



UNITED STATES  
NUCLEAR REGULATORY COMMISSION

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

July 6, 2016

Docket No. 05000171

License No. DPR-12

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

SUBJECT: EXELON GENERATION COMPANY, LLC, PEACH BOTTOM ATOMIC POWER  
STATION UNIT 1 – NRC INSPECTION REPORT NO. 05000171/2016008

Dear Mr. Hanson:

On June 6 – 8, 2016, the U.S. Nuclear Regulatory Commission (NRC) conducted an inspection at the Peach Bottom Atomic Power Station Unit 1 (PB-1). The inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and the conditions of your license. The inspection consisted of observations by the inspectors, interviews with personnel, and a review of procedures and records. The results of the inspection were discussed with Mike Massaro, Site Vice President, and other members of your organization on June 8, 2016, at the conclusion of the inspection. The enclosed report presents the results of this inspection. No findings of safety significance were identified.

Current NRC regulations and guidance are included on the NRC's website at [www.nrc.gov](http://www.nrc.gov); select **Nuclear Materials; Med, Ind, & Academic Uses**; then **Regulations, Guidance and Communications**. The current Enforcement Policy is included on the NRC's website at [www.nrc.gov](http://www.nrc.gov); select **About NRC, Organizations & Functions; Office of Enforcement; Enforcement documents**; then **Enforcement Policy (Under 'Related Information')**. You may also obtain these documents by contacting the Government Printing Office (GPO) toll-free at 1-866-512-1800. The GPO is open from 8:00 a.m. to 5:30 p.m. EST, Monday through Friday (except Federal holidays).

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure(s), and your response will be made available electronically for public inspection in the NRC Public Document Room or from the NRC document system (ADAMS), accessible from the NRC website at <http://www.nrc.gov/reading-rm/adams.html>. To the extent possible, your response should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the Public without redaction.

B. Hanson

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No reply to this letter is required. Please contact Laurie Kauffman (610-337-5323) if you have any questions regarding this matter.

Sincerely,  
*/RA/*

Raymond Powell, Chief  
Decommissioning and Technical  
Support Branch  
Division of Nuclear Materials Safety

Enclosure: Inspection Report No. 05000171/2016008

cc w/encl: Distribution via ListServ

B. Hanson

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No reply to this letter is required. Please contact Laurie Kauffman (610-337-5323) if you have any questions regarding this matter.

Sincerely,

**/RA/**

Raymond Powell, Chief  
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U.S. NUCLEAR REGULATORY COMMISSION  
REGION I

INSPECTION REPORT

Inspection No. 05000171/2016008

Docket No. 05000171

License No. DPR-12

Licensee: Exelon Generation Company, LLC (Exelon)

Facility: Peach Bottom Atomic Power Station Unit 1 (PB-1)

Address: 1848 Lay Road  
Delta, Pennsylvania 17314-9032

Inspection Dates: June 6 – 8, 2016

Inspectors:

Laurie Kauffman  
Health Physicist  
Decommissioning & Technical Support Branch  
Division of Nuclear Materials Safety

Katherine Reid  
Health Physicist  
Decommissioning & Technical Support Branch  
Division of Nuclear Materials Safety

Zahira Cruz  
Project Manager  
Reactor Decommissioning Branch  
Division of Decommissioning, Uranium Recovery, and Waste  
Programs  
Office of Nuclear Materials Safety and Safeguards

Approved By: Raymond Powell, Chief  
Decommissioning & Technical Support Branch  
Division of Nuclear Materials Safety

Enclosure

**EXECUTIVE SUMMARY**

Exelon Generation Company, LLC  
Peach Bottom Atomic Power Station Unit 1 (PB-1)  
NRC Inspection Report No. 05000171/2016008

An announced safety inspection was conducted on June 6 – 8, 2016, at PB-1. The inspectors reviewed PB-1's activities related to the safe storage of radioactive material, including site operations, engineering, maintenance, fire protection, plant support activities, management oversight, and corrective action program (CAP) implementation. The inspection consisted of observations by the inspectors, interviews with Exelon personnel, a review of procedures and records, and plant walk-downs. There are currently no ongoing decommissioning activities being conducted at PB-1. The NRC's program for overseeing the safe operation of a shut-down nuclear power reactor is described in Inspection Manual Chapter (IMC) 2561, "Decommissioning Power Reactor Inspection Program." Based on the results of this inspection, no findings of safety significance were identified.

