



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

REGION I
2100 RENAISSANCE BLVD., SUITE 100
KING OF PRUSSIA, PA 19406-2713

May 4, 2015

Mr. Bryan Hanson
Senior Vice president, Exelon Generation
President and Chief Nuclear Officer, Exelon Nuclear
4300 Winfield Rd.
Warrenville, IL 60555

SUBJECT: PEACH BOTTOM ATOMIC POWER STATION, UNITS 2 AND 3 - NRC
TRIENNIAL FIRE PROTECTION INSPECTION REPORT 05000277/2015007
AND 05000278/2015007

Dear Mr. Hanson:

On April 2, 2015, the U.S. Nuclear Regulatory Commission (NRC) completed a triennial fire protection inspection at Peach Bottom Atomic Power Station, Units 2 and 3. The enclosed inspection report documents the inspection results, which were discussed on April 2, 2015, with Mr. M. Massaro 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 inspectors also reviewed mitigation strategies for addressing large fires and explosions.

Based on the results of this inspection, no findings were identified.

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

Sincerely,

/RA/

John F. Rogge, Chief
Engineering Branch 3
Division of Reactor Safety

Docket Nos. 50-277; 50-278
License Nos. DPR-44; DPR-56

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 Senior Vice president, Exelon Generation
 President and Chief Nuclear Officer, Exelon Nuclear
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NAME	RFuhrmeister	FBower	JRogge		
DATE	4/27/15	4/30/15	5/4/15		

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B. Hanson

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Enclosure:

Inspection Report Nos. 05000277/2015007
and 05000278/2015007

w/Attachment: Supplemental Information

cc w/encl: Distribution via ListServ

Distribution w/encl: (via E-mail)

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D. Lew, DRA **(R1ORAMAIL Resource)**
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U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket Nos.: 50-277; 50-278

License Nos.: DPR-44; DPR-56

Report Nos.: 05000277/2015007 and 05000278/2015007

Licensee: Exelon Generation Company, LLC

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

Location: 1848 Lay Road, Delta, PA 17314

Dates: March 16 – 20 and March 30 – April 2, 2015

Inspectors: R. Fuhrmeister, Senior Reactor Inspector (Team Leader)
W. Schmidt, Senior Reactor Analyst
K. Young, Senior Reactor Inspector
J. Richmond, Senior Reactor Inspector
L. Dumont, Reactor Inspector

Approved by: John F. Rogge, Chief
Engineering Branch 3
Division of Reactor Safety

SUMMARY OF FINDINGS

IR 05000277/2015007 and 05000278/2015007; 03/16/2015 - 03/20/2015 and 03/30/2015 – 04/02/2015; Exelon Generation Company, LLC; Peach Bottom Atomic Power Station, Units 2 and 3; Triennial Fire Protection Baseline Inspection.

The report covered a two-week triennial fire protection team inspection by specialist inspectors. 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.

No findings were identified.

REPORT DETAILS

Background

This report presents the results of a triennial fire protection inspection conducted in accordance with NRC Inspection Procedure (IP) 71111.05T, "Fire Protection." The objective of the inspection was to assess whether Exelon has implemented an adequate fire protection program (FPP) and that post-fire safe shutdown capabilities have been established and are being properly maintained at the Peach Bottom Atomic Power Station, Units 2 and 3 (Peach Bottom). The following fire areas (FA) and fire zones (FZ) were selected for detailed review based on risk insights from the Peach Bottom Individual Plant Examination of External Events (IPEEE).

- FA 38 – FZ 125, Unit 3 HPCI Pump Room
- FA 41 – FZ 134, E2 Diesel Generator Room
- FA 58, Unit 3 Recirculation Motor Generator Set Room

Inspection of these areas/zones fulfills the inspection procedure requirement to inspect a minimum of three samples.

The inspection team evaluated Exelon's FPP against applicable requirements which included Renewed Facility Operating License Condition 2.C(4) (both units), NRC Safety Evaluations, 10 CFR 50.48, 10 CFR Part 50, Appendix R and Branch Technical Position (BTP) Auxiliaries and Power Conversion Systems Branch (APCSB) 9.5-1, Appendix A. The team also reviewed related documents that included the Updated Final Safety Analysis Report (UFSAR), Section 10.12, the fire hazards analysis (FHA), and the post-fire safe shutdown analyses.

The team also evaluated three Exelon mitigating strategies for addressing large fires and explosions as required by Operating License Condition 2.C(11) (both units) and 10 CFR 50.54 (hh)(2). Inspection of these strategies fulfills the inspection procedure requirement to inspect a minimum of one sample.

Specific documents reviewed by the team are listed in the attachment.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R05 Fire Protection (IP 71111.05T)

.01 Protection of Safe Shutdown Capabilities

a. Inspection Scope

The team reviewed the FHA, safe shutdown analyses, and supporting drawings and documentation to verify that safe shutdown capabilities were properly protected. The team ensured that applicable separation requirements of Section III.G of 10 CFR Part 50, Appendix R and Exelon's design and licensing bases were maintained for the credited safe shutdown equipment and their supporting power, control, and

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instrumentation cables. This review included an assessment of the adequacy of the selected systems for reactivity control, reactor coolant makeup, reactor heat removal, process monitoring, and associated support system functions.

b. Findings

No findings were identified.

.02 Passive Fire Protection

a. Inspection Scope

The team walked down accessible portions of the selected FAs to evaluate whether the material conditions of the FA boundaries were adequate for the fire hazards in the area. The team compared the FA boundaries, including walls, ceilings, floors, fire doors, fire dampers, penetration seals, electrical raceway and conduit fire barriers, and redundant equipment fire barriers and radiant energy heat barriers to design and licensing basis requirements, industry standards, and the FPP, as approved by the NRC, to identify any potential degradation or non-conformances.

