



**Pacific Gas and
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PG&E Letter DCL-19-081

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

10 CFR 50.54(bb)

Docket No. 50-275, OL-DPR-80
Docket No. 50-323, OL-DPR-82
Diablo Canyon Power Plant, Units 1 and 2
Diablo Canyon Power Plant, Units 1 and 2 Irradiated Fuel Management Plan

Reference:

1. PG&E Letter DCL-18-096, "Certification of Permanent Cessation of Power Operations," dated November 27, 2018 (ML18331A553)
2. PG&E Letter DCL-19-020, "Decommissioning Funding Report for Diablo Canyon Power Plant, Units 1 and 2," dated March 26, 2019 (ML19094B782)
3. PG&E Letter DCL-19-091, "Letter to Inform the NRC of the Submittal Date for the Post-Shutdown Decommissioning Activities Report, Site-Specific Decommissioning Cost Estimate, and Irradiated Fuel Management Plan," dated October 31, 2019 (ML19304C675)

Dear Commissioners and Staff:

In Reference 1, Pacific Gas and Electric Company (PG&E) notified the NRC of the intent to permanently cease power operations at Diablo Canyon Power Plant (DCPP) Units 1 and 2 upon expiration of the operating licenses. In accordance with 10 CFR 50.54(bb), five years before expiration of the reactor operating license, licensees shall submit written notification to the NRC for its review and preliminary approval of the program by which the licensee intends to manage and provide funding for the management of all irradiated fuel following permanent cessation of operation of the reactor until title to the irradiated fuel and possession of the fuel is transferred to the Secretary of Energy for its ultimate disposal in a repository. The DCPP Units 1 and 2 Irradiated Fuel Management Plan (IFMP) is included in the Enclosure.

The IFMP represents PG&E's current plans and is subject to change. PG&E will notify the NRC of any significant changes in the IFMP, as required by 10 CFR



50.54(bb). Financial assurance information will be provided on an annual basis as required by 10 CFR 50.75 (f)(1). Financial assurance reports for DCPD Units 1 and 2 have been previously provided to the NRC on a biennial basis as required by 10 CFR 50.75(f)(1) (Reference 2).

In Reference 3, PG&E informed the NRC of a delay in submitting the Post-Shutdown Decommissioning Activities Report, Site-Specific Decommissioning Cost Estimate, and the IFMP. The reason for the delay was to allow additional time for external outreach and engagement associated with these key decommissioning submittals. PG&E has engaged with over 40 entities to discuss the submittals, including federal, state and local officials, key community leaders, the Diablo Canyon Decommissioning Engagement Panel, interested parties/intervenors, employees, and local media. This submittal satisfies the commitment to submit the IFMP by December 6, 2019, as documented in the Enclosure of Reference 3.

PG&E makes no new or revised regulatory commitments (as defined in NEI 99-04) in this letter.

If you have any questions or require additional information, please contact Mr. Philippe Soenen at (805) 459-3701.

Sincerely,

James M. Welsch
Senior Vice President Generation and Chief Nuclear Officer

Enclosure

cc: Diablo Canyon Distribution
cc/enc: Scott A. Morris, NRC Region IV Administrator
Christopher W. Newport, NRC Senior Resident Inspector
Gonzalo L. Perez, California Department of Health Services
Balwant K. Singal, NRC Senior Project Manager

**Diablo Canyon Power Plant Units 1 and 2
Irradiated Fuel Management Plan, Revision 0**

I. Background and Introduction

On November 27, 2018, Pacific Gas and Electric Company (PG&E) notified the NRC of the intent to permanently cease power operations at Diablo Canyon Power Plant (DCPP) Units 1 and 2 upon expiration of the operating licenses (Reference 1). The operating license for DCPP Unit 1 expires on November 2, 2024, and the operating license for DCPP Unit 2 expires on August 26, 2025.

