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UNITED STATES NUCLEAR REGULATORY COMMISSION

PUBLIC WATCHDOGS, a California
501(c)(3) corporation,

Petitioner,

v.

SOUTHERN CALIFORNIA EDISON
COMPANY AND SAN DIEGO GAS
& ELECTRIC COMPANY,

Licensees.

**PUBLIC WATCHDOGS SUPPLEMENT
TO 10 C.F.R. § 2.206 PETITION TO
IMMEDIATELY SUSPEND
DECOMMISSIONING OPERATIONS
AT SAN ONOFRE NUCLEAR
GENERATING STATION UNITS 2 AND
3**

Pursuant to 10 C.F.R. § 2.206 and the Nuclear Regulatory Commission's ("NRC")

1 Management Directive 8.11, Petitioner Public Watchdogs hereby submits this Supplement
2 to its Petition to Immediately Suspend Decommissioning Operations at San Onofre
3 Nuclear Generating Station (“SONGS”) Units 2 and 3, which was submitted to the NRC
4 on September 24, 2019. The purpose of this Supplement is to clarify the issues raised in
5 the Public Watchdogs’ Petition and to provide the Petition Review Board (“PRB”) with
6 supplemental information relevant to the Petition, some of which was not available to
7 Public Watchdogs at the time the Petition was filed nor to the PRB at the time it made the
8 initial decision not to accept the Petition for review.

9 **PRELIMINARY STATEMENT**

10 1. Spent nuclear fuel “poses a dangerous, long-term health and environmental
11 risk. It will remain dangerous for time spans seemingly beyond human comprehension.”
12 *New York v. NRC*, 681 F.3d 471, 474 (D.C. Cir. 2012) (internal quotations omitted).
13 Unfortunately, long-term storage and management of spent nuclear fuel has proven to be
14 an intractable Sisyphean task in the United States. Despite repeated efforts by Congress,
15 federal agencies, and numerous stakeholders to construct a centralized deep geological
16 permanent repository for the country’s ever-growing stockpile of lethal, radioactive spent
17 nuclear fuel, no viable plan currently exists for a permanent storage solution.

18 2. Due to the lack of a permanent repository, the majority of the country’s spent
19 nuclear fuel is stored on site at nuclear power plants. Although there is currently no
20 permanent storage solution or even a viable plan to create one, the NRC routinely permits
21 licensees to implement decommissioning plans and store fuel on-site, in densely populated
22 areas, based on the false assumption that spent nuclear fuel will be removed from on-site
23 storage facilities and transferred to a permanent repository in the relatively near future.
24 *See Exhibit 1.* By permitting licensees to implement these falsely predicated
25 decommissioning and nuclear waste burial plans, the NRC is effectively authorizing
26 licensees to store spent nuclear fuel indefinitely without any plan or strategy for managing
27 or funding such indefinite storage operations. The NRC’s general policy of willful
28 ignorance not only violates its own regulations and policies, but it also equates to a

1 complete abdication of the NRC's paramount statutory obligation to protect public health
2 and safety.

3 3. As explained in Public Watchdogs' Petition, the NRC's policy of willful
4 ignorance has created unique and particularly acute public health and safety risks at
5 SONGS. Licensees are burying spent nuclear fuel in the SONGS Independent Spent Fuel
6 Storage Installation ("ISFSI") pursuant to a decommissioning plan that is predicated on
7 the arbitrary and erroneous assumption that all spent nuclear fuel being stored at SONGS
8 will be accepted by the Department of Energy and transferred to an offsite permanent
9 repository by 2049. Situated a mere 108 feet from one of California's most populated
10 public beaches, only inches above the median high tide level, within an officially
11 designated tsunami inundation zone, and surrounded by active fault lines, the SONGS
12 ISFSI is in the most perilous location possible. To make matters worse, Licensees are
13 burying spent nuclear fuel at SONGS in defective and damaged canisters that are only
14 warranted to last 25 years. By Licensees' own public admissions, technology does not
15 currently exist that would enable Licensees to retrieve these canisters and safely repackage
16 the tons of radioactive spent nuclear fuel contained therein if and when a canister fails or
17 even if routine replacement of the canisters becomes necessary. Furthermore, Licensees
18 have been unable to design or develop an underground monitoring system or Aging
19 Management Plan as required by the "Special Conditions" imposed by the California
20 Coastal Commission nuclear waste burial permit granted October 6, 2015. Thus, the NRC,
21 by its own negligent enforcement, is allowing Licensees to bury one of the most dangerous
22 substances known to human kind, in one of the most dangerous places imaginable, in
23 defective and damaged canisters that cannot be monitored, retrieved, or repaired, all
24 pursuant to a decommissioning plan that is predicated on the knowingly false assumption
25 that all spent nuclear fuel will be removed from SONGS and transferred to a centralized
26 permanent repository in the relatively near future. Despite the grave public health and
27 safety hazards posed by this reckless course of action, Licensees have made clear that they
28 intend to bury all spent nuclear fuel at SONGS as quickly as possible. What's more, the