The team reviewed selected engineering evaluations, repair work orders, and qualification records for a sample of penetration seals to determine whether the fill material was properly installed and whether the as-left configuration satisfied design requirements for the intended fire rating.

The team also reviewed recent inspection and functional test records for fire dampers, and the inspection records for penetration seals and fire barriers, to verify whether the inspection and testing was adequately conducted, the acceptance criteria were met, and any potential performance degradation was identified. In addition, the team reviewed recent test results for the carbon dioxide (CO₂) fire damper functionality tests for the areas protected to verify the testing was adequately conducted, the acceptance criteria were met, and any performance degradation was identified.

b. Findings

No findings were identified.

.03 Active Fire Protection

a. Inspection Scope

The team evaluated manual and automatic fire suppression and detection systems in the selected FAs to determine whether they were installed, tested, maintained, and operated in accordance with NRC requirements, National Fire Protection Association (NFPA) codes of record, and the Peach Bottom FPP, as approved by the NRC. The team also assessed whether the suppression systems capabilities were adequate to control and/or extinguish fires associated with the hazards in the selected areas.

The team reviewed the as-built capability of the fire water supply system to verify the design and licensing basis and NFPA code of record requirements were satisfied, and to assess whether those capabilities were adequate for the hazards involved. The team reviewed the fire water system hydraulic analyses to assess the adequacy of a single fire water pump to supply the largest single hydraulic load on the fire water system plus concurrent fire hose usage. The team evaluated the fire pump performance tests to assess the adequacy of the test acceptance criteria for pump minimum discharge pressure at the required flow rate, to verify the criteria was adequate to ensure that the design basis and hydraulic analysis requirements were satisfied. The team also evaluated the underground fire loop flow tests to verify the tests adequately demonstrated that the flow distribution circuits were able to meet design basis requirements. In addition, the team reviewed recent pump and loop flow test results to verify the testing was adequately conducted, the acceptance criteria were met, and any potential performance degradation was identified.

The team reviewed initial discharge testing, design specifications, vendor requirements, and routine functional testing for the CO₂ suppression systems for the diesel generator and HPCI pump rooms. The team walked down accessible portions of the CO₂ systems, including storage tanks and supply systems, to independently assess the material condition, operational lineup, and availability of the systems. The team also reviewed and walked down the associated fire fighting strategies and CO₂ system operating procedures.

The team walked down accessible portions of the detection and water suppression systems in the selected areas and major portions of the fire water supply system, including motor and diesel driven fire pumps, interviewed system and program engineers, and reviewed selected condition reports (AR) to independently assess the material condition of the systems and components. In addition, the team reviewed recent test results for the fire detection and suppression systems for the selected FAs to verify the testing was adequately conducted, the acceptance criteria were met, and any performance degradation was identified.

The team assessed the fire brigade capabilities by reviewing training, qualification, and drill critique records. The team also reviewed Exelon's fire fighting strategies (i.e., pre-fire plans) and smoke removal plans for the selected FAs to determine if appropriate information was provided to fire brigade members and plant operators to identify safe shutdown equipment and instrumentation, and to facilitate suppression of a fire that could impact post-fire safe shutdown capability. The team independently inspected the fire brigade equipment, including personnel protective gear (e.g., turnout gear) and smoke removal equipment, to determine operational readiness for fire fighting. In addition, the team reviewed Exelon's fire brigade equipment inventory and inspection procedure and recent inspection and inventory results to verify adequate equipment was available, and any potential material deficiencies were identified.

b. Findings

No findings were identified.

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.04 Protection From Damage From Fire Suppression Activities

a. Inspection Scope

The team performed document reviews and plant walkdowns to verify that redundant trains of systems required for hot shutdown, which are located in the same fire area, are not subject to damage from fire suppression activities or from the rupture or inadvertent operation of fire suppression systems. Specifically, the team verified that:

- A fire in one of the selected fire areas would not indirectly, through production of smoke, heat, or hot gases, cause activation of suppression systems that could potentially damage all redundant safe shutdown trains;
- A fire in one of the selected fire areas (or the inadvertent actuation or rupture of a fire suppression system) would not indirectly cause damage to all redundant trains (e.g. sprinkler caused flooding of other than the locally affected train); and,
- Adequate drainage is provided in areas protected by water suppression systems.

b. Findings

No findings were identified.

.05 Post-Fire Safe Shutdown Capability – Normal and Alternative

a. Inspection Scope

The team reviewed the safe shutdown analysis, operating procedures, piping and instrumentation drawings (P&ID), electrical drawings, the UFSAR, and other supporting documents for the selected FAs to verify whether Exelon had properly identified the systems and components necessary to achieve and maintain post-fire safe shutdown conditions. The team evaluated selected systems and components credited by the safe shutdown analysis for reactor pressure control, reactivity control, reactor coolant makeup, decay heat removal, process monitoring, and support system functions to assess the adequacy of Exelon's alternative shutdown methodology. The team also assessed whether alternative post-fire shutdown could be performed both with and without the availability of off-site power. The team walked down selected plant configurations to verify whether they were consistent with the assumptions and descriptions in the safe shutdown and fire hazards analyses. In addition, the team evaluated whether the systems and components credited for use during post-fire safe shutdown would remain free from fire damage.