In accordance with 10 CFR 50.54(bb), licensees are required to submit a plan for the management of irradiated fuel (spent nuclear fuel (SNF)) until title and possession of the fuel is transferred to the Secretary of Energy for its ultimate disposal in a repository. The Irradiated Fuel Management Plan (IFMP) is required to be submitted to the NRC either five years before expiration of the operating license or within two years following permanent cessation of operations, whichever occurs first. Therefore, the DCPP Units 1 and 2 plans are required to be submitted five years before the expiration of the operating licenses. This submittal satisfies the requirement to provide the IFMP for DCPP Units 1 and 2 five years before the expiration of the operating licenses.

PG&E has prepared a site-specific decommissioning cost estimate (SSDCE) for DCPP Units 1 and 2 (Reference 2). The SSDCE identifies the details, schedules, and costs of spent fuel management activities associated with the IFMP, along with license termination and site restoration activities and costs. The SSDCE and Post-Shutdown Decommissioning Activities Report (Reference 3) are being submitted concurrent with the IFMP. The assumptions regarding the United States Department of Energy (US DOE) acceptance of irradiated fuel is consistent with the Decommissioning Cost Estimate submitted to the NRC in the most recent DCPP Decommissioning Funding Report (Reference 7). The DCPP Units 1 and 2 SSDCE and this IFMP are based on the assumption that the US DOE would commence transporting SNF from DCPP in 2038.

II. Irradiated Fuel Management Strategy

Spent Fuel Pool Storage

The initial interim storage of DCPP Units 1 and 2 SNF will be “wet storage” in each unit’s respective spent fuel pool (SFP). The SFPs are located in the fuel handling building (FHB), which encloses the two fuel handling areas of Unit 1 and Unit 2 and is a shared structure that contains the SFPs, the fuel handling cranes, fuel racks, and related equipment. SFP equipment in the FHB must be operated and maintained properly to provide the capability to safely store SNF, remove decay heat generated by SNF, and provide shielding from the radiation emitted by SNF. The necessary operational activities involve the monitoring of system parameters, periodic testing of important equipment functions, performing inspections, and operating and maintaining equipment and facility security. The SFP facility

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equipment requiring maintenance includes instrumentation, pumps, valves, heat exchangers, filters, ventilation fans, ducting, and dampers.

Approximately 18 months after shutdown, the SFPs will be isolated from the normal support systems and those systems will be replaced by a spent fuel pool island (SFPI). The implementation of a SFPI will allow use of a smaller system that discharges heat to the ambient air outside of the FHBs rather than relying on existing plant systems. The implementation of the SFPI requires a smaller footprint, which facilitates early system abandonment and parallel decommissioning activities.

Transfer and Storage at the Independent Spent Fuel Storage Installation

All irradiated fuel in the DCPD Units 1 and 2 SFPs will be transferred to dry storage at the Diablo Canyon Independent Spent Fuel Storage Installation (DC ISFSI). The DC ISFSI is licensed under a Part 72 site-specific license. In addition to SNF, the nuclear industry stores fuel debris, damaged SNF assemblies, and Greater-Than-Class-C (GTCC) waste in dry cask storage systems. Consistent with the industry, PG&E plans to store these items in dry cask storage systems. The current dry cask storage system utilized at the DC ISFSI uses the Multi-Purpose Canister (MPC)-32, HI-TRAC 125D transfer cask, and HI-STORM 100SA overpack. The DC ISFSI Technical Specifications limit the materials that can be stored in the MPC-32. Specifically, the MPC-32 is currently allowed to contain only intact SNF assemblies and non-fuel hardware with specific dimensions, enrichment, and cladding material. Fuel debris, damaged SNF assemblies, and GTCC waste cannot be stored in the MPC-32 under current DC ISFSI Technical Specifications. PG&E plans to obtain NRC approval to store these items at the DC ISFSI. This plan is consistent with the assumptions included in the SSDCE. Dry storage of these items is also considered interim storage pending transfer to the US DOE.