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## **REPORT DETAILS**

### **1.0 Background**

PB-1 was a high temperature gas-cooled demonstration power reactor that operated from February 1966 until October 31, 1974, and has been permanently shut down and in safe storage (SAFSTOR) since that time. All fuel has been removed from the reactor and shipped to an offsite facility. The spent fuel pool has been drained and decontaminated, and radioactive liquids have been removed. Water that collects in the reactor building sump is periodically pumped out of the sump and into drums. This water is then transported to the common radwaste building for Peach Bottom 2 (PB-2)/Peach Bottom 3 (PB-3) for processing.

The NRC's program for overseeing the safe operation of a shut-down nuclear power reactor is described in IMC 2561.

### **2.0 SAFSTOR Performance and Status Review**

- a. Inspection Scope (Inspection Procedures (IPs) 36801, 37801, 40801, 62801, 64704, 71801, 83750, 84750, 86750)

A routine announced safety inspection was conducted on June 6 – 8, 2016, at PB-1. The inspection consisted of observations by the inspectors, interviews with Exelon personnel, and a review of procedures and records. The inspectors reviewed the SAFSTOR program as outlined in the Updated Final Safety Analysis Report (UFSAR), Technical Specifications (TS), and procedure LS-PB-800, "Unit 1 Process Control Program," to assess the adequacy of management oversight of SAFSTOR responsibilities for the PB-1 facility. Specifically, the inspectors reviewed the decommissioning management and staff organization and Exelon's implementation of SAFSTOR activities related to safe storage of radioactive material. The inspectors discussed any design changes or modifications since the previous inspection. The inspectors also conducted a walk-down to assess the material condition of the PB-1 facility (reactor building, containment building, radioactive waste building, and spent fuel pool building).

The inspectors reviewed the results of Exelon's ST-H-099-960-2, Rev. 22, "Unit 1 Exclusion Area Inspection" semi-annual surveillance test that was conducted in May 2016. The semi-annual surveillance test is intended to ensure exclusion area barriers and personnel access doors to the containment building, the radioactive waste building, and the spent fuel pool building are being maintained in accordance with TS 2.1(b)1, and that water accumulation in the containment sump was less than TS 2.1(b)9 limits of 500 gallons.

The inspectors reviewed activities and documentation associated with the following SAFSTOR programs: occupational exposure, fire protection, radioactive effluent control monitoring, environmental monitoring, and groundwater monitoring.

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The inspectors reviewed the annual Decommissioning Status Report for 2015, dated March 30, 2016, and liquid effluent release records for 2015. The inspectors also reviewed a PB-1 audit report and CAP issue reports and assignment reports associated with PB-1 to determine if issues were being properly identified and evaluated, and if corrective actions were appropriately prioritized in the CAP.

b. Observations and Findings

The inspectors confirmed that the SAFSTOR program was effectively implemented. The required PB-1 reporting submittals were completed in accordance with TS. The inspectors verified that the maintenance and surveillance program for systems and components had been conducted in accordance with TS and established procedures. The inspectors confirmed that the fire protection program was implemented in accordance with the UFSAR.

The inspectors also verified that the semi-annual surveillance test was performed according to TS 2.3(b) and associated procedures. Water levels in the containment sump were below the TS requirements of 500 gallons. During the tour of the spent fuel pool room, the inspectors identified a small hole in the top corner of the cinderblock wall. The hole is approximately 2 feet from the ceiling in the northwest corner of the room and is approximately 1 inch wide and 5 inches long. Exelon determined that the opening in the inside block wall apparently was revealed when the exterior stucco facade was removed, allowing light to penetrate through openings in the outer portion of the cinderblock wall. The inspectors confirmed with Exelon that there was no release of radioactive material to the environment because the spent fuel room is not a contaminated area and there is no airborne radioactive material based on the results of an air monitoring grab sample. During the inspection, Exelon commenced immediate actions to repair the hole.

In April 2016, the licensee identified that a large piece of stucco facade had fallen off of the exterior wall of the PB-1 building during an exterior visual inspection. Exelon attributed this issue to age and weathering of the stucco and decided to remove the entire facade. During the SAFSTOR inspection, the inspectors observed Exelon personnel remove the final portions of the stucco facade from the building PB-1. The inspectors confirmed that the stucco facade was cosmetic and not structural. Exelon will replace the stucco facade in the near future.

The inspectors confirmed that no design changes or plant modifications were made since the previous inspection. The inspectors also confirmed that no decommissioning activities were performed since the previous inspection.