1 NRC has also made clear that it will neglect to regulate Licensees' violations of federal
2 law, thereby using its regulatory authority to facilitate the hasty and unsafe burial of all
3 spent nuclear fuel at SONGS.

4 4. Since Public Watchdogs filed its Petition, Licensees have publicly admitted
5 that continued storage of spent nuclear fuel at SONGS is not feasible, and that there is
6 currently no viable alternative. In addition, state regulators recently delayed the release
7 of more than \$400 million in decommissioning trust funds, imperiling Licensees' ability
8 to continue its decommissioning operations at all, much less safely. Based on these
9 troubling recent developments, as well as the various public health, safety, and
10 environmental concerns identified in the Petition, Public Watchdogs respectfully requests
11 that the NRC issue an order immediately suspending all decommissioning operations at
12 SONGS, including all spent fuel transfer operations, and requiring Licensees to submit an
13 amended decommissioning plan that properly accounts for the reality that spent nuclear
14 fuel will likely remain buried at SONGS indefinitely.

15 **CLARIFICATION AND SUPPLEMENTATION OF GROUNDS FOR**
16 **IMMEDIATELY SUSPENDING DECOMMISSIONING OPERATIONS**

17 **I. RECENT EVENTS CONFIRM THAT LICENSEES CANNOT ENSURE**
18 **THEIR FINANCIAL ABILITY TO PAY FOR THE TOTAL COST OF**
19 **DECOMMISSIONING AND LONG TERM SPENT FUEL MANAGEMENT.**

20 5. Although the NRC's Generic Environmental Impact Statement ("GEIS") for
21 the long term storage of spent nuclear fuel finds that spent nuclear fuel can be stored on-
22 site for an indefinite period without significant environmental impact, the GEIS does not
23 authorize, license, or otherwise permit licensees to store spent fuel for any length of time.
24 *See* NUREG-2157. Moreover, the GEIS validates that indefinite on-site storage of spent
25 nuclear fuel will require periodic repackaging of spent nuclear fuel and replacement of
26 spent nuclear fuel canisters, as well as long term security to protect the stored spent nuclear
27 fuel from terrorist attack or other radiological sabotage. *Id.*
28

1 6. NRC regulations require licensees to provide assurance that they will have
2 sufficient financial resources to pay for the total cost of decommissioning a nuclear power
3 plant and managing spent nuclear fuel. *See* 10 C.F.R. 50.75, 50.82, and 72.30. As NRC
4 Chairwoman Allison Macfarlane stated in her comments to the Final Rule for the
5 Continued Storage of Spent Nuclear Fuel, there are “significant uncertainties” associated
6 with the indefinite and risky on-site storage of spent nuclear fuel, including “the lack of
7 experience in repeatedly repackaging spent fuel into new storage devices over time,” “the
8 lack of a guarantee that responsible parties would pay for the costs of repackaging over
9 time,” and “unforeseen events in our natural environment and society.” *See Exhibit 2*.
10 Indeed, Chairwoman Macfarlane presciently predicted that “[d]ecommissioned licensees
11 will likely not have sufficient revenue to pay for the reoccurring expenses such as
12 repackaging of spent fuel, construction of dry transfer facilities, and increased security
13 needs assumed in the GEIS.” *Id.*

14 7. At a SONGS Community Engagement Panel on November 21, 2019,
15 Licensees implicitly conceded that indefinite storage of spent nuclear fuel at SONGS is
16 not feasible and they acknowledged that they are working to develop a strategy to relocate
17 the SONGS spent fuel to an offsite storage or disposal facility. *See Exhibit 3*. Although
18 Licensees’ entire decommissioning plan, including their decommissioning cost estimate
19 and irradiated fuel management plan, is predicated on the assumption that spent nuclear
20 fuel will be removed from SONGS by 2049, Licensees acknowledged at the Community
21 Engagement Panel that they have not even identified a receiving site, much less
22 established a viable plan to remove all spent nuclear fuel from SONGS by 2049. *Id.* In
23 other words, Licensees publicly admitted that the fundamental predicate for their entire
24 decommissioning plan is false.