The DC ISFSI is a separately licensed facility and is located approximately 0.22 miles northeast of the Unit 1 Containment Building (ISFSI/Containment center-to-center) at an elevation of approximately 310 feet situated directly on bedrock. It consists of a security boundary and concrete storage pads that securely anchor the casks storing the SNF. The current dry cask storage system at the DC ISFSI is comprised of the following:

- HI-STORM 100 System
 - an MPC for SNF capable of storing up to 32 SNF assemblies
 - a dry cask storage overpack for SNF, referred to as a HI-STORM 100SA
 - a transfer cask, referred to as a HI-TRAC
- a low-profile transporter
- a vertical cask transporter
- cask transfer facility

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To support Decommissioning of DCPD Units 1 and 2, the DC ISFSI will contain the following in the future:

- non-fuel waste storage canisters for GTCC waste (similar to an MPC)
- non-fuel waste storage overpack dry casks or storage modules for GTCC waste
- an MPC capable of storing SNF (intact and damaged) and fuel debris
- a dry cask storage overpack capable of storing SNF (intact and damaged) and fuel debris

The dry cask storage system provides radiation shielding, heat transfer capability, missile protection, and protection against natural phenomena and accidents. The DC ISFSI Updated Final Safety Analysis Report provides additional information related to the current design of the DC ISFSI (Reference 5).

In order to provide the capability to safely and securely transfer SNF and GTCC waste to the DC ISFSI, transfer equipment must be operated and maintained properly, and security forces deployed. The security during SNF transfer operations consists of maintaining those measures required by the NRC that are necessary to control personnel, vehicles, and materials during the transfers of SNF and GTCC waste from the power plant to the DC ISFSI in order to ensure adequate protection of the public health and safety and the environment.

Currently, there are 1,856 SNF assemblies stored at the DC ISFSI. The SNF assemblies are stored within 58 casks with 32 assemblies per cask. As of August 2019, there were 828 and 768 SNF assemblies stored in the Unit 1 and 2 SFPs, respectively. Assuming no loading campaigns between now and the end of operations, PG&E anticipates at the time of shut down, there will be approximately 1,261 and 1,281 SNF assemblies stored in the Unit 1 and 2 SFPs, respectively. There will be up to a total of 138 casks of SNF stored at the DC ISFSI once all transfers to the ISFSI are complete. While the DC ISFSI with use of the current dry cask storage system has adequate capacity for all fuel-related storage (including fuel debris and damaged SNF assemblies), it does not have capacity for GTCC waste. The SSDCE includes costs for designing, licensing, and constructing an additional storage pad at the DC ISFSI to address these additional GTCC waste capacity requirements. PG&E plans to store up to 10 casks of GTCC waste at the DC ISFSI.

In response to stakeholder and regulatory feedback during development of the SSDCE, PG&E determined the SNF can be transferred to the DC ISFSI within seven years of Unit 2 shutdown with implementation of a modified or new dry cask storage design. Therefore, the costs included in this IFMP and the SSDCE assume that all SNF will be transferred to the DC ISFSI seven years after the permanent cessation of operations. Based on this assumption, Table 2a provides the details of the SNF inventory in the SFPs until transfer to the DC ISFSI is complete.

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PG&E is planning to issue a request for proposal to implement a modified or new dry cask storage design, to address the following:

- storage of fuel debris, damaged fuel and GTCC waste
- reduce the required SFP cooling time to allow safe transfer to the DC ISFSI as soon as possible and not to exceed 7 years after the expiration of the Unit 2 operating license¹

PG&E will submit for NRC approval, the required licensing documentation associated with implementation of a modified or new dry cask storage system. Actual changes to the schedule for transferring SNF to the DC ISFSI (other than the seven years assumed in the SSDCE) will be assessed for overall decommissioning cost impacts. As required by 10 CFR 50.54(bb), PG&E will notify the NRC of any significant changes to the IFMP.

In addition to the security, operations, and maintenance (including aging management activities) for the dry casks during storage, ISFSI operations consists of the activities required to prepare and plan for safe transfer of the canisters containing SNF and GTCC waste to an off-site licensed facility. PG&E will obtain NRC approval of renewals to the DC ISFSI license as required.

As decommissioning progresses and structures, systems, and components are removed from the plant, PG&E will ensure compliance with the applicable regulatory requirements for SNF storage and compliance with the DC ISFSI license, Technical Specifications, and licensing basis requirements associated with moving or unloading a SNF storage system.