The team reviewed the training program for licensed and non-licensed operators to verify whether it included alternative shutdown capability. The team also verified whether personnel required for post-fire safe shutdown, using either the normal or alternative shutdown methods, were trained and available on-site at all times, exclusive of those assigned as fire brigade members.

The team reviewed the adequacy of procedures utilized for post-fire shutdown and performed an independent walk through of procedure steps (i.e., a procedure tabletop) to assess the adequacy of implementation and human factors within the procedures. The team also evaluated the time required to perform specific actions to verify whether operators could reasonably be expected to perform those actions within sufficient time to maintain plant parameters within specified limits.

Specific procedures reviewed for normal and alternative post-fire shutdown included:

- ON-114, Fire in the Power Block
- SE-10, Alternative Shutdown
- T-302-3, Unit 3 High Pressure Coolant Injection Room Fire Guide
- T-345-2(3), E2 Emergency Diesel Generator Room Fire Guide
- T-358-3, Unit 3 Recirculation Motor Generator Set Room Fire Guide

The team reviewed selected operator manual actions to verify whether they had been properly reviewed and approved and whether the actions could be implemented in accordance with plant procedures in the time necessary to support the safe shutdown method for each fire area. The team also reviewed the periodic testing of the alternative shutdown transfer and isolation capability, and instrumentation and control functions, to evaluate whether the tests were adequate to ensure the functionality of the alternative shutdown capability.

b. Findings

No findings were identified.

.06 Circuit Analysis

a. Inspection Scope

The team verified that the licensee performed a post-fire safe shutdown analysis for the selected fire areas and the analysis appropriately identified the structures, systems, and components important to achieving and maintaining safe shutdown. Additionally, the team verified that the licensee's analysis ensured that necessary electrical circuits were properly protected and that circuits that could adversely impact safe shutdown due to hot shorts or shorts to ground were identified, evaluated, and dispositioned to ensure spurious actuations would not prevent safe shutdown.

The team's review considered fire and cable attributes, cable routing, potential undesirable consequences, and common power supply/bus concerns. Specific items included the credibility of the fire threat, cable insulation attributes, cable failure modes, and actuations resulting in flow diversion or loss of coolant events.

The team also reviewed cable raceway drawings and/or cable routing databases for a sample of components required for post-fire safe shutdown to verify that cables were routed as described in the safe-shutdown analysis. The team also reviewed equipment important to safe shutdown, but not part of the success path, to verify that the licensee

had taken appropriate actions in accordance with the design and licensing basis and NRC Regulatory Guide 1.189, Revision 2.

Circuit analysis was performed for the following components:

- M02-23-014, Unit 2 HPCI Steam Supply Isolation Valve
- M02-23-020, Unit 2 Outboard HPCI Pump Discharge Valve
- M03-10-018, Unit 3 RHR Shutdown Cooling Isolation Valve
- M03-23-019, Unit 3 Inboard HPCI Pump Discharge Valve
- LI-9456, Unit 3 Suppression Pool Water Level Indicator
- PI3-2-3-60B, Unit 3 Reactor Vessel Pressure Indicator
- RV2-02-071B, Unit 2 Main Steam Line A Safety/Relief Valve

The team reviewed a sample of circuit breaker coordination studies to ensure equipment needed to conduct post-fire safe shutdown activities would not be impacted due to a lack of coordination that could result in a common power supply or common bus concern.

The team verified that the transfer of control from the control room to the alternative shutdown location(s) would not be affected by fire-induced circuit faults (e.g., by the provision of separate fuses and power supplies for alternative shutdown control circuits).

b. Findings

No findings were identified.

.07 Communications

a. Inspection Scope

The team reviewed safe shutdown procedures, the safe shutdown analysis, and associated documents to verify an adequate method of communications would be available to plant operators following a fire. During this review the team considered the effects of ambient noise levels, clarity of reception, reliability, and coverage patterns. The team also inspected the designated emergency storage lockers to verify the availability of portable radios for the fire brigade and for plant operators. The team also verified that communications equipment such as repeaters and transmitters would not be affected by a fire.

b. Findings

No findings were identified.

.08 Emergency Lighting

a. Inspection Scope

The team observed the placement and coverage area of eight-hour emergency lights throughout the selected fire areas to evaluate their adequacy for illuminating access and

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egress pathways and any equipment requiring local operation or instrumentation monitoring for post-fire safe shutdown. The team also verified that the battery power supplies were rated for at least an eight-hour capacity. Preventive maintenance procedures, the vendor manual, completed surveillance tests, and battery replacement practices were also reviewed to verify that the emergency lighting was being maintained consistent with the manufacturer's recommendations and in a manner that would ensure reliable operation.

a. Findings

No findings were identified.

.09 Cold Shutdown Repairs

a. Inspection Scope

The team reviewed Exelon's dedicated repair procedures for components which might be damaged by fire and were required to achieve post-fire cold shutdown. The team evaluated selected cold shutdown repairs to determine whether they could be achieved within the time frames assumed in the design and licensing bases. In addition, the team verified whether the necessary repair equipment, tools, and materials (e.g., pre-cut cables with prepared attachment lugs) were available and accessible on site.

b. Findings

No findings were identified.

.10 Compensatory Measures

a. Inspection Scope

The team verified that compensatory measures were in place for out-of-service, degraded or inoperable fire protection and post-fire safe shutdown equipment, systems, or features (e.g. detection and suppression systems and equipment, passive fire barriers, or pumps, valves or electrical devices providing safe shutdown functions or capabilities). The team also verified that the short term compensatory measures compensated for the degraded function or feature until appropriate corrective action could be taken and that the licensee was effective in returning the equipment to service in a reasonable period of time.

b. Findings

No findings were identified.