25 8. On December 4, 2019, Licensees sought authorization from the Public
26 Utilities Commission of the State of California (“CPUC”) to disburse more than \$400
27 million from the SONGS decommissioning trust fund to pay for various 2020
28 decommissioning costs, including fuel transfer operations. *See Exhibit 4*. This

1 represented a nearly threefold increase in the amount of funds Licensees' previously
2 estimated would be necessary to perform 2020 decommissioning and spent nuclear fuel
3 transfer operations. *Id.* On January 6, 2020, following Public Watchdogs' objection, the
4 CPUC suspended the disbursement of these funds for up to 120 days, finding that
5 Licensees' request requires further staff review. *Id.* The CPUC decision also includes
6 options to extend the suspension beyond the 120-day period, if necessary.

7 9. As discussed in Public Watchdogs' Petition, Licensees' entire
8 decommissioning plan is predicated on the false assumption that all spent nuclear fuel will
9 be removed from SONGS by 2049. Based on this assumption, Licensees have only
10 assured the NRC that they will have enough funds to pay for decommissioning and spent
11 fuel management through 2049. Given Licensees' recent public acknowledgement that
12 they have not identified a receiving site for SONGS' spent nuclear fuel, much less
13 developed a viable plan to remove all spent nuclear from SONGS by 2049, Licensees'
14 assurances regarding their ability to pay the full cost of decommissioning and spent fuel
15 management are not credible. Moreover, CPUC's recent decision to suspend
16 disbursements from the SONGS decommissioning trust fund further undermines
17 Licensees' assurances that they have sufficient funds available to them to pay the full cost
18 of decommissioning and spent fuel management. Because Licensees are unable to provide
19 the financial assurances required by NRC regulations, the NRC should immediately
20 suspend all decommissioning activities at SONGS and require Licensees to submit a new
21 decommissioning plan that accounts for the reality that Licensees will have to bear the
22 cost of spent fuel management indefinitely. At minimum, the NRC should suspend all
23 decommissioning activities until such time as the CPUC approves the disbursement of
24 SONGS decommissioning funds for 2020. Without such funds, Licensees will have a
25 perverse incentive to cut corners and ignore safety requirements, which will significantly
26 increase the already prodigious risks to public health and safety associated with Licensees'
27 continued decommissioning and fuel transfer operations.

1 **II. LICENSEES ARE VIOLATING NRC REGULATIONS BY BURYING**
2 **SPENT NUCLEAR FUEL AT SONGS IN A STORAGE SYSTEM THAT**
3 **DOES NOT ALLOW FOR READY RETRIEVAL OF THE FUEL.**

4 10. Under NRC regulations, “[s]torage systems must be designed to allow ready
5 retrieval of spent fuel, high-level radioactive waste, and reactor-related GTCC waste for
6 further processing or disposal.” *See* 10 C.F.R. 72.122(l). As discussed in Public
7 Watchdogs’ Petition, Licensees have publicly acknowledged that technology does not
8 currently exist that would enable Licensees to retrieve the canisters being buried at
9 SONGS and repackage the tons of spent nuclear fuel contained therein if and when a
10 critical failure of the canisters occurs or even if routine replacement of a canister becomes
11 necessary. *See* Public Watchdogs’ Petition at Exhibit 18. Moreover, Licensees have
12 publicly acknowledged that any technology for unloading a canister that might be
13 developed in the future would require a spent fuel pool or a dry transfer facility. *Id.*
14 Significantly, Licensees have recently confirmed that they intend to demolish the spent
15 fuel pools and the fuel handling building at SONGS as soon as all spent nuclear fuel is
16 transferred from the spent fuel pools to the ISFSI, which is imminent since the Licensee
17 projects the burial will be completed prior to July 15, 2020. *See Exhibit 3; see also*
18 **Exhibit 5** at p. 11-12. Thus, Public Watchdogs respectfully submits that the spent nuclear
19 fuel being buried at SONGS is currently un retrievable in violation of NRC regulations,
20 and that Licensees’ own admissions confirm that the spent nuclear fuel will be completely
21 un retrievable by this summer, when the spent fuel pools are demolished. For this
22 additional reason, the NRC should suspend all decommissioning activities at SONGS,
23 including all spent fuel transfer operations, and require Licensees to submit a
24 decommissioning plan that complies with NRC regulations.