Transfer to US DOE

The US DOE's repository program assumes that SNF allocations will be accepted for disposal from the nation's commercial nuclear plants, with limited exceptions, in the order (the "queue") in which it was discharged from the reactor (Reference 6). PG&E's current SNF management plan for the DCPD SNF is based in general upon: (1) a 2031 start date for US DOE initiating transfer of commercial SNF to a federal facility with DCPD SNF transfer beginning in 2038, and (2) completion of SNF and GTCC waste receipt by year 2067 (Reference 4). The completion date is based upon the US DOE's generator allocation/receipt schedules which assume the oldest fuel receives the highest priority for DOE acceptance. In accordance with the annual allotment in the 10 CFR 961 standard contract, PG&E will be able to load a maximum of five full MPCs into five DOE-supplied transportation casks each year. Table 2b provides a detailed shipping schedule for DCPD Units 1 and 2.

¹ The current dry cask storage design in use at the DC ISFSI is limited by the ISFSI Technical Specifications to a minimum cooling of approximately 10 years for the amount of burnup of the DCPD SNF.

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The total costs associated with spent fuel management activities included in each decommissioning phase, including start and end dates for each period are identified in Table 1. Table 3 shows the major activities associated with spent fuel management during each of the decommissioning phases.

III. Financial Assurance

In accordance with 10 CFR 50.54(bb), the IFMP is required to show how the licensee intends to provide funding for the management of all irradiated fuel.

PG&E's Nuclear Decommissioning Trust Fund is regulated by both the California Public Utilities Commission (CPUC) and the NRC. Financial assurance reports for DCPD Units 1 and 2 have been provided to the NRC on a biennial basis as required by 10 CFR 50.75(f)(1) (Reference 7). In addition, reports regarding ISFSI costs and decommissioning funding assurance for these costs are summarized in triennial reports as required by 10 CFR 72.30(c) (Reference 8).

The SSDCE (Reference 2) is being submitted to the NRC concurrent with the IFMP. The SSDCE is based on decommissioning and the termination of the 10 CFR Part 50 license by 2038, approximately 13 years following the permanent cessation of operations and termination of the Part 72 license in 2072. Tables 5-1 (Unit 1) and 5-2 (Unit 2) in the SSDCE summarize the estimated annual spending for all decommissioning activities (license termination, spent fuel management, and site restoration (Non-NRC Scope)), in 2019 dollars. The information included in Table 1 provides costs associated with spent fuel management during each of the decommissioning phases.

As of June 30, 2019, the market values of the DCPD Units 1 and 2 decommissioning trust fund were \$1,459.3 million and \$1,908.7 million, respectively. Based on the SSDCE, PG&E estimates that the license termination decommissioning costs are about \$1,581.3 million for DCPD Unit 1 and \$1,578.4 million for Unit 2 in 2019 dollars. The estimated costs for site restoration of the facilities is \$738.3 million and spent fuel management costs are \$1,245.9 million. PG&E submitted a decommissioning cost estimate to the CPUC in December of 2018 (Reference 4). PG&E is requesting authorization to collect the additional funds necessary to fully fund the total estimated costs for radiological decommissioning, site restoration, and spent fuel management.

The annual collections and rates of return assumed for funding projections are included in Enclosure 1 of the most recent Decommissioning Funding Report for DCPD Units 1 and 2 (Reference 7). Decommissioning trust fund earnings are projected using Russell's 20-year return forecast for equity and fixed income. Decommissioning costs are escalated using the PG&E union contract and non-represented employee General Rate Case forecast, a weighted Gross Domestic Product implicit price deflator, Employment Cost Index for total private compensation, and an average growth rate of Pressurized Water Reactor burial

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costs from NUREG-1307 (Reference 10). The rates used for escalation are shown in Table 4-6 of the SSDCE (Reference 2).