.11 Fire Protection Program Changes

a. Inspection Scope

The team reviewed recent changes to the approved FPP to verify that the changes did not constitute an adverse effect on the ability to safely shutdown.

b. Findings

No findings were identified.

.12 Control of Transient Combustibles and Ignition Sources

a. Inspection Scope

The team reviewed the licensee's procedures and programs for the control of ignition sources and transient combustibles to assess their effectiveness in preventing fires and in controlling combustible loading within limits established in the FHA. A sample of hot work and transient combustible control permits were also reviewed. The team performed plant walkdowns to verify that transient combustibles and ignition sources were being implemented in accordance with the administrative controls.

b. Findings

No findings were identified.

.13 Large Fires and Explosions Mitigation Strategies

a. Inspection Scope

The team reviewed Exelon's preparedness to handle large fires or explosions by reviewing two mitigating strategies to verify they continue to meet operating license condition 2.C(11) by determining that:

- Procedures are being maintained and adequate;
- Equipment is properly staged and is being maintained and tested; and,
- Station personnel are knowledgeable and can implement the procedures.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES [OA]

4OA2 Identification and Resolution of Problems

.01 Corrective Actions for Fire Protection Deficiencies

a. Inspection Scope

The team verified that Exelon was identifying fire protection and post-fire safe shutdown issues at an appropriate threshold and entering them into the corrective action program. The team also reviewed a sample of selected issues to verify that Exelon had taken or planned appropriate corrective actions.

b. Findings

No findings were identified.

4OA6 Meetings, Including Exit

Exit Meeting Summary

The team presented their preliminary inspection results to Mr. M. Massaro, Site Vice President, and other members of the site staff at an exit meeting on April 2, 2015. No proprietary information was included in this inspection report.

Attachment: Supplemental Information

Enclosure

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

M. Massaro, Site Vice President
P. Navin, Plant Manager
W. Reynolds, Engineering Programs Manager
M. Herr, Operations Director
D. Henry, Engineering Director
S. Quick, Nuclear Oversight Manager
C. Pragman, Corporate Fire Protection Program Manager
D. Dullum, Regulatory Assurance Engineer
B. Miller, Fire Protection System Manager
B. Nguyen, Fire protection System Engineer
V. Rhodes, Fire Safe Shutdown Engineer
J. Koester, Fire Marshall
J. Moore, Senior Licensed Operator
W. Zuppe, Operations Support Supervisor
D. Turek, Supervisor - Operations Shift
K. Kinard, Supervisor Records Management
J. Smith, Nuclear Plant Operator
D. Smith, Nuclear Plant Operator
J. MacKale, Nuclear Plant Operator

NRC

J. Rogge, Chief, Engineering Branch 3, Division of Reactor Safety
S. Hansell, Senior Resident Inspector, Peach Bottom Atomic Power Station
B. Smith, Resident Inspector, Peach Bottom Atomic Power Station

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

NONE

Opened and Closed

NONE

Closed

NONE

Discussed

NONE

LIST OF DOCUMENTS REVIEWED

Fire Protection Licensing Documents

Updated Final Safety Analysis Report, Rev. 24, Section 10.12
 PEA 001, Fire Protection Program, Rev. 19
 PEA 003, FPP Post-Fire Safe Shutdown Analysis, Rev. 16
 PEA 004, FPP Appendix A, Rev. 19
 PE-0017, Perform 125/250 VDC Class 1E Battery Analysis & Dist. System Voltage, Rev. 12AB
 PB-99-01814, Evaluate 125vdc ACS Lights 20(30)D307 for Manual Control, 12/15/99

Design Basis Documents

DBD P-S-51, Fire Protection System
 E-1317, Wire & Cable – Notes & Details Power, Control & Instrumentation, Rev. 55
 NE-00296, Specification for Post-Fire Safe Shutdown Program Req. for PBAPS, Rev. 3
 P-T-10, Fire Safe Shutdown DBD, Rev. 12

Design Changes

ECR 14-00243, XR-00C201 Didn't Print As Required Per ST-I-037-322-2, Rev. 000
 WOC0212344, Replace "Master" Card/ Batteries in XR-00C201, Rev. 0

Calculations/Engineering Evaluation Reports

EC A1972094-01, Evaluate Plastic Robust Operation Barriers Over Breaker Handles E224-P-A, Rev. 0
 ECR 14-00221, Unit 3 CFD – Electrical/I&C, Rev. 0
 ECR 14-00260, Installation of Isolation Valves in FP Line 37KB-3, Rev. 0
 Exelon Industrial Services Report No. 1400341, Peach Bottom Fire Line Valve Evaluation, Graphitic Corrosion, dated February 6, 2015
 Power Labs PEA-57860, Evaluation of Fire Valve for Selective Leaching/Corrosion – Fire Wtr Sys East Main Header South Div Shutoff PIV-D-2, Component ID: HV-0-37B-12305
 Assessment of the Fire Protection Sprinkler and Hose Station Supply Piping at the Peach Bottom Atomic Power Station, dated January, 2003
 EE-0007, 10CFR, Appendix R Electrical Coordination Study, 8/86
 PEA-0001, PBAPS High-Low Pressure Interface Valve Compliance and History of Issues, Rev. 0
 PE-088, Medium Voltage Switch Protective Devices Set Points, Rev. 8, 8A, 8B
 PE-0193, Coordination Study for 480V Load Centers & Motor Control Centers Supplied by Emergency Buses, Rev. 6J, 6K, 7
 PE-0194, Coordination for 4kV 1E Switchgear, Rev. 4, 4A, 4B, 4C
 PE-0195, 120VAC Coordination Study, Rev. 4, 4A
 PE-0196, 125/250VDC System Coordination, Rev. 2, 2A
 1226216-48-11, Validate 15 Minute Delay in Operation of HPCI and RCIC CST Suction Override Switch, Rev. 0
 ECR 10-00478, Appendix-R Thermo-hydraulic Analysis for Extended Power Uprate, Rev. 1
 NE-00296, Post-Fire Safe Shutdown Program Specification, Rev. 3
 OP-AA-102-106, Operator Response Time Program, Rev. 3
 OP-PB-102-106, Operator Response Time Program, Rev. 2
 PEA-0001, Appendix-R Fire Protection Impact for Extended Power Uprate, Rev. 3