There were no gaseous effluents released in calendar year 2015. A batch liquid effluent release of approximately 425 gallons of accumulated reactor sump water was made in calendar year 2015. There were no liquid or gaseous effluents released from January through June 8, 2016. All calculated doses were well below regulatory dose criteria of 10 Code of Federal Regulations 50, Appendix I. Data from the analysis of groundwater samples from monitoring wells in the vicinity of PB-1 were less than detectable for tritium and plant-derived gamma-emitting radionuclides.

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The inspectors determined that Exelon effectively developed audit plans using standard templates, prior audit results, and current industry operating experience. Depending on the significance, issues identified from audits were tracked by Nuclear Oversight staff or entered into the CAP as issue reports. Exelon effectively addressed identified issues, implemented corrective actions, and tracked them to closure. Issue reports appeared to be prioritized and evaluated commensurate with their safety significance.

c. Conclusions

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

**3.0 Exit Meeting Summary**

On June 8, 2016, the inspectors presented the inspection results to Mike Massaro, Site Vice President, and other members of Exelon's staff. The inspectors confirmed that no copies of proprietary information were used during this inspection and none were removed from the site.

**PARTIAL LIST OF PERSONS CONTACTED**

**Licensee**

J. Armstrong, Regulatory Assurance Manager  
C. Crabtree, Senior Environmental Chemist  
D. Dullum, Senior Regulatory Engineer  
D. Foss, Senior Regulatory Engineer  
C. Hardee, Unit 1 Project Manager  
D. Hines, Radiation Protection Supervisor  
R. Holmes, Radiation Protection Manager  
D. Hornberger, Radwaste Chemist  
B. Miller, Fire Protection Project Manager  
M. Massaro, Site Vice President  
H. McCrory, Radiation Protection Technical Support Manager  
P. Navin, Plant Manager  
S. O'Dwyer, Radwaste/ Environmental Supervisor  
R. Smith, Nuclear Oversight Auditor  
R. Worker, Senior Radiation Protection Technician  
M. Deocampo, Junior Radiation Protection Technician

**ITEMS OPEN, CLOSED, AND DISCUSSED**

None.

**LIST OF DOCUMENTS REVIEWED**

UFSAR, Rev. 8.0, April 2014  
Technical Specifications for Peach Bottom Atomic Power Station Unit No.1  
TS, Amendment - 12, dated December 24, 2014  
Peach Bottom Atomic Power Station Annual Radioactive Effluent Release Report 58,  
January 1, 2015 through December 31, 2015, dated April 29, 2016  
Radiation Work Permit: Unit 1 RCA Areas, 2016  
HU-AA-1211-F-01, Pre-Job Briefing Checklist  
Exelon Generation 2 minute drill at the Job Site Briefing Card  
PBAPS Unit 1 Decommissioning Status Report – 2015, March 30, 2016  
EN-PB-408-4160, Rev. 3, "RGPP Reference Material for Peach Bottom Atomic Power Station"  
LS-PB-800, Rev. 2, "Unit 1 Process Control Program"  
ST-H-099-960-2, Rev. 21, "Unit 1 Exclusion Area Inspection", November 13, 2015  
ST-H-099-960-2, Rev. 22, "Unit 1 Exclusion Area Inspection", and May 12, 2016  
CY-PB-200-100, Rev. 1, "Entry Into Unit 1 During SAFSTOR Decommissioning Status"

**LIST OF DOCUMENTS REVIEWED**

Groundwater Monitoring Well Location Map  
Groundwater Monitoring Well logs for wells in the vicinity of PB-1  
ST-C-095-805-2, "Liquid Radwaste Discharge"  
RW-PB-900, "Removal and Transfer of Water from PB-1" (Attachment 1 - Drum Tracking Form)  
EN-AA-408-4000, "Radiological Groundwater Protection Program Implementation"  
PI-AA-125, "Corrective Action Program (CAP)"  
Decommissioned Units Audit Report, Audit NOSA-PEA-15-10, Peach Bottom,  
November 30 2015 - December 4, 2015  
RT-M-37B-320-2, Rev. 3, "Verification of Fire Hose Hydrostatic Testing", January 1, 2016  
RT-O-037-325-2, Rev. 21, "Monthly Inspection of Outside Area Fire Extinguishers",  
January-May 2016

Assignment Reports: 02578100; 02582615; 02595409; 2595512; 02650030; 02660689;  
02666164; 2679061

**LIST OF ACRONYMS USED**

CAP	Corrective Action Program
Exelon	Exelon Generation Company, LLC
IMC	Inspection Manual Chapter
IP	Inspection Procedure
NRC	Nuclear Regulatory Commission
PB-1	Peach Bottom Atomic Power Station Unit 1
SAFSTOR	Safe Storage
TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report