



10 CFR 50.75(f)
10 CFR 72.30

LR-N21-0015

March 25, 2021

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

Hope Creek Generating Station
Renewed Facility Operating License No. NPF-57
NRC Docket No. 50-354 and 72-48

Salem Generating Station, Units 1 and 2
Renewed Facility Operating License Nos. DPR-70 and DPR-75
NRC Docket Nos. 50-272, 50-311, and 72-48

Peach Bottom Atomic Power Station, Units 2 and 3
Renewed Facility Operating License Nos. DPR-44 and DPR-56
NRC Docket Nos. 50-277, 50-278 and 72-29

Subject: **Report on Status of Decommissioning Funding for Reactors and
Independent Spent Fuel Storage Installations**

In accordance with 10 CFR 50.75, "Reporting and recordkeeping for decommissioning planning," paragraph (f), PSEG Nuclear LLC (PSEG) is submitting a report on the status of decommissioning funding for the reactors owned by PSEG. Additionally, in accordance with 10 CFR 72.30, "Financial assurance and recordkeeping for decommissioning," PSEG is submitting a report on the status of decommissioning funding for the independent spent fuel storage installations (ISFSIs) owned by PSEG.

In accordance with 10 CFR 50.75(b)(4), 50.75(c), and 50.75(f), the estimated cost of decommissioning for financial assurance is based on either the NRC formula cost amount calculated in accordance with 10 CFR 50.75(c) or on site-specific decommissioning cost estimates. PSEG has not made a final determination of the decommissioning option for any of its nuclear units, although its current intention is to implement SAFSTOR.

There are no regulatory commitments contained in this submittal. If you have any questions or require additional information, please contact Mr. Michael Wiwel at 856-339-7907.

Respectfully,



David J. Mannai
Senior Director – Regulatory Affairs and Nuclear Oversight
PSEG Nuclear LLC

Attachments:

1. Labor, Energy, and Burial Factors Used in Calculations (All Facilities)
2. Annual Radiological Decommissioning Funding Assurance Report for Hope Creek Generating Station
3. Annual Radiological Decommissioning Funding Assurance Report for Salem Generating Station, Unit 1
4. Annual Radiological Decommissioning Funding Assurance Report for Salem Generating Station, Unit 2
5. Annual Radiological Decommissioning Funding Assurance Report for Peach Bottom Atomic Power Station, Unit 2
6. Annual Radiological Decommissioning Funding Assurance Report for Peach Bottom Atomic Power Station, Unit 3

cc: Administrator, Region I, NRC
Project Manager, NRC
NRC Senior Resident Inspector, Hope Creek
NRC Senior Resident Inspector, Salem
Ms. A. Pfaff, Manager, NJBNE
PSEG Corporate Commitment Tracking Coordinator
Site Commitment Tracking Coordinator

Attachment 1

Labor, Energy, and Burial Factors Used in Calculations (All Facilities)

Labor, Energy, and Burial Factors Used in Calculations (All Facilities)

The labor, energy, and burial indexes used are consistent with those described in NUREG-1307, Revision 18, published January 2021.

The current labor cost indexes used are obtained from the Employment Cost Index, published by the U.S. Department of Labor, Bureau of Labor Statistics (BLS). Specifically, PSEG used the Employment Cost Index for total compensation for private industry workers by region. The labor adjustment factors were calculated according to Section 3.2 of NUREG-1307 using fourth quarter 2020 data. Table 1 shows the data used for this calculation.

Table 1: Labor Adjustment Factors

Region	Applicable Sites	Series ID	4Q2020 Index Number	Base L_x	Labor Adjustment Factor (L_x)
Northeast	Hope Creek Salem Peach Bottom	CIU2010000000210I	144.0	2.16	3.1104

The current energy cost indexes used are obtained from Producer Price Indexes (PPI) – Commodities, published by the U.S. Department of Labor, BLS. Specifically, PSEG used the PPI for industrial electric power (WPU0543) and light fuel oils (WPU0573). The energy adjustment factors were calculated according to Section 3.3 of NUREG-1307 using December 2020 data. Table 2 shows the data used for this calculation.