PEAM-EPU-78, Human Factors Impact for Extended Power Uprate, Rev. 2
PF-0016-002, Fire Area 02 Safe Shutdown Analysis, Minor Rev. 0B, 1F, 0H, & 0G
PF-0016-002, Fire Area 02 Safe Shutdown Analysis, Rev. 0
PF-0016-025, Fire Area 02 Safe Shutdown Analysis, Minor Rev. 0K, 0Q, 0N, 0P
PF-0016-025, Fire Area 25 Safe Shutdown Analysis, Rev. 0
PF-0016-045, Fire Area 45 Safe Shutdown Analysis, Rev. 0
PF-0016-058, Fire Area 58 Safe Shutdown Analysis, Rev. 0
PM-1150 CST & RWST Minimum Inventory Requirements for Appendix-R, Rev. 0

Procedures

CC-AA-211, Fire Protection Program, Rev. 6
FF-01, Fire Brigade, Rev. 21
CC-AA-206, Fuse Control, Rev. 10
M-055-011, PBAPS, Calibration of 600 Volt Class Draw out Switchgear ITE Type OD-3 & OD-4, Rev. 7
M-056-001, PBAPS, 480 Volt Motor Control Center Circuit Breaker Assembly & Cubicle Terminal Maintenance, Rev. 32
MA-PB-724-010, Testing & Control of 600 Volt Class Molded Case Circuit Breakers and Set-points, Rev. 3
M-C-700-231, ITE (Brown Boveri) K-Line Static Circuit Breaker Calibration, Rev. 9
RT-O-010-310-2, RHR System Functional from the Alternative Control Panel, Rev. 16
RT-O-023-750-2, HPCI Functional Test from Alternative Control Panels, Rev. 22
RT-O-023-760-2, HPCI Valve & Component Test from Alternative control Panel, Rev. 17
ST-O-054-752-3, E23 4KV Bus Undervoltage Relays & LOCA LOOP Functional Test & E23 and E234 Alternative Shutdown Control Functional Test, Rev. 26
A1368873, Testing Instructions for New Sentry PM6420 Batteries, 04/11/03

Operations Procedures

SE-10 BASES, Plant Shutdown from the Alternative Shutdown Panels – Bases, Rev. 24
GP-4, Manual Reactor Scram, Rev. 5
ON-114 Basis, Response to Fire in the Power Block, Rev. 18
ON-114, Response to Fire in the Power Block, Rev. 19
RT-0-023-750-2, HPCI Functional Test from Alternative Control Panel, Rev. 22
RT-0-023-760-2, HPCI Valve & Component Test from Alternative Control Panel, Rev. 17
SE-1, Shutdown from Remote Shutdown Panel, Rev. 22
SE-10 Attachment 9, HPCI Operation from Alternate Shutdown Panel, Rev. 2
SE-10, Sht. 1, Alternate Shutdown Special Event Procedure, Rev. 20
SE-10, Sht. 2, Alternate Shutdown Special Event Procedure, Rev. 18
SE-10, Sht. 3, Alternate Shutdown Special Event Procedure, Rev. 0
SE-10, Sht. 4, Alternate Shutdown Special Event Procedure, Rev. 0
SE-10.1, Alternative Shutdown Restoration, Rev. 15
SE-17, Main Control Room Atmosphere, Rev. 2
T-100, Scram Emergency Operating Procedure. Rev. 10
T-101 Basis, Reactor Pressure Vessel Control Emergency Operating Procedure, Rev. 29
T-101, Reactor Pressure Vessel Control Emergency Operating Procedure, Rev. 20
T-300, Shts. 1-8, Response to Fire Procedure, Rev. 1
T-302-3, Unit 3 High Pressure Coolant Injection Room Fire Guide, Rev. 7

T-306N-2, Unit 2 Reactor Building Elevation 135 foot Fire Guide, Rev.5
T-313N-3, Unit 3 Reactor Building Fire Guide, Rev.5
T-325-2, Unit 2 Control Room & Cable Spreading Room Fire Guide, Rev. 1
T-345-2, Unit 2 E2 Emergency Diesel Generator Room Fire Guide, Rev. 2
T-345-3, Unit 2 E2 Emergency Diesel Generator Room Fire Guide, Rev. 1
T-358-2, Unit 2 Recirculation Motor Generator Set Room Fire Guide, Rev.8
T-358-3, Unit 3 Recirculation Motor Generator Set Room Fire Guide, Rev.10

Large Fires and Explosions Mitigation Strategies Documents

Extensive Damage Mitigation Guideline (EDMG) 2.0, Attachment 9, RCIC Manual Start on Loss of DC, Rev 3

Special Operating (SO) procedure 37L.1.A, Diesel Driven Portable and Diesel Driven High-Capcity Portable Pump Startup and Shutdown, Rev 3

