drill Evaluation

Peach Bottom Atomic Power Station, May 15, 2007, Off-Year Exercise, Drill Scenario
 Peach Bottom Atomic Power Station May 15th, 2007 Off-Year Exercise Report dated
 June 14, 2007

IR 630584, Enhancement Opportunity from May 2007 EP Drill
 IR 629910, Late State\Local Notification Made During an EP Drill
 IR 629970, EAL Classification During Drill Not Timely
 Quick Human Performance Investigation Report, PB EAL Classification During Drill Not Timely,
 05/15/07

Quick Human Performance Investigation, Repetitive Issue With Not Completing State/Local
 Notifications on Time, 5/15/07

Section 2PS2 : Radioactive Material Processing and Transportation

10 CFR Part 61 Sampling and Analysis Results (Waste Streams)
 Radioactive Material Shipping Documentation
 Radioactive Shipping Container Certifications
 Audit Template: Chemistry, Radwaste, Effluent and Environmental Monitoring Handling,
 Storage and Shipping
 Topical Report, Mobile In-container De-watering and Solidification System
 DOT-Type A, Test and Evaluation for Type A Packaging
 Waste Disposal Facility State Licenses
 Training Program - DOT/79-19 Training for Support of Radioactive and Asbestos Shipments
 Training Program - Site Specific Portion of Radioactive Material Shipping Training Program
 Training Program - Shipper Refresher
 Type B Cask Handling and Loading Procedures
 RT-W-020-980-2, Updating Radwaste Classification Computer Programs
 RP-AA-605, 10 CFR 61 Compliance Program
 RP-AA-605, 10 CFR 61 Program
 RP-PB-605-1001, Peach Bottom 10 CFR 61 Sampling

Section 4OA1: Performance Indicator Verification

LS-AA-2001, Revision 6, Collecting and Reporting of NRC Performance Indicators Data
 LS-AA-2090, Revision 4, Monthly Data Elements for NRC RCS Specific Activity
 LS-AA-2100, Revision 5, Monthly Data Elements for NRC RCS Leakage
 ST-O-020-560-2, Reactor Coolant Leakage Test (sample of completed test records)
 ST-O-020-560-3, Reactor Coolant Leakage Test (sample of completed test records)
 ST-C-095-864-2, Off Gas Monitor Response and Release Rate Verification by a Grab Sample

Attachment

ST-C-095-864-3, Off Gas Monitor Response and Release Rate Verification by a Grab Sample
 ST-C-095-820-2, Determination of Dose Equivalent $\mu\text{Ci/g}$ I-131 in Primary Coolant
 ST-C-095-820-3, Determination of Dose Equivalent $\mu\text{Ci/g}$ I-131 in Primary Coolant
 CH-407, Sampling of Reactor Water
 CH-C-601, Determination of Dose Equivalent I-131
 ERO Drill Participation PI data, April 2006 - March 2007
 Public Notification System PI data, April 2006 - March 2007
 DEP PI data, April 2006 - March 2007

Section 4OA2: Problem Identification and Resolution

577381, Operator Failed to Perform Procedure Step
 581258, Page 12 of ST-O-098-01N-2 Discovered Misplaced
 568038, SBLC System Inoperable Resulting from Dedicated EO Leaving Area
 565945, 4 kV Undervoltage Relay Failure and No IR's Written
 569879, 4 kV Undervoltage Relay Failure and No IR's Written
 576826, NOS Rated PB OPS Yellow For 4Q06
 581376, Test Aborted: "ECT Portable Pump Operability" RT-O-48B-275-2
 584506, Through Wall Leak Found on ESW Piping