IV. Regulatory Activities

This IFMP assumes that PG&E will make withdrawals from the nuclear decommissioning trust (NDT) for spent fuel management purposes. PG&E has collected funds from ratepayers and accumulated funds in the NDT for the purpose of funding the three primary categories of costs: (1) license termination; (2) spent fuel management; and (3) site restoration. As indicated above, PG&E is requesting collection of additional ratepayer monies to fully fund these three categories of decommissioning.

In addition, on September 10, 2019 (Reference 9), NRC granted exemptions from 10 CFR 50.82(a)(8)(ii) and 10 CFR 50.82(a)(8)(i)(A) to allow PG&E to withdraw \$187.8 million (2017 dollars) from the Diablo Canyon NDT for decommissioning planning between now and permanent cessation of operations, instead of three percent of the generic amount specified in 10 CFR 50.75. A portion of the funds will be used for pre-planning activities associated with spent fuel management.

In accordance with 10 CFR 50.82(a)(8)(vii), PG&E will annually submit to the NRC by March 31st a report on the status of the funding for managing spent fuel. The report will include, current through the end of the previous calendar year, the amount of funds accumulated to cover the cost of managing the SNF, the projected cost of managing SNF until title to the fuel and possession of the fuel is transferred to the Secretary of Energy, and if the funds accumulated do not cover the projected cost, a plan to provide additional funding assurance using one of the methods allowed by NRC regulations.

As described in Section II, PG&E will submit for NRC approval, the required licensing documentation associated with implementation of a modified or new dry cask storage system. In addition, PG&E will obtain NRC approval of renewals to the DC ISFSI license as required.

V. References

1. PG&E Letter DCL-18-096, "Certification of Permanent Cessation of Power Operations," dated November 27, 2018 (ADAMS Accession No. ML18331A553).
2. PG&E Letter DCL-19-082, "Site-Specific Decommissioning Cost Estimate for Diablo Canyon Power Plant," Units 1 and 2, dated December 4, 2019.
3. PG&E Letter DCL-19-077, "Post-Shutdown Decommissioning Activities Report for Diablo Canyon Power Plant, Units 1 and 2," dated December 4, 2019.

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4. "Application of Pacific Gas and Electric Company in the 2018 Nuclear Decommissioning Cost Triennial Proceeding." Pacific Gas and Electric Company filed with the California Public Utilities Commission on December 13, 2018.
5. PG&E Letter DIL-18-001, "Biennial Submittal of Diablo Canyon Independent Spent Fuel Storage Installation Updated Final Safety Analysis Report," dated March 7, 2018 (ADAMS Accession No. ML18115A288).
6. 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 ... "
7. PG&E Letter DCL-19-020, "Decommissioning Funding Report for Diablo Canyon Power Plants, Units 1 and 2," dated March 26, 2019 (ADAMS Accession No. ML19094B782).
8. PG&E Letter DIL-18-019, "Diablo Canyon Independent Spent Fuel Storage Installation Decommissioning Funding Plan," dated December 17, 2018 (ADAMS Accession No. ML18351A368).
9. U.S. Nuclear Regulatory Commission, "Diablo Canyon Nuclear Power Plant, Units 1 and 2 – Exemptions from the Requirements of 10 CFR Part 50, Sections 50.82(a)(8)(i)(A) and 50.82(a)(8)(ii) (EPID L-2018-LLE-0023)," dated September 10, 2019 (ADAMS Accession No. ML19163A104).
10. NUREG-1307, Revision 17, "Report on Waste Burial Charges," dated February 2019 (ADAMS Accession No. ML19037A405).