Table 2: Energy Adjustment Factors

WPU0543 – January 1986 (base value)	114.2
WPU0573 – January 1986 (base value)	82
WPU0543 – December 2020 (preliminary value)	232.7
WPU0573 – December 2020 (preliminary value)	209.8
Industrial electric power adjustment factor - P_x	2.038
Light fuel oil adjustment factor - F_x	2.559
Energy Adjustment Factor (PWR) – $E_x(\text{PWR})$	2.256
Energy Adjustment Factor (BWR) – $E_x(\text{BWR})$	2.277

The waste burial adjustment factors used are taken from Table 2-1 of NUREG-1307 based on 2020 data. The adjustment factors PSEG used assume a combination of compact-affiliated and non-compact facilities, consistent with current waste disposal practices at PSEG and consistent with typical waste disposal practices during decommissioning. Table 3 summarizes the data used for the calculation of the waste adjustment factors.

Labor, Energy, and Burial Factors Used in Calculations (All Facilities)

Table 3: Waste Adjustment Factors

LLW Burial Site	Reactor Type	Applicable Site	Combination of Compact-Affiliated and Non-Compact Facility Waste Adjustment Factor (B_x)	Generators Located in the Unaffiliated States and those Located in Compact-Affiliated States having no Disposal Facility Waste Adjustment Factor (B_x)
South Carolina site Atlantic Compact	BWR	Hope Creek	12.948	N/A
South Carolina site Atlantic Compact	PWR	Salem	11.679	N/A
Generic LLW Disposal Site	BWR	Peach Bottom	N/A	12.837

The calculation methodology used for all adjustment factors is consistent with NUREG-1307, Revision 18.

LR-N21-0015

Attachment 2

**Annual Radiological Decommissioning Funding Assurance Report for Hope Creek
Generating Station**

**Annual Radiological Decommissioning Funding Assurance Report for
Hope Creek Generating Station**
(December 31, 2020 dollars, thousands)

Formula cost amount per 10 CFR 50.75(c)	\$697,459	
Projected Value of Decommissioning Trust Fund at End of Plant Life	\$1,170,732	Note (b)
Site-specific cost amount per 10 CFR 72.30(b)	\$9,024	Note (c) Note (d)
Amount of decommissioning trust funds accumulated as of December 31, 2020	\$709,710	Note (a)
Schedule of annual amounts remaining to be collected	-None-	
Assumptions used in funding projections	2% April 11, 2046	Note (b)
There are no contracts relied upon pursuant to 10 CFR 50.75(e)(1)(v)		
Modifications occurring to a licensee's current method of providing financial assurance since the last submitted report	-None-	
Material changes to trust agreements	-None-	

Notes:

- (a) The trust fund amount is the amount allocated for Radiological Decommissioning only.
- (b) A 2% annual real rate of return is used as allowed by 10 CFR 50.75(e)(1)(i). For purposes of this report, permanent termination of operations (shutdown) is expected on April 11, 2046.
- (c) The following statements specifically address the events defined in 10 CFR 72.30(c):
 - 1. No spills of radioactive material producing additional residual radioactivity in onsite subsurface material have occurred.
 - 2. Facility modifications have not had an effect on ISFSI decommissioning costs.
 - 3. There were no changes in authorized possession limits.
 - 4. No active decommissioning has occurred; thus, there have not been any actual remediation costs that exceed the previous cost estimate.
- (d) The site-specific decommissioning funding plan was previously provided in a letter from Paul Duke, PSEG, to USNRC, "Decommissioning Funding Plan for Independent Spent Fuel Storage Installations," dated December 17, 2015. The detailed cost estimate was updated in 2018 and is provided below escalated 3% annually to 2020 dollars:

LR-N21-0015
Attachment 2

Hope Creek Generating Station ISFSI Decommissioning Cost Estimate (thousands of 2020 dollars)									
Activity Description	Removal Costs	Packaging Costs	Transport Costs	LLRW Disposal Costs	Other Costs	Total Costs	Burial Volume Class A (cubic feet)	Craft Manhours	Oversight and Contractor Manhours
Decommissioning Contractor									
Planning (characterization, specs and procedures)	-	-	-	-	383	383	-	-	1,168
Decontamination (activated disposition)	409	290	621	2,520	-	3,840	61,344	3,705	-
License Termination (radiological surveys)	-	-	-	-	2,077	2,077	-	14,536	-
Subtotal	409	290	621	2,520	2,459	6,299	61,344	18,241	1,168
Supporting Costs									
NRC and NRC Contractor Fees and Costs					520	520	-	-	1,153
Insurance					102	102	-	-	-
Property taxes					14	14	-	-	-
Security Staff Cost					124	124	-	-	2,011
Utility Staff Cost					160	160	-	-	1,793
Subtotal	-	-	-	-	920	920	-	-	4,956
Total (w/o contingency)	409	290	621	2,520	3,380	7,219	61,344	18,241	6,124
Total (w/25% contingency)	511	363	776	3,149	4,225	9,024			

LR-N21-0015

Attachment 3

**Annual Radiological Decommissioning Funding Assurance Report for
Salem Generating Station, Unit 1**

**Annual Radiological Decommissioning Funding Assurance Report for
Salem Generating Station, Unit 1**
(December 31, 2020 dollars, thousands)

Formula cost amount per 10 CFR 50.75(c)	\$294,439	Note (a)
Projected Value of Decommissioning Trust Fund at End of Plant Life	\$694,889	Note (b)
Site-specific cost amount per 10 CFR 72.30(b)	\$3,093	Note (d) Note (e)
Amount of decommissioning trust funds accumulated as of December 31, 2020	\$510,046	Note (c)
Schedule of annual amounts remaining to be collected	-None-	
Assumptions used in funding projections	2% August 13, 2036	Note (b)
There are no contracts relied upon pursuant to 10 CFR 50.75(e)(1)(v)		
Modifications occurring to a licensee's current method of providing financial assurance since the last submitted report	-None-	
Material changes to trust agreements	-None-	

Notes:

- (a) Based on PSEG's 57.41% ownership of Salem
- (b) A 2% annual real rate of return is used as allowed by 10CFR 50.75(e)(1)(i). For purposes of this report, permanent termination of operations (shutdown) is expected on August 13, 2036
- (c) The trust fund amount is the amount allocated for Radiological Decommissioning only.
- (d) The following statements specifically address the events defined in 10 CFR 72.30(c):
 - 1. No spills of radioactive material producing additional residual radioactivity in onsite subsurface material have occurred.
 - 2. Facility modifications have not had an effect on ISFSI decommissioning costs.
 - 3. There were no changes in authorized possession limits.
 - 4. No active decommissioning has occurred; thus, there have not been any actual remediation costs that exceed the previous cost estimate.
- (e) The site-specific decommissioning funding plan was previously provided in a letter from Paul Duke, PSEG, to USNRC, "Decommissioning Funding Plan for Independent Spent Fuel Storage Installations," dated December 17, 2015. The detailed cost estimate was updated in 2018 and is provided below escalated 3% annually to 2020 dollars. The value stated is based on one-half of the amount identified in the table below prorated to 57.41% PSEG ownership of Salem. The estimate is common for both Salem Units.

