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U. S. Nuclear Regulatory Commission
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December 17, 2012

**AMENDED SUSQUEHANNA STEAM ELECTRIC STATION (SSES)
DECOMMISSIONING FUNDING PLAN FOR THE Docket Nos. 50-387
INDEPENDENT SPENT FUEL STORAGE INSTALLATION and 50-388**

Allegheny Electric Cooperative, Inc. (Allegheny) is submitting the enclosed Decommissioning Funding Plan for Allegheny's 10 percent proportionate share of the SSES Independent Spent Fuel Storage Installation (ISFSI) in accordance with 10 CFR 72.30(b), based on Allegheny's understanding of the NRC's regulations effective December 17, 2012. Enclosure 1 addresses each of the six criteria contained in 10 CFR 72.30(b) and references Enclosure 2, which provides details concerning the ISFSI decommissioning cost estimate that was prepared by TLG Services, Inc.

Should you have any questions or require additional information, please contact me, at (717) 233-5704.

I hereby certify that to the best of my knowledge and belief that the foregoing is true and correct.

Executed on: 1/18/2013

A handwritten signature in black ink, appearing to read "Craig A. Colantoni".

Craig A. Colantoni
Vice President, Finance & Accounting

Enclosure 1: Decommissioning Funding Plan
Enclosure 2: Decommissioning Cost Estimate

Copy:

Mr. W. M. Dean, NRC Region I Administrator

Mr. P. W. Finney, NRC Sr. Resident Inspector

Mr. J. A. Whited, NRC Project Manager

Mr. L. J. Winker, PA DEP/BRP

Enclosure 1

Decommissioning Funding Plan

Allegheny Susquehanna Decommissioning Funding Plan for the Independent Spent Fuel Storage Installation

10 CFR 72.30(b) requires each holder of, or applicant for, a license under Part 72 to submit for NRC review and approval a decommissioning funding plan (DFP). Allegheny provides the following information required by 10 CFR 72.30(b) to be included in the DFP:

Requirement 1:

“(1) Information on how reasonable assurance will be provided that funds will be available to decommission the ISFSI or MRS.”

Information for Requirement 1:

Pursuant to 10 CFR 72.30(e)(5), since Allegheny is a power reactor licensee under 10 CFR 50, Allegheny utilizes the applicable methods of 10 CFR 50.75 to provide financial assurance associated with its 10 percent ownership of the SSES Independent Spent Fuel Storage Installation (ISFSI).

Requirement 2:

“(2) A detailed cost estimate for decommissioning, in an amount reflecting:

(i) The cost of an independent contractor to perform all decommissioning activities;

(ii) An adequate contingency factor; and

(iii) The cost of meeting the § 20.1402 of this chapter criteria for unrestricted use, provided that, if the applicant or licensee can demonstrate its ability to meet the provisions of § 20.1403 of this chapter, the cost estimate may be based on meeting the § 20.1403 criteria.”

Information for Requirement 2:

This information is included in the report in Enclosure #2, which summarizes all dollar values at 100 percent of the SSES facilities. Allegheny's proportionate share of each the dollar values included in the report is 10 percent of the total.

Requirement 3:

“(3) Identification of and justification for using the key assumptions contained in the DCE.”

Information for Requirement 3:

This information is included in the report in Enclosure 2.

Requirement 4:

“(4) A description of the method of assuring funds for decommissioning from paragraph (e) of this section, including means for adjusting cost estimates and associated funding levels periodically over the life of the facility.”

Information for Requirement 4:

The decommissioning cost estimate will be adjusted as necessary every three years, as required by 10 C.F.R. § 72.30(c). As indicated in the information for Requirement 1, Allegheny utilizes the applicable methods of 10 CFR 50.75 to provide financial assurance associated with its ownership share of the SSES Independent Spent Fuel Storage Installation (ISFSI). Allegheny adjusts its 10 percent proportionate share of the amount of financial assurance required by the applicable paragraphs of 10 CFR 50.75 annually and will make further adjustment as required by 10 CFR 50.75(f) at or about five years prior to the projected end of reactor operations.

Requirement 5:

“(5) The volume of onsite subsurface material containing residual radioactivity that will require remediation to meet the criteria for license termination.”

Information for Requirement 5:

This information is included in the report in Enclosure 2.

Requirement 6:

“(6) A certification that financial assurance for decommissioning has been provided in the amount of the cost estimate for decommissioning.”