585680, Unit 3 'D' RHR Exceeded the Original Dose Estimate
 587171, CHK-0-33-515A Not Seated Causes ST-0-033-300-2 To Be Aborted
 588335, Timeliness/Response to ESW Piping Issue IR 584506
 588800, Weld Verification Deficiency
 590373, Trng: FME Training Unexcused Absence
 590573, E/S 3-17-477 Power Supply Failed Following Swap of 3 'B' RPS
 593883, Unit 2 'C' RHR Sump Overflowed During Heat Exchange Maintenance
 593890, Unit 2 'A' RHR Room Spill During Pumping of the Unit 2 'C' Room Sump
 593891, Unit 2 'C' RHR Sump Overflowed During Heat Exchanger Maintenance
 596641, Unusual Event Notification to York County Was > 15 Minutes
 602264, Mid-Cycle Performance Gap - Self Assessment
 606458, Training: PIMS Code Improperly Granted
 607064, Temperature Recorder TR-0558 not Functional (Discharge Canal)
 615413, Non-Safety-Related Piece Part Installed in Diesel Generator
 621191, Inadvertent ERO Activation at PBAPS
 623697, Scaffold Taken to Complete in PIMS But Was Not Removed
 629910, Late State/Local Notification Made During an EP Drill
 629970, EAL Classification During Drill Not Timely
 626534, Equipment Not Protected As Required
 596616, Fault at 3 'B' Iso-Phase Cooler Fan Breaker in '4T4' Load Center
 633532, DDFP/ Engine Trip
 604364, Human Error Results in E-3 EDG Overload and E-33 Breaker Trip

Section 4OA3: Event Followup

Special Event Procedure (SE)-4, Flood, Revision 21
 IR 563253, External Flood Vulnerability - Circulating Water Pump Structure
 IR 554800, External Flood Vulnerability Found for EDG Building
 IR 520322, E-3 EDG Fire at Roof Exhaust Penetration

A-10

ST-O-37D-370-2, Revision 25, DDFP Operability Test

ST-O-37D-340-2, Revision 10, DDFP Flow Rate Test

ST-O-37D-340-2, Revision 12, DDFP Flow Rate Test

ST-M-37D-380-2, Revision 3, DDFP Inspection

NOM-C-7.1, Revision 2, Procedure Use

6280-E-8, Revision 16, Single line Meter and relay Diagram, Standby Diesel Generators and
4160 Volt Emergency Power System, Unit 2

6280-E-1615, Revision 64, Single Line Meter and relay Diagram, E-124 and E-224 Emergency
Load Centers, E-124-R-C and E-224-R-C Reactor Motor Control Centers, and
E-124-T-B and E-224-T-B Turbine Motor Control Centers, 440 Volt, Unit 2

Peach Bottom Atomic Power Station Fire Protection Plan, Revision 15

Issue Reports

IR 00633037
 IR 00633453
 IR 00633532
 IR 00634313

IR 00634585
 IR 00634709
 AR 00635028

AR 00635257
 AR 00635267
 AR 00635408

LIST OF ACRONYMS

ADAMS	Agency-wide Documents Access and Management System
ADS	automatic depressurization system
ANS	Alert and Notification System
AR	action request
BTPs	branch technical positions
CAP	corrective action program
CFR	Code of Federal Regulations
CR	condition report
CRD	control rod drive
CST	condensate storage tank
DBDs	Design Basis Documents
DDFP	diesel-driven fire pump
DEP	Drill and Exercise Performance
DOT	Department of Transportation
DRP	Division of Reactor Projects
EAL	emergency action level
EDG	emergency diesel generator
EP	emergency preparedness
ERO	emergency response organization
ESW	emergency service water
HPCI	high pressure coolant injection
HPSW	high pressure service water
HCU	hydraulic control unit
IMC	Inspection Manual Chapter
IP	Inspection Procedure
IR	issue report
kV	kilovolt
LERs	licensee event reports
MR	Maintenance Rule
MS	mitigating system
NCV	noncited violation
NEI	Nuclear Energy Institute
NRC	Nuclear Regulatory Commission
OCs	operator challenges
OWAs	operator work-arounds
PAR	protective action recommendation
PARS	Publicly Available Records
PBAPS	Peach Bottom Atomic Power Station
PCIV	primary containment isolation valve
PCP	Process Control Program

PI	performance indicator
PMT	post-maintenance testing
PRO	plant reactor operator
RB	reactor building
RCIC	reactor core isolation cooling
RCR	root cause report
RCS	reactor coolant system
RFP	reactor feed pump
RG	Regulatory Guide
RHR	residual heat removal
RRP	reactor recirculation pump
RTP	rated thermal power
SDP	significance determination process
SJAE	steam jet-air ejector
SPAC	standards, policies, and administrative controls
SO	system operating
SSCs	structures, systems, and components
SRV	safety relief valve
STs	surveillance tests
TRM	Technical Requirements Manual
TRT	troubleshooting, rework and testing
TS	Technical Specification
TSC	technical support center
UE	unusual event
URI	unresolved item
UFSAR	Updated Final Safety Analysis Report
USQ	unreviewed safety question
WO	work order