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**Table 1
Summary of Estimated Costs (\$ Thousands) for Diablo Canyon Power Plant Units 1 and 2 Spent Fuel Management Activities**

| Scope Description | A Total Estimate ¹ Nominal / 2019\$ | B 1-Pre Shutdown Planning 12/2010 - 10/2024 | C 2-Power Block Modifications 11/2024 - 4/2027 | D 3-Wet Storage 5/2027 - 6/2032 | E 4-Building Demolition 7/2032 - 4/2035 | F 5-Site Restoration 5/2035 - 12/2038 | G 6-ISFSI Operations 1/2039 - 8/2067 | H 7-ISFSI Restoration 9/2067 - 1/2076 |
|---|---|--|---|---|---|---|--|---|
| Program Management, Oversight, and Fees | \$292,320 | \$8,681 | \$10,940 | \$22,817 | \$11,853 | \$18,001 | \$191,370 | \$28,659 |
| Security Operations | \$581,402 | | \$99,717 | \$222,095 | \$20,296 | \$26,380 | \$212,341 | \$573 |
| Waste/Transportation/Material Management | \$69,267 | | | | | | \$45,154 | \$24,112 |
| Site Infrastructure | \$1,274 | | | | | | \$1,171 | \$103 |
| Spent Fuel Transfer to ISFSI | \$217,371 | | \$141 | \$216,888 | \$60 | | \$282 | |
| Spent Fuel Transfer to DOE | \$26,382 | | | \$3 | \$429 | \$992 | \$21,262 | \$3,697 |
| ISFSI Demolition and Site Restoration | \$57,850 | | | | | | \$5,191 | \$52,659 |
| GRAND TOTAL | \$1,245,867 | \$8,681 | \$110,798 | \$461,803 | \$32,638 | \$45,373 | \$476,771 | \$109,803 |

Note 1: 2010 – 2018 in Nominal Dollars. 2019-2076 in \$2019.

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**Table 2a
Spent Fuel Pool Inventory from Unit 2 Shutdown to All Spent Fuel Assemblies
in Dry Storage**

| Year ¹ | Assemblies in Wet Storage ² | | Assemblies in Dry Storage | | Casks at ISFSI ³ | |
|-------------------|--|------------------|---------------------------|--------|-----------------------------|--------|
| | Unit 1 | Unit 2 | Unit 1 | Unit 2 | Unit 1 | Unit 2 |
| 2025 | 1261 | 1281 | 928 | 928 | 29 | 29 |
| 2026 | 1261 | 1281 | 928 | 928 | 29 | 29 |
| 2027 | 1261 | 1281 | 928 | 928 | 29 | 29 |
| 2028 | 1261 | 1281 | 928 | 928 | 29 | 29 |
| 2029 | 1261 | 1281 | 928 | 928 | 29 | 29 |
| 2030 | 877 | 1281 | 1312 | 928 | 41 | 29 |
| 2031 | 0 | 654 ⁴ | 2189 | 1555 | 69 | 48 |
| 2032 | 0 | 0 | 2189 | 2209 | 69 | 69 |

Note 1 – Inventories provided are as of end of the year.

Note 2 – Actual number of fuel assemblies will depend on final fuel cycle design.

Note 3 – This schedule assumes no additional transfer of fuel assemblies to the ISFSI until after both units are shutdown. Currently, there are 58 casks at the DC ISFSI.

Note 4 – Based on estimated number of fuel assemblies, the last cask for Unit 1 will contain fuel assemblies from Unit 2.

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**Table 2b
Spent Fuel and Greater Than Class C Waste Shipping Schedule
(Assumes Five Casks Shipped Offsite Per Year)**