Information for Requirement 6:

Allegheny hereby certifies that financial assurance has been provided for decommissioning the SSES site in an amount that meets or exceeds its 10 percent ownership share of the amount required by applicable paragraphs of 10 CFR 50.75, which pursuant to 10 CFR 72.30(e)(5) provides the requisite financial assurance for Allegheny's share of the ISFSI decommissioning cost.

Enclosure 2

Decommissioning Cost Estimate

10 CFR 72.30 ISFSI Decommissioning Cost Estimate

1. Background and Introduction

The Nuclear Regulatory Commission (NRC) issued its final rule on Decommissioning Planning on June 17, 2011,^[1] with the rule becoming effective on December 17, 2012. Subpart 72.30, "Financial assurance and recordkeeping for decommissioning," requires that each holder of, or applicant for, a license under this part must submit for NRC review and approval a decommissioning funding plan that contains information on how reasonable assurance will be provided that funds will be available to decommission the Independent Spent Fuel Storage Installation (ISFSI).

In accordance with the rule, this letter provides a detailed cost estimate for decommissioning the ISFSI at Susquehanna Steam Electric Station (Susquehanna) in an amount reflecting:

1. The work is performed by an independent contractor;
2. An adequate contingency factor; and
3. Release of the facility and dry storage systems for unrestricted use, as specified in 10 CFR Part 20.1402

This letter also provides:

1. Identification of the key assumptions contained in the cost estimate; and
2. The volume of onsite subsurface material containing residual radioactivity, if any, that will require remediation to meet the criteria for license termination.

2. Spent Fuel Management Strategy

The operating licenses for the two Susquehanna units are currently set to expire on July 16, 2042 and March 22, 2044, respectively. Approximately 19,672 spent fuel assemblies are currently projected to be generated as a result of plant operations through the license expiration dates. Because of the breach by the Department of Energy (DOE) of its contract to remove fuel from the site, an ISFSI has been constructed and spent fuel transferred to dry storage modules located on the ISFSI, to support continued plant operations. It is likely, based upon the current projection of the DOE's ability to remove spent fuel from the site, that the current ISFSI will be expanded to support continued

¹ U.S. Code of Federal Regulations, Title 10, Parts 20, 30, 40, 50, 70 and 72 "Decommissioning Planning," Nuclear Regulatory Commission, Federal Register Volume 76, Number 117 (p 35512 et seq.), June 17, 2011

operations and decommissioning. The ISFSI is operated under a Part 50 General License (in accordance with 10 CFR 72, Subpart K^[2]).

All spent fuel for the entire operating life of the plant is expected to be packaged in dry storage containers (DSCs), including spent fuel assemblies in the spent fuel pool at the time of final shutdown. Transferring the spent fuel from the pools to the ISFSI will permit decontamination and dismantling of the spent fuel pool systems and fuel pool areas or result in reduced operating expenses should the station be placed into a SAFSTOR dormancy configuration.

Completion of the ISFSI decommissioning process is dependent upon the DOE's ability to remove spent fuel from the site. However, with no progress by DOE in the removal of spent fuel from commercial generating sites, PPL Susquehanna's current spent fuel management plan, for purposes of this analysis, assumes "just-in-time" acceptance, i.e., the DOE will be able to complete the transfer of spent fuel so as not to impede a deferred decommissioning scenario (SAFSTOR) and the termination of the operating licenses within the required 60 year period (from the cessation of operations). To achieve this objective, based upon the oldest fuel receiving the highest priority,^[3] and an annual maximum rate of transfer of 3,000 metric tons of uranium/year,^[4] DOE would commence pickup of spent fuel from Susquehanna by 2082, with the completion of spent fuel receipt by year 2102.

PPL's position is that the DOE has a contractual obligation to accept the spent fuel earlier than the projections set out above consistent with its contract commitments. No assumption made in this study should be interpreted to be inconsistent with this claim.

3. ISFSI Decommissioning Strategy

At the conclusion of the spent fuel transfer process to DOE the ISFSI will be promptly decommissioned (similar to the power reactor DECON alternative). In this estimate the ISFSI decommissioning is considered an independent project, regardless of the decommissioning alternative identified for the nuclear power plant.

² U.S. Code of Federal Regulations, Title 10, Part 72, Subpart K, "General License for Storage of Spent Fuel at Power Reactor Sites."

