



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**

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

September 3, 2015

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. 05000171/2015009

Dear Mr. Hanson:

On August 24 – 27, 2015, 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 inspector, 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 August, 27, 2015, 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).

B. Hanson

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No reply to this letter is required. Please contact Mark Roberts (610-337-5094) if you have any questions regarding this matter.

Sincerely,

*/RA/*

Marc S. Ferdas, Chief  
Decommissioning and Technical  
Support Branch  
Division of Nuclear Materials Safety

Enclosure: Inspection Report No. 05000171/2015009

cc w/encl: Distribution via ListServ

B. Hanson

2

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U.S. NUCLEAR REGULATORY COMMISSION  
REGION I

INSPECTION REPORT

Inspection No. 05000171/2015009  
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: August 24 - 27, 2015  
  
Inspector: Mark C. Roberts  
Senior Health Physicist  
Decommissioning & Technical Support Branch  
Division of Nuclear Materials Safety  
  
Approved By: Marc S. Ferdas, Chief  
Decommissioning & Technical Support Branch  
Division of Nuclear Materials Safety

Enclosure

**EXECUTIVE SUMMARY**

Exelon Generation Company, LLC  
Peach Bottom Atomic Power Station Unit 1  
NRC Inspection Report No. 05000171/2015009

An announced safety inspection was conducted on August 24 – 27, 2015, at PB-1. The inspector reviewed PB-1's activities related to the safe storage of radioactive material, including site operations, engineering, maintenance, plant support activities, management oversight, and corrective action program (CAP) implementation. The inspection consisted of observations by the inspector, 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.

## **REPORT DETAILS**

### **1.0 Background**

PB-1 is 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 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.

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

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

A routine announced safety inspection was conducted on August 24 – 27, 2015, at PB-1. The inspection consisted of observations by the inspector, interviews with Exelon personnel, and a review of procedures and records. The NRC's program for overseeing the safe operation of a shut-down nuclear power reactor is described in IMC 2561.

The inspector 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 inspector reviewed the decommissioning management and staff organization and Exelon's implementation of SAFSTOR activities related to safe storage of radioactive material. The inspector discussed any design changes or modifications since the previous inspection. The inspector 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 inspector reviewed the results of surveillance testing conducted in May 2015 that 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 were 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.

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

The inspector reviewed the annual Decommissioning Status Report for 2014, dated March 27, 2015 and liquid effluent release records for 2015. The inspector 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 inspector confirmed that the SAFSTOR program was effectively implemented. The PB-1 required reporting submittals were completed in accordance with TS requirements. The inspector verified that the maintenance and surveillance program for systems and components had been conducted in accordance with the TS requirements and established procedures. The inspector also verified that the semi-annual inspection was performed according to TS 2.3(b) and associated procedures. Water levels in the containment sump determined during the most recent semi-annual inspection and from observations during the plant tour were less than the TS requirements. The inspector confirmed that no design changes or plant modifications were made since the previous inspection. However, projects to repair isolated locations on asbestos covered piping had been performed and new exterior doors had been installed. These projects did not constitute a design change to PB-1. The inspector also confirmed that no decommissioning activities were performed since the previous inspection.

Water from the containment building sump is pumped into drums, analyzed for tritium and plant-derived gamma-emitting radionuclides, and transported to the PB-2/PB-3 radwaste building for storage until a sufficient quantity has been accumulated for a batch release. There were no liquid effluents released in calendar year 2014. A batch liquid effluent release of approximately 350 gallons of accumulated reactor sump water was made in June of 2015. All calculated doses were well below regulatory dose criteria of 10 CFR 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.

The inspector 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 Assignment Reports (ARs). Exelon effectively addressed identified issues, implemented corrective actions, and tracked them to closure. ARs 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 August 27, 2015, the inspector presented the inspection results to Mike Massaro, Site Vice President, and other members of Exelon's staff. The inspector confirmed that copies of proprietary information that were used during this inspection were not removed from the site.



**PARTIAL LIST OF PERSONS CONTACTED**

Licensee

J. Armstrong, Regulatory Assurance Manager  
C. Crabtree, Senior Environmental Chemist  
C. Dozier, Radiation Protection Technician  
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  
J. Koester, Fire Marshall  
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

Commonwealth of Pennsylvania

B. Fuller, PE, Nuclear Safety Specialist

**ITEMS OPEN, CLOSED, AND DISCUSSED**

None

**LIST OF DOCUMENTS REVIEWED**

UFSAR, Revision 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 57, January 1,  
2014 through December 31, 2014, April 29, 2015  
Radiation Work Permit: PB C-15-10121 Unit 1 RCA Areas, 02/06/15  
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 – 2014, March 27, 2015  
Peach Bottom Atomic Power Station, Unit 1 Water Intrusion Mitigation Study, Sargent & Lundy,  
June 5, 2015  
EN-PB-408-4160, Rev. 3, "RGPP Reference Material for Peach Bottom Atomic Power Station"  
LS-PB-800, Revision 2, "Unit 1 Process Control Program"  
ST-H-099-960-2, Revision 21, "Unit 1 Exclusion Area Inspection", May 12, 2015  
CY-PB-200-100, 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 Unit 1  
ST-C-095-805-2, "Liquid Radwaste Discharge", June 6, 2015  
EN-AA-408-4000, Radiological Groundwater Protection Program Implementation  
PI-AA-125, Corrective Action Program (CAP) Procedure  
Decommissioned Units Audit Report, Audit NOSA-PEA-13-10, Peach Bottom, December 2-6,  
2013

Assignment Reports: 01593627; 01593917; 02395989; 02499533; 02500013;

**LIST OF ACRONYMS USED**

AR	Assignment Report
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
PB-2	Peach Bottom Atomic Power Station Unit 2
PB-3	Peach Bottom Atomic Power Station Unit 3
SAFSTOR	Safe Storage
TS	Technical Specification