| Year ¹ | Casks at ISFSI ² | | Cumulative Casks Transferred to DOE | |
|-------------------|-----------------------------|----------------|-------------------------------------|--------|
| | Unit 1 | Unit 2 | Unit 1 | Unit 2 |
| 2037 | 74 | 74 | 0 | 0 |
| 2038 | 69 | 74 | 5 | 0 |
| 2039 | 69 | 69 | 5 | 5 |
| 2040 | 64 | 69 | 10 | 5 |
| 2041 | 64 | 64 | 10 | 10 |
| 2042 | 59 | 64 | 15 | 10 |
| 2043 | 59 | 59 | 15 | 15 |
| 2044 | 54 | 59 | 20 | 15 |
| 2045 | 54 | 54 | 20 | 20 |
| 2046 | 49 | 54 | 25 | 20 |
| 2047 | 49 | 49 | 25 | 25 |
| 2048 | 44 | 49 | 30 | 25 |
| 2049 | 44 | 44 | 30 | 30 |
| 2050 | 39 | 44 | 35 | 30 |
| 2051 | 39 | 39 | 35 | 35 |
| 2052 | 34 | 39 | 40 | 35 |
| 2053 | 34 | 34 | 40 | 40 |
| 2054 | 29 | 34 | 45 | 40 |
| 2055 | 29 | 29 | 45 | 45 |
| 2056 | 24 | 29 | 50 | 45 |
| 2057 | 24 | 24 | 50 | 50 |
| 2058 | 19 | 24 | 55 | 50 |
| 2059 | 19 | 19 | 55 | 55 |
| 2060 | 14 | 19 | 60 | 55 |
| 2061 | 14 | 14 | 60 | 60 |
| 2062 | 9 | 14 | 65 | 60 |
| 2063 | 9 | 9 | 65 | 65 |
| 2064 | 5 ³ | 9 | 69 | 65 |
| 2065 | 5 ³ | 5 ³ | 69 | 69 |
| 2066 | 0 | 5 ³ | 74 | 69 |
| 2067 | 0 | 0 | 74 | 74 |

Note 1 – Inventories provided are as of end of the year.
 Note 2 – Five casks associated with GTCC waste included for each unit.
 Note 3 – GTCC casks for Unit 1 assumed to be shipped in 2066 and Unit 2 assumed to be shipped in 2067.

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**Table 3
Major Spent Fuel Management Costs in Each Decommissioning Phase**

| Period | Period Title | Period Start | Period Finish | Total Cost Attributed to Spent Fuel Management (\$Thousands) | General Description of Activities Associated with Spent Fuel Management |
|--------|--|--------------|---------------|--|--|
| 1 | Pre-Shutdown Planning ¹ | Dec. 2010 | Oct. 2024 | \$8,681 | Staffing, permitting, licensing, scheduling, paper studies, and work planning Design and planning for SFPI during this period |
| 2 | Power Block Modifications ¹ | Nov. 2024 | Apr. 2027 | \$110,798 | Staffing, licensing, and security operations, aging management and storage equipment inspections Installation and operation of the SFPI will be completed during this period |
| 3 | Wet Storage ¹ | May 2027 | Jun. 2032 | \$461,803 | Staffing, licensing, permitting, security operations, cask procurement, spent fuel and GTCC waste transfer to ISFSI, and aging management and storage equipment inspections A new ISFSI Security building will be constructed |
| 4 | Building Demolition | Jul. 2032 | Apr. 2035 | \$32,638 | Staffing, licensing, permitting, security operations, planning for SNF transfer to US DOE, and aging management and storage equipment inspections |
| 5 | Site Restoration | May 2035 | Dec. 2038 | \$45,373 | Staffing, licensing, permitting, security operations, aging management, storage equipment inspections and planning for SNF transfer to US DOE |
| 6 | ISFSI Operations ² | Jan. 2039 | Aug. 2067 | \$476,771 | SNF and GTCC waste storage activities: Staffing, licensing, security operations, aging management and storage equipment inspections |
| | | | | | SNF and GTCC waste US DOE pre-transfer and transfer activities: |

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| Period | Period Title | Period Start | Period Finish | Total Cost Attributed to Spent Fuel Management (\$Thousands) | General Description of Activities Associated with Spent Fuel Management |
|---------------|---------------------|---------------------|----------------------|---|--|
| | | | | | Licensing and permitting associated with transfer of SNF and GTCC waste to an off-site facility, specialized work, tooling and equipment, coordination with offsite facilities, engineering for pre-transfer preparations. |
| 7 | ISFSI Restoration | Sep. 2067 | Jan. 2076 | \$109,803 | Consists of removal of ISFSI structures, permitting, conduct of final radiological surveys for ISFSI license termination, restoration of affected areas, and biological monitoring |

Note 1 – Costs associated with the SFPI and construction of a new security building for the ISFSI were accounted for in the SSDCE under License Termination Costs.

Note 2 – Costs associated with GTCC waste incurred after termination of the Part 50 license are accounted for under spent fuel management.