³ U.S. Code of Federal Regulations, Title 10, Part 961.11, Article IV – Responsibilities of the Parties, B. DOE Responsibilities, 5.(a) ... DOE shall issue an annual acceptance priority ranking for receipt of SNF and/or HLW at the DOE repository. This priority ranking shall be based on the age of SNF and/or HLW as calculated from the date of discharge of such materials from the civilian nuclear power reactor. The oldest fuel or waste will have the highest priority for acceptance, except as ..."

⁴ "Acceptance Priority Ranking & Annual Capacity Report," DOE/RW-0567, July 2004.

4. ISFSI Description

The design and capacity of the Susquehanna ISFSI is based upon a NUHOMS® dry storage system. The NUHOMS® system is comprised of a dry storage canister (DSC), with either a 52 or 61 spent fuel assembly capacity, and a horizontal storage module (HSM), Model 102. The DSCs are assumed to be transferred directly to the DOE and not returned to the station. Some of the remaining HSMs are assumed to have residual radioactivity due to some minor level of neutron-induced activation of steel components as a result of the long-term storage of the spent fuel. The cost to dispose of material with residual radioactivity, and verify that the remaining facility and surrounding environs meet the NRC's radiological limits established for unrestricted use, form the basis of the ISFSI decommissioning estimate.

PPL Susquehanna's current spent fuel management plan for the Susquehanna spent fuel would result in approximately 327 HSMs (27 DSCs containing 52 assemblies each and 300 DSCs containing a nominal 61 assemblies per DSC) being in position on the storage pad at the site after all spent fuel has been removed from the spent fuel pools. This represents 100% of the total spent fuel projected to be generated during the currently licensed operating period.

In addition to the spent fuel HSMs located on the ISFSI pad after shutdown there are projected to be additional HSMs that are expected to be used for Greater-than-Class-C (GTCC) storage. The HSMs used for the GTCC canisters (estimated quantity of 4 per unit) are not expected to have any interior contamination or residual activation and can be reused or disposed of by conventional means after a final status survey.

Table 1 provides the significant quantities and physical dimensions used as the basis in developing the ISFSI decommissioning estimate.

5. Key Assumptions / Estimating Approach

The decommissioning estimate is based on the configuration of the ISFSI expected after all spent fuel and GTCC material has been removed from the site. The configuration of the ISFSI is based on the Susquehanna units operating until the end of their current licenses, July 16, 2042 and March 22, 2044, respectively, and the assumptions associated with DOE's spent fuel acceptance, as previously described.

For purposes of this analysis the current pad (221 feet by 224 feet) will be expanded to accommodate the 335 modules (including the 8 modules for storing GTCC).

The dry storage vendor, Transnuclear, Inc., does not expect the horizontal storage modules to have any interior or exterior radioactive surface contamination.⁵ Any neutron

⁵ Updated Final Safety Analysis Report for the Standardized NUHOMS® Horizontal Modular Storage System for Irradiated Nuclear Fuel, Transnuclear Inc., NUH-003, Rev. 12, at page 3.5-1

activation of the steel and concrete is expected to be extremely small.^[6] This assumption is adopted for this analysis.

The decommissioning estimate is based on the premise that some of the DSC support structure within some of the HSMs will contain low levels of neutron-induced residual radioactivity that would necessitate remediation at the time of decommissioning. As an allowance, 26 of the 327 HSMs are assumed to be affected, i.e., contain residual radioactivity. The allowance quantity is based upon the number of DSCs required for the final core off-load (i.e., 764 offloaded assemblies/unit, 61 assemblies per DSC) which results in a total of 13 HSMs/unit or 26 total that contain residual radioactivity. It is assumed that these are the final HSMs offloaded; consequently they have the least time for radioactive decay of the neutron activation products.

It is not expected that there will be any residual contamination left on the concrete ISFSI pad. Therefore, it is assumed for this analysis that the ISFSI pad will not be contaminated. As such, only verification surveys are included for the pad in the decommissioning estimate.

There is no known^[7] subsurface material in the proximity of the ISFSI containing residual radioactivity that will require remediation to meet the criteria for license termination.

Decommissioning is assumed to be performed by an independent contractor. As such, essentially all labor, equipment, and material costs are based on national averages, i.e., costs from national publications such as R.S. Means' Building Construction Cost Data (adjusted for regional variations), and laboratory service costs are based on vendor price lists. Those craft labor positions that are expected to be provided locally, are consistent with fully burdened contractor labor rates used in the most recently developed Susquehanna decommissioning cost estimate, escalated to 2012 dollars. PPL, as licensee, will oversee the site activities; the estimate includes PPL's labor and overhead costs.