Completed Tests/Surveillances

ST-O-37D-340-2, Diesel Driven Fire Pump Flow Rate Test, completed May 22, 2014
ST-O-37D-340-2, Diesel Driven Fire Pump Flow Test, completed November 30, 2012
ST-O-37C-330-2, Motor Driven Fire Pump Flow Rate Test, completed February 4, 2014
ST-O-37C-330-2, Motor Driven Fire Pump Flow Rate Test, completed August 10, 2012
ST-O-37D-370-2, Diesel Driven Fire Pump Operability test, completed December 16, 2014
ST-O-37B-381-2, Underground Fire Main Flow test, completed May 20, 2008
ST-O-037-242-2, E-2 Diesel Generator Heat Detectors Functional Test, completed April 14, 2014
ST-O-037-242-2, E-2 Diesel Generator Heat Detectors Functional Test, completed October 6, 2014
ST-I-37G-392-2, E-2 Diesel Generator Cardox System Simulated Actuation and Air Flow Test, completed February 28, 2014
ST-I-37G-292-2, E-2 Diesel Generator Cardox System Simulated Actuation and Air Flow Test, completed August 22, 2012
ST-I-037-261-3, HPCI Pump Room Smoke Detectors Functional Test, completed December 17, 2010
ST-I-037-261-3, HPCI Pump Room Smoke Detectors Functional Test, completed December 17, 2012
ST-I-37A-312-3, HPCI Pump Room Cardox Simulated Actuation and Air Flow Test, completed February 26, 2014
ST-O-37B-381-2, Underground Fire Main Flow Test, completed August 8, 2014
ST-I-037-292-3, M/G Set Room 135' Smoke Detectors Functional Test, completed August 15, 2012
ST-I-037-292-3, M/G Set Room 135' Smoke Detectors Functional Test, completed August 15, 2014
ST-O-37B-324-3, Recirc Pump MG Set Room Sprinkler System Actuation, completed July 15, 2014
ST-O-37B-324-3, Recirc Pump MG Set Room Sprinkler System Actuation, completed July 23, 2014
ST-M-037-310-3, Visual Walk around Inspection of Fire Barriers, completed February 10, 2012
ST-M-310-3, Visual Walk around Inspection of Fire Barriers, completed January 10, 2014
ST-M-037-311-3, Detailed Visual Inspection of Penetration Seals and Difficult to View Fire Barriers, completed July 7, 2011

ST-M-037-311-3, Detailed Visual Inspection of Penetration Seals and Difficult to View Fire Barriers, completed June 17, 2013
ST-M-037-395-3, U/3 Fire Damper Inspection, completed September 27, 2011
ST-M-037-395-3, U/3 Fire Damper Inspection, completed October 15, 2013
RT-O-037-375-2, IN-Plant Fire Brigade Equipment Inventory and Inspection, completed October 30, 2014
RT-O-037-376-2, Outside Fire Brigade Equipment Inventory and Inspection completed November 1, 2014
RT-O-010-310-2, RHR System Functional from the Alternative Control Panels, Rev. 13, performed 11/30/13
RT-O-023-750-2, HPCI Functional Test from Alternative Control Panels, Rev. 22, performed 5/19/15
RT-O-023-760-2, HPCI Valve & Component Test from Alternative Control Panel, Rev. 16, performed 2/23/14
RT-O-037-710-2, Complete Safe Shutdown ELU Battery Pack Inspection, 11/17/14
RT-O-037-710-2, Complete Safe Shutdown ELU Battery Pack Inspection, 02/12/15
RT-O-037-719-3, ELU Inspection (ASD Control Station Access/Egress Lights, 10/08/11
RT-O-037-719-3, ELU Inspection (ASD Control Station Access/Egress Lights, 10/11/12
RT-O-037-719-3, ELU Inspection (ASD Control Station Access/Egress Lights, 10/16/13
RT-O-037-719-3, ELU Inspection (ASD Control Station Access/Egress Lights, 10/30/14
TR-0-100-505-2, Emergency Operating Procedure TOOL Inventory, performed 12/5/14

System Health Reports

Fire Detection Q3-2014

Fire Suppression Q3-2014

Fire Protection/Fire Safe Shutdown Program 2T-2014

Fire Protection/Fire Safe Shutdown Program 3T-2014

Peach Bottom, Unit 2 DC Systems, 3rd Quarter and 4th Quarter 2014

Peach Bottom, Unit 2 4kV Systems, 4th Quarter 2014 and 1st Quarter 2015

Peach Bottom, Unit 2 480V Emergency & NSR Load Center 2015

Peach Bottom, Unit 3 DC Systems, 3rd Quarter and 4th Quarter 2014

Peach Bottom, Unit 3 4kV Systems, 4th Quarter 2014 and 1st Quarter 2015

Peach Bottom, Unit 3 480V Emergency & NSR Load Center 2015

Drawings and Wiring Diagrams

E-1, Sht. 1, Single Line Diagram, Station, Rev. 56

E-5, Single Line Meter & Relay Diagram 13.8 KV Aux. Power System Unit 2, Rev. 17

E-7, Single Line Meter & Relay Diagram 13.8 KV Aux. Power System Unit 3, Rev. 16

E-8, Sht. 1, Standby Diesel Generators & 4160 Volt Emergency Power System Unit 2, Rev. 17

E-12, Standby Diesel Generators & 4160 Volt Emergency Power System Unit 3, Rev. 11