LR-N21-0015
Attachment 3

Salem Generating Station									
ISFSI Decommissioning Cost Estimate									
(thousands of 2020 dollars)									
Activity Description	Removal Costs	Packaging Costs	Transport Costs	LLRW Disposal Costs	Other Costs	Total Costs	Burial Volume Class A (cubic feet)	Craft Manhours	Oversight and Contractor Manhours
Decommissioning Contractor									
Planning (characterization, specs and procedures)	-	-	-	-	466	466	-	-	1,264
Decontamination (activated disposition)	477	337	715	2,920	-	4,449	71,319	4,296	-
License Termination (radiological surveys)	-	-	-	-	2,458	2,458	-	17,239	-
Subtotal	477	337	715	2,920	2,924	7,373	71,319	21,536	1,264
Supporting Costs									
NRC and NRC Contractor Fees and Costs					526	526	-	-	1,153
Insurance					205	205	-	-	-
Property Taxes					19	19	-	-	-
Security Staff Cost					313	313	-	-	-
Utility Staff Cost					185	185	-	-	5,082
Subtotal	-	-	-	-	1,247	1,247	-	-	8,297
Total (w/o contingency)	477	337	715	2,920	4,171	8,620	71,319	21,536	9,561
Total (w/25% contingency)	596	421	894	3,650	5,213	10,775			

Attachment 4

**Annual Radiological Decommissioning Funding Assurance Report for
Salem Generating Station, Unit 2**

**Annual Radiological Decommissioning Funding Assurance Report for
Salem Generating Station, Unit 2**

(December 31, 2020 dollars, thousands)

Formula cost amount per 10 CFR 50.75(c)	\$294,439	Note (a)
Projected Value of Decommissioning Trust Fund at End of Plant Life	\$640,392	Note (b)
Site-specific cost amount per 10 CFR 72.30(b)	\$3,093	Note (d) Note (e)
Amount of decommissioning trust funds accumulated as of December 31, 2020	\$437,012	Note (c)
Schedule of annual amounts remaining to be collected	-None-	
Assumptions used in funding projections	2% April 18, 2040	Note (b)
There are no contracts relied upon pursuant to 10 CFR 50.75(e)(1)(v)		
Modifications occurring to a licensee's current method of providing financial assurance since the last submitted report	-None-	
Material changes to trust agreements	-None-	

Notes:

- (a) Based on PSEG's 57.41% ownership of Salem.
- (b) A 2% annual real rate of return is used as allowed by 10CFR 50.75(e)(1)(i). For purposes of this report, permanent termination of operations (shutdown) is expected on April 18, 2040.
- (c) The trust fund amount is the amount allocated for Radiological Decommissioning only.
- (d) The following statements specifically address the events defined in 10 CFR 72.30(c):
 1. No spills of radioactive material producing additional residual radioactivity in onsite subsurface material have occurred.
 2. Facility modifications have not had an effect on ISFSI decommissioning costs.
 3. There were no changes in authorized possession limits.
 4. No active decommissioning has occurred; thus, there have not been any actual remediation costs that exceed the previous cost estimate.
- (e) The site-specific decommissioning funding plan was previously provided in a letter from Paul Duke, PSEG, to USNRC, "Decommissioning Funding Plan for Independent Spent Fuel Storage Installations, dated December 17, 2015." The detailed cost estimate was updated in 2018 and is provided below escalated 3% annually to 2020 dollars. The value stated is based on one-half of the amount identified in the table below prorated to 57.41% PSEG ownership of Salem. The estimate is common for both Salem Units.

Salem Generating Station									
ISFSI Decommissioning Cost Estimate									
(thousands of 2020 dollars)									
Activity Description	Removal Costs	Packaging Costs	Transport Costs	LLRW Disposal Costs	Other Costs	Total Costs	Burial Volume Class A (cubic feet)	Craft Manhours	Oversight and Contractor Manhours
Decommissioning Contractor									
Planning (characterization, specs and procedures)	-	-	-	-	466	466	-	-	1,264
Decontamination (activated disposition)	477	337	715	2,920	-	4,449	71,319	4,296	-
License Termination (radiological surveys)	-	-	-	-	2,458	2,458	-	17,239	-
Subtotal	477	337	715	2,920	2,924	7,373	71,319	21,536	1,264
Supporting Costs									
NRC and NRC Contractor Fees and Costs					526	526	-	-	1,153
Insurance					205	205	-	-	-
Property Taxes					19	19	-	-	-
Security Staff Cost					313	313	-	-	-
Utility Staff Cost					185	185	-	-	5,082
Subtotal	-	-	-	-	1,247	1,247	-	-	8,297
Total (w/o contingency)	477	337	715	2,920	4,171	8,620	71,319	21,536	9,561
Total (w/25% contingency)	596	421	894	3,650	5,213	10,775			

