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Peach Bottom Atomic Power Station  
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Technical Specification 2.4(a)

May 7, 2010

U. S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, DC 20555-0001

Peach Bottom Atomic Power Station (PBAPS) Unit 1  
Facility Operating License No. DPR-12  
NRC Docket No. 50-171

Subject: PBAPS Unit 1 Decommissioning Status Report

In accordance with Peach Bottom Atomic Power Station, Unit 1 Technical Specifications, an annual report is required to:

- Describe the results of facility radiation surveys,
- Report the quantities of radioactive effluents released,
- Report the status of the facility and evaluate the performance of security and surveillance measures, and
- Provide containment vessel accumulated water analyses, as applicable.

Radiation Surveys:

Radiological surveys are performed semi-annually in the accessible areas of the exclusion area. In 2009, radiation levels did not exceed 0.2 mrem/hour and all smearable contamination levels were less than 1000 dpm/100cm<sup>2</sup> beta-gamma.

Quantities of Radioactive Effluents Released:

There were no gaseous releases and no unplanned liquid releases from Unit 1 to the environment in 2009. As discussed below under the section entitled, 'Containment Vessel Accumulated Water Analyses', there were planned discharges of liquid effluents in 2009.

Status of Facility and an Evaluation of the Performance of Security and Surveillance Measures:

There were no significant events involving Unit 1 during 2009. The unit remains in the SAFSTOR status of decommissioning. All exclusion area barriers as described in the Technical Specifications are maintained locked except when opened to provide access and egress for inspections, surveys, or repairs. Exclusion area barriers have not visually degraded from previous reports. Semi-annual inspections (surveillances) required by Technical Specification 2.3(b) are being performed on a more frequent basis (i.e., quarterly basis) due to the intrusion of groundwater into the containment vessel.

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Containment Vessel Accumulated Water Analyses:

Approximately 1200 gallons of tritiated water from Peach Bottom Unit 1 were transferred to the Units 2 & 3 radwaste system and discharged through the laundry drain system as normal discharges, as permitted by the Unit 1 Final Safety Analysis Report. These discharges include water transferred from Unit 1 in 2008, but not discharged until 2009 and approximately 350 gallons of water with a tritium concentration of  $4.32\text{E}+06$  pCi/L that was removed from a trough at the 95 foot level elevation in the Unit 1 containment building in 2009. The dose contributions and isotope quantities from the releases were added to the 2009 PBAPS Radioactive Effluent Release Report for the applicable reporting periods. There was no gamma activity in the Unit 1 water.

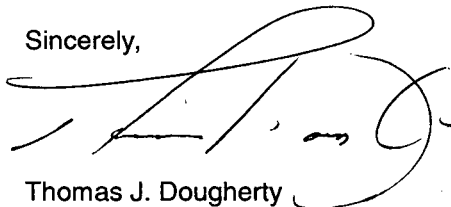
Additionally, in November 2009, approximately 100 gallons of water with a tritium concentration of  $4.11\text{E}+06$  pCi/L were detected in the Unit 1 containment sump and transferred to Units 2 & 3 radwaste area for processing (although not yet discharged).

The Unit 1 Radwaste (RW) sump was checked for water accumulation once per month throughout 2009 and no water was detected in the RW sump.

Monitoring wells MW-PB-8, MW-PB-10, MW-PB-14, MW-15, MW-PB-16, MW-PB-17 and PB-MW-18 are close to Unit 1. The wells monitor both the overburden and bedrock levels. There was no tritium detected in any of the wells when measured to a LLD of 200 pCi/L. The ground water table in the area is approximately 107 – 115 feet above the Conowingo Datum (NAD83).

There are no regulatory commitments contained in this letter. If you have any questions, please contact Larry Lucas at 717-456-4829.

Sincerely,



Thomas J. Dougherty  
Site Vice President  
Peach Bottom Atomic Power Station

CCN 10-38

cc: NRC Regional Administrator, Region I  
NRC Senior Resident Inspector - PBAPS