E-26, Sht. 1, Single Line Diagram, 125/250 VDC System Unit 2, Rev. 83

E-26, Sht. 2, Single Line Diagram, 125/250 VDC System Unit 2, Rev. 62

E-27, Sht. 1, Single Line Diagram, 125/250 VDC System Unit 3, Rev. 77

E-27, Sht. 2, Single Line Diagram, 125/250 VDC System Unit 3, Rev. 43

E-193, Sht. 6, Electrical Schematic Diagram, Emergency Auxiliary Switchgear Diesel-Generator 4160V Circuit Breaker, Rev. 34

E-365, Sht. 5, Cable Block Diagram, Primary Containment Isolation System Unit 3, Rev. 48

E-540-15, Remote Shutdown Panel Enhancement, 3AC043 & 3BC043 Unit 3, Rev. 3

E-2557, Sht. 1, Electrical Schematic Diagram, Alternative Control Inst. Unit 3, Rev. 11

E-2557, Sht. 2, Electrical Schematic Diagram, Alternative Control Instrumentation Unit 3, Rev. 7

E-2557, Sht. 3, Electrical Schematic Diagram, Alternative Control Instrumentation Unit 3, Rev. 3

E-2561, Sht. 10, Alternative Shutdown Control Panel 30C04BX & 30C03-2X Unit 3, Rev. 14

E-2893, Alternative Shutdown Control Panel 20C04BX & 20C03-2X Unit 2, Rev. 12

E-2903, Sht. 1, Alternative Control Instrumentation Unit 2, Rev. 6

E-2903, Sht. 2, Alternative Control Instrumentation Unit 2, Rev. 1

E-2903, Sht. 3, Alternative Control Instrumentation Unit 2, Rev. 0

M-1-S-23, Sht. 61, Electrical Schematic Diagram, Primary Containment Isolation System Unit 3, Rev. 100

M-1-S-23, Sht. 65 Electrical Schematic Diagram, Primary Containment Isolation System Unit 3, Rev. 97

M-1-S-36, Sht. 6, Electrical Schematic Diagram, HPCI System Unit 2, Rev. 76

M-1-S-36, Sht. 7, Electrical Schematic Diagram, HPCI System Unit 2, Rev. 77

M-1-S-36, Sht. 20, Electrical Schematic Diagram, HPCI System Unit 3, Rev. 77

M-1-S-52, Sht. 3, Electrical Schematic Diagram, Automatic Blowdown System Unit 2, Rev. 40

M-1-S-52, Sht. 8, Electrical Schematic Diagram, Automatic Blowdown System Unit 2, Rev. 38

M-1-EE-327, Panel 30C43, Rev. 29

E-5208 Sh1, Radio Repeater System, Rev.1

E-5214 Sh1, Cable Block Diagram Radio Equipment, Rev.0

E-2400 Sh1, Cable Block Diagram Radio Equipment, Rev.9

E-3359 Sh2, Control Room Communication Riser Diagram, Rev.0

E-1151 Sh1A, Raceway Layout-Turb Bldg U2 H&V Fan Room, Rev.19

E-5209 Sh1, Secondary Wiring Diagram Radio Cabinets, Rev.1

E-1140 Sh2A, Raceway Layout-Turbine Bldg U2 Area3, Rev.66

E-1140 Sh3A, Raceway Layout-Turbine Bldg U2 Area3, Rev.69

E-1185 Sh1A, Raceway Layout-Radwaste Bldg Area 9, Rev.37

E-1185 Sh1B, Raceway Layout-Radwaste Bldg Area 9, Rev.39

E-2371 Sh1, Riser Diagram Distributed Antenna System, Rev.4

E-2371 Sh2, Riser Diagram Distributed Antenna System, Rev.2

E-2371 Sh3, Riser Diagram Distributed Antenna System, Rev.4

6280-E-540-123, Sht. 1, HPCI & RHR Alternate Control Panel Arrangement, Rev. 4

6280-E-540-123, Sht. 2, HPCI & RHR Alternate Control Panel Arrangement, Rev. 3

E-2903, Sht. 1, Alternative Shutdown Control Schematic, Rev. 6

M-1-S-65, Sht. 17, RHR Discharge Valve MO-2-10-89B Schematic, Rev. 100

M-1-S-65, Sht. 26F, RHR Heat Exchanger X-Tie Valve MO-2-10-23452B Schematic, Rev. 0

Piping and Instrumentation Diagrams

6280-M-309, Sht. 1, Condensate & Refueling Water Storage & Transfer Systems Unit 2 & Common, Rev. 65

6280-M-309, Sht. 2, Condensate & Refueling Water Storage & Transfer Systems Unit 3 & Common, Rev. 60

6280-M-351, Sht. 1, Nuclear Boiler Unit 2 & Common, Rev. 79

6280-M-352, Sht. 4, Nuclear Boiler Vessel Instrumentation Unit 3, Rev. 61
6280-M-361, Residual Heat Removal (RHR) System Unit 3, Rev. 71
6280-M-365, Sht. 1, High Pressure Coolant Injection (HPCI) System Unit 2 & Common, Rev. 63
6280-M-365, Sht. 2, HPCI System Unit 3, Rev. 65
6280-M-366, Sht. 1, HPCI Pump Turbine Details Unit 2, Rev. 57
6280-M-366, Sht. 2, HPCI Pump-Turbine Details, Lube Oil & Control Systems Unit 2, Rev. 49
6280-M-366, Sht. 3, HPCI Pump-Turbine Details, Lube Oil & Control Systems Unit 3, Rev. 45
6280-M-366, Sht. 4, HPCI Pump Turbine Details Unit 3, Rev. 52
6280-M-315, Sht. 1, Emergency Service Water & High Pressure Service Water System, Rev. 82
6280-M-315, Sht. 2, Emergency Service Water & High Pressure Service Water System, Rev. 57
6280-M-315, Sht. 5, Emergency Service Water & High Pressure Service Water System, Rev. 59
6280-M-361, Sht. 1, Residual Heat Removal System, Rev. 85
6280-M-361, Sht. 2, Residual Heat Removal System, Rev. 71