LR-N21-0015

Attachment 5

**Annual Radiological Decommissioning Funding Assurance Report for
Peach Bottom Atomic Power Station, Unit 2**

**Annual Radiological Decommissioning Funding Assurance Report for
Peach Bottom Atomic Power Station, Unit 2**
(December 31, 2020 dollars, thousands)

Formula cost amount per 10 CFR 50.75(c)	\$347,081	Note (a)
Projected Value of Decommissioning Trust Fund at End of Plant Life	\$807,209	Note (b)
Site-specific cost amount per 10 CFR 72.30(b)	\$5,405	Note (d) Note (e)
Amount of decommissioning trust funds accumulated as of December 31, 2020	\$423,253	Note (c)
Schedule of annual amounts remaining to be collected	-None-	
Assumptions used in funding projections	2% August 8, 2053	Note (b)
There are no contracts relied upon pursuant to 10 CFR 50.75(e)(1)(v)		
Modifications occurring to a licensee's current method of providing financial assurance since the last submitted report	-None-	
Material changes to trust agreements	-None-	

Notes:

- (a) Based on PSEG's 50% ownership of Peach Bottom.
- (b) A 2% annual real rate of return is used as allowed by 10CFR 50.75(e)(1)(i). For purposes of this report, permanent termination of operations (shutdown) is expected on August 8, 2053
- (c) The trust fund amount is the amount allocated for Radiological Decommissioning only.
- (d) The following statements specifically address the events defined in 10 CFR 72.30(c):
 1. No spills of radioactive material producing additional residual radioactivity in onsite subsurface material have occurred.
 2. The decommissioning cost estimates have been conservatively scaled to account for an increase in ISFSI pad size as part of an expansion project.
 3. There were no changes in authorized possession limits.
 4. No active decommissioning has occurred; thus, there have not been any actual remediation costs that exceed the previous cost estimate.

- (e) The site-specific decommissioning funding plan was previously provided in a letter from Paul Duke, PSEG, to USNRC, "Decommissioning Funding Plan for Independent Spent Fuel Storage Installations," dated December 17, 2015. The detailed cost estimate was updated in 2018 and is provided below with an escalation factor to account for the expansion of the Peach Bottom ISFSI and cost escalated 3% annually to 2020 dollars. The value stated is based on one-half of the amount identified in the table below prorated to 50% PSEG ownership of Peach Bottom. The estimate is common for both Peach Bottom Units.

LR-N21-0015
Attachment 5

Peach Bottom Atomic Power Station ISFSI Decommissioning Cost Estimate (thousands of 2020 dollars)									
Activity Description	Removal Costs	Packaging Costs	Transport Costs	LLRW Disposal Costs	Other Costs	Total Costs	Burial Volume Class A (cubic feet)	Craft Manhours	Oversight and Contractor Manhours
Decommissioning Contractor									
Planning (characterization, specs and procedures)	-	-	-	-	810	810	-	-	2,496
Decontamination (activated disposition)	482	406	3,647	5,037	-	9,572	117,947	5,286	-
License Termination (radiological surveys)	-	-	-	-	3,398	3,398	-	24,585	-
Subtotal	482	406	3,647	5,037	4,208	13,780	117,947	29,871	2,496
Supporting Costs									
NRC and NRC Contractor Fees and Costs	-	-	-	-	1,099	1,099	-	-	2,464
Insurance	-	-	-	-	241	241	-	-	-
Property taxes	-	-	-	-	751	751	-	-	-
Security Staff Cost	-	-	-	-	650	650	-	-	10,683
Utility Staff Cost	-	-	-	-	775	775	-	-	8,104
Subtotal	-	-	-	-	3,516	3,516	-	-	21,251
Total (w/o contingency)	482	406	3,647	5,037	7,724	17,297	117,947	29,871	23,747
Total (w/25% contingency)	602	508	4,559	6,296	9,655	21,621			