Low-level radioactive waste packaging, transport and disposal costs are based on rates consistent with the most recently developed decommissioning cost estimate (year 2010 dollars), escalated to 2012 dollars.

Contingency has been added at an overall rate of 25%. This is consistent with the contingency evaluation criteria referenced by the NRC in NUREG-1757.^[8]

⁶ Ibid. at page 9.6-1

⁷ Susquehanna Radiation Protection Manager

⁸ "Consolidated Decommissioning Guidance, Financial Assurance, Recordkeeping, and Timeliness," U.S. Nuclear Regulatory Commission's Office of Nuclear Material Safety and Safeguards, NUREG-1757, Volume 3, Revision 1, February 2012

Costs are reported in 2012 dollars and based upon a decommissioning analysis prepared for Susquehanna in 2010. Activity costs originally reported in 2010 dollars have been escalated to 2012 dollars using the Consumer Price Index, Services.^[9]

The estimate is limited to costs necessary to terminate the ISFSI's NRC license and meet the §20.1402 criteria for unrestricted use. Disposition of released material and structures is outside the scope of the estimate.

6. Cost Estimate

The estimated cost to decommission the ISFSI and release the facility for unrestricted use is provided in Table 2. The cost has been organized into three phases, including:

- An initial planning phase - empty HSMs are characterized and the specifications and work procedures for the decontamination developed.
- The remediation phase - material with residual radioactivity is removed, packaged in certified waste containers, transported to the low-level waste site, and disposed of at low-level waste.
- The final phase - license termination surveys, independent surveys are completed, and an application for license termination submitted.

In addition to the direct costs associated with a contractor providing the decommissioning services, the estimate also contains costs for the NRC (and NRC contractor to perform the verification survey), PPL's oversight staff, site security (industrial), and other site operating costs.

For estimating purposes it is conservatively assumed that all expenditures will be incurred in the year 2102, the year following all spent fuel removal.

⁹ Bureau of Labor Statistics, Consumer Price Index - All Urban Consumers, Services, Series ID: CUUR000SAS

Table 1
Significant Quantities and Physical Dimensions

ISFSI Pad

Item	Length (ft)	Width (ft)	Residual Radioactivity
Current ISFSI Pad (nominal dimensions)	221	224	No

ISFSI Horizontal Storage Module – Model 102

Item	Value	Notes (all dimensions are nominal)
Outside Height (inches)	180	Without vent cover
Outside Length (inches)	238	Without shield walls
Outside Width (inches)	116	Without shield walls
Quantity (total)	335	Spent Fuel (327) + GTCC (8)
Quantity (with residual radioactivity)	26	Equivalent to the number of HSMs used to store last complete core offload)
HSM Internal Steel with Residual Radioactivity (pounds)	134,600	
Low-Level Radioactive Waste (cubic feet)	3,005	
Low-Level Radioactive Waste (packaged density) (lbs/cubic feet)	47	Average weight density

Other Potentially Impacted Items

Item	Value	Notes
Number of HSMs used for GTCC storage	8	No residual radioactivity

Table 2
ISFSI Decommissioning Costs¹ and Waste Volumes

	(thousands, 2012 dollars)						Waste Volume (ft ³)	Person-Hours		
	Removal	Packaging	Transport	Disposal	Other	Total		Contractor	Licensee	NRC / NRC Contractor
Decommissioning Contractor										
Planning (characterization, specs and procedures)	-	-	-	-	517	517	-	25,530	-	-
Remediation (activated metal removal)	1,009	15	35	621	222	1,902	3,005	-	-	-
License Termination (radiological surveys)	-	-	-	-	2,626	2,626	-	23,970	-	-
Subtotal	1,009	15	35	621	3,364	5,044	3,005	49,500	-	-
Supporting Costs										
NRC and NRC Contractor Fees and Costs	-	-	-	-	265	265	-	-	-	776
Insurance	-	-	-	-	169	169	-	-	-	-
Security (industrial)	-	-	-	-	177	177	-	6,234	-	-
PPL Oversight Staff	-	-	-	-	345	345	-	4,730	-	-
Subtotal	-	-	-	-	956	956	-	10,964	-	776
Total (w/o contingency)	1,009	15	35	621	4,320	5,999	3,005	60,464	-	776
Total (w/25% contingency)	1,261	18	44	777	5,400	7,499				

Note 1: for funding planning purposes decommissioning costs can be assumed to be incurred in year 2102