Vendor Manuals

GEH-908R, G.E. Control and Instrument Switches (SB-1)
GET-6169F, G.E. Selection and Application Guide for SB Control and Transfer Switches

Pre-Fire Plans

PF-12C, Fire Area 58, Radwaste Building Unit 3 Recirc Pump MG Set Room – Elevation 135'-0", Rev. 7
PF-62, Fire Area 2, Zone 62, Unit 3 Rx Bldg HPCI Room – Elevation 88'-0", Rev. 7
PF-132, Diesel Generator Building General Area – Elevation 127'-0", Rev. 9

Fire Drills and Critiques

January 14, 2015, Shift PS05
April 18, 2014, Shift PS05
October 2, 2014, Shift PS04
October 7, 2014, Shift PS01
October 8, 2014, Shift PS02
October 16, 2014, Shift PS03
November 10, 2013, Shift PS05
October 7, 2014, Shift PS04 (outside evaluation)
January 14, 2015 (outside observation)

Fire Brigade Training

PNLOC-14-05A, Fire Brigade Training 1Q15
PNLOC1404OUA, Fire Brigade Training 4Q14
N-LP-PIMS-GRT-SPD, SCBA Requal, Rev. 001

Operator Safe Shutdown Training

PLOR-057P, Shutdown from Alternate Shutdown Panel Job Performance Measure, Rev. 8
PLORT-1405A, Alternative Shutdown & T-300 Licensed Operator Requalification Training, dated 1/15
PLOT-5037X, Alternative Shutdown Initial Licensed Operator Training, Rev. 4

Hot Work and Ignition Source Permits

R11205118
C0253978
C0254644
C0253235
C0247180

Transient Combustible Evaluations

TCP 2015-01
TCP 2015-02
TCP 2015-03
TCP 2015-04
TCP 2015-05

Miscellaneous Documents

Job No. FL-16317, CO2 Discharge Calculations, HICP Pump Room
Job No. FL-16317, CO2 Discharge Calculations, Cable Spread Room
Job NO, FL 16317, CO2 Discharge Calculations Computer Room
Electrical Circuit Breaker PM Schedule for Selected Circuit Breakers, 4/2/15
Integrated Nuclear Data Management System, (INDMS) Component Information Sheet LI-9456,
Unit 3 Suppression Pool Water Level, Printed 3/12/15
INDMS Component Management System, M02-23-014, HPCI Steam Supply Isolation Valve,
Printed 3/12/15
INDMS Component Management System, M02-23-020, Outboard HPCI Pump Discharge Valve,
Printed 3/12/15
INDMS Component Management System, M03-10-018, RHR Shutdown Cooling Isolation Valve,
Printed 3/12/15
INDMS Component Management System, M03-23-019, Inboard HPCI Pump Discharge Valve,
Printed 3/12/15
INDMS Component Management System, PI3-2-3-60, Unit 3 Reactor Pressure Indicator,
Printed 3/12/15
INDMS Component Management System, RV2-02-017B, Main Steam Line A Safety/Relief
Valve, Printed 3/12/15
INDMS Cable Locations Report, 3/3/15
INDMS FSSD Equipment Location Report Sorted by Component I.D., 3/3/15
INDMS FSSD Equipment Location Report Sorted by Fire Area and Room, 3/3/15
INDMS Method Logics, 3/3/15
INDMS System Logics, 3/3/15
Document Control Copyholder Distribution Report for Radwaste Room 237, dated 3/31/15

Issue Reports (Corrective Action Program Documents)

01492237	01275720	01521603	02386737	00777948	01286671
00177948	01444177	01507272	01618302	01382361	02397309
01493234	00244067	1690326	174698	A1480335	01629839
01662555	01662593	01662767	02386737	02463177*	02463188*
02471690*	01451260	01590662	02408075	01590662	01590658
02451497	02476470*	02476498*	02477018*	01367010	01378062
01440834	01587239	01622948	01627038	01667162	01679788
01686473	02478290*	02479288*			

* NRC identified during this inspection.

Work Orders

C0240063	C0243409	R0958307	R1042375	R1080090	R1114240
R1158167	R1191122	R1267325	R1271721	R1284663	R1269387
R1267674	R1268144	A1819343	A1846875		

LIST OF ACRONYMS

ADAMS	Agencywide Documents Access and Management System
APCSB	Auxiliaries and Power Conversion Systems Branch
BTP	Branch Technical Position
CFR	Code of Federal Regulations
CO ₂	Carbon Dioxide
DRS	Division of Reactor Safety
FA	Fire Area
FHA	Fire Hazards Analysis
FPP	Fire Protection Program
FZ	Fire Zone
HPCI	High Pressure Coolant Injection
IMC	Inspection Manual Chapter
IP	Inspection Procedure
IPEEE	Individual Plant Examination of External Events
IR	Issue Report
NFPA	National Fire Protection Association
NRC	Nuclear Regulatory commission
PAR	Publicly Available Records
P&ID	Piping and Instrumentation Drawing
PBAPS	Peach Bottom Atomic Power Station
UFSAR	Updated Final Safety Analysis Report
Vdc	Volts Direct Current