Attachment 6

**Annual Radiological Decommissioning Funding Assurance Report for
Peach Bottom Atomic Power Station, Unit 3**

**Annual Radiological Decommissioning Funding Assurance Report for
Peach Bottom Atomic Power Station, Unit 3**
(December 31, 2020 dollars, thousands)

Formula cost amount per 10 CFR 50.75(c)	\$347,081	Note (a)
Projected Value of Decommissioning Trust Fund at End of Plant Life	\$816,494	Note (b)
Site-specific cost amount per 10 CFR 72.30(b)	\$5,405	Note (d) Note (e)
Amount of decommissioning trust funds accumulated as of December 31, 2020	\$420,575	Note (c)
Schedule of annual amounts remaining to be collected	-None-	
Assumptions used in funding projections	2% July 2, 2054	Note (b)
There are no contracts relied upon pursuant to 10 CFR 50.75(e)(1)(v)		
Modifications occurring to a licensee's current method of providing financial assurance since the last submitted report	-None-	
Material changes to trust agreements	-None-	

Notes:

- (a) Based on PSEG's 50% ownership of Peach Bottom.
- (b) A 2% annual real rate of return is used as allowed by 10CFR 50.75(e)(1)(i). For purposes of this report, permanent termination of operations (shutdown) is expected on July 2, 2054.
- (c) The trust fund amount is the amount allocated for Radiological Decommissioning only.
- (d) The following statements specifically address the events defined in 10 CFR 72.30(c):
 1. No spills of radioactive material producing additional residual radioactivity in onsite subsurface material have occurred.
 2. The decommissioning cost estimates have been conservatively scaled to account for an increase in ISFSI pad size as part of an expansion project.
 3. There were no changes in authorized possession limits.
 4. No active decommissioning has occurred; thus, there have not been any actual remediation costs that exceed the previous cost estimate.

- (e) The site-specific decommissioning funding plan was previously provided in a letter from Paul Duke, PSEG, to USNRC, "Decommissioning Funding Plan for Independent Spent Fuel Storage Installations," dated December 17, 2015. The detailed cost estimate was updated in 2018 and is provided below with an escalation factor to account for the expansion of the Peach Bottom ISFSI and cost escalated 3% annually to 2020 dollars. The value stated is based on one-half of the amount identified in the table below prorated to 50% PSEG ownership of Peach Bottom. The estimate is common for both Peach Bottom Units.

LR-N21-0015
Attachment 6

Peach Bottom Atomic Power Station									
ISFSI Decommissioning Cost Estimate									
(thousands of 2020 dollars)									
Activity Description	Removal Costs	Packaging Costs	Transport Costs	LLRW Disposal Costs	Other Costs	Total Costs	Burial Volume Class A (cubic feet)	Craft Manhours	Oversight and Contractor Manhours
Decommissioning Contractor									
Planning (characterization, specs and procedures)	-	-	-	-	810	810	-	-	2,496
Decontamination (activated disposition)	482	406	3,647	5,037	-	9,572	117,947	5,286	-
License Termination (radiological surveys)	-	-	-	-	3,398	3,398	-	24,585	-
Subtotal	482	406	3,647	5,037	4,208	13,780	117,947	29,871	2,496
Supporting Costs									
NRC and NRC Contractor Fees and Costs	-	-	-	-	1,099	1,099	-	-	2,464
Insurance	-	-	-	-	241	241	-	-	-
Property taxes	-	-	-	-	751	751	-	-	-
Security Staff Cost	-	-	-	-	650	650	-	-	10,683
Utility Staff Cost	-	-	-	-	775	775	-	-	8,104
Subtotal	-	-	-	-	3,516	3,516	-	-	21,251
Total (w/o contingency)	482	406	3,647	5,037	7,724	17,297	117,947	29,871	23,747
Total (w/25% contingency)	602	508	4,559	6,296	9,655	21,621			