25 **III. THE SONGS ISFSI IS OPERATING IN AN UNANALYZED CONDITION.**

26 11. As discussed at length in Public Watchdogs’ Petition, the precarious location
27 of the SONGS ISFSI—only feet from the Pacific Ocean, in a tsunami inundation zone,
28 and between active fault lines—makes it uniquely susceptible flooding. The potential

1 consequences of a flooding event would be disastrous, including, but not limited to,
2 canister deformation or rupture and the simultaneous release of radioactive “geysers” from
3 the ISFSI. Although the Holtec Final Safety Analysis Report and Certificates of
4 Compliance clearly contemplate a potential flooding event and state that a site specific
5 analysis will be submitted by Licensees, Public Watchdogs is not aware that any such
6 analysis has been performed or submitted. Accordingly, the SONGS ISFSI is operating
7 in an unanalyzed condition, and all decommissioning operations, including all spent fuel
8 transfer operations, should be suspended until such an analysis is performed.

9
10 **CONCLUSION**

11 12. For the reasons set forth in this supplement, and for the reasons set forth in
12 Public Watchdogs’ Petition, Public Watchdogs respectfully requests that the NRC enter an
13 order immediately suspending all decommissioning operations at SONGS, including all
14 spent fuel transfer operations, and requiring Licensees to submit an amended
15 decommissioning plan that properly accounts for the reality that the spent nuclear fuel
16 being buried at SONGS will likely remain there indefinitely.

17 Dated: January 21, 2019

BARNES & THORNBURG LLP

18
19 By: /s/ Charles G. La Bella
20 Charles G. La Bella
21 Attorneys for Plaintiff
22 Public Watchdogs
23
24
25
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27
28

EXHIBIT 1



Entergy Nuclear Operations, Inc.
1340 Echelon Parkway
Jackson, MS 39213
Tel: (601)368-5000

Mandy K. Halter
Director, Nuclear Licensing

10 CFR 50.54

November 16, 2018

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

SUBJECT: Update to Spent Fuel Management Plan Pursuant to 10 CFR 50.54(bb)
Pilgrim Nuclear Power Station

Docket No. 50-293
Renewed License No. DPR-35

LETTER NUMBER: 2.18.071

REFERENCES:

1. Letter, Entergy Nuclear Operations, Inc. to USNRC, "Spent Fuel Management Plan Submittal in accordance with 10 CFR 50.54(bb)," 2.07.055, dated June 7, 2007 (ML071700121)
2. Letter, Entergy Nuclear Operations, Inc. to USNRC, "Response to NRC Request for Additional Information (RAI) Regarding Pilgrim Nuclear Power Station Spent Fuel Management Plan Pursuant to 10 CFR 50.54(bb)," 2.08.018, dated April 9, 2008 (ML081060520)
3. Letter, Entergy Nuclear Operations, Inc. to USNRC, "Response to Request for Additional Information to Support the Review of the Pilgrim Nuclear Power Station Spent Fuel Management Plan Pursuant to 10 CFR 50.54(bb) and the Preliminary Decommissioning Cost Estimate Pursuant to 10 CFR 50.75(f)(3)," 2.08.052, dated October 14, 2008 (ML082910039)
4. Letter, USNRC to Entergy Nuclear Operations, Inc., Pilgrim Nuclear Power Station - Safety Evaluation Re: Spent Fuel Management Program and Preliminary Decommissioning Cost Estimate (TAC Nos. MD8036 and MD9416), 1.09.001, dated January 7, 2009 (ML083190292)
5. Letter, Entergy Nuclear Operations, Inc. to USNRC, "Notification of Permanent Cessation of Power Operations," 2.15.080, dated November 10, 2015 (ML15328A053)

Dear Sir or Madam:

In accordance with 10 CFR 50.54(bb), Entergy Nuclear Operations, Inc. (ENOI) is hereby notifying the NRC of significant changes to the Pilgrim Nuclear Power Station (PNPS) Spent Fuel Management Plan.

Pursuant to 10 CFR 50.54(bb), ENOI initially submitted a Spent Fuel Management Plan on June 7, 2007 (Reference 1), as supplemented by its responses to the NRC staff's Requests for Additional Information, which ENOI submitted on April 9, 2008 (Reference 2) and October 14, 2008 (Reference 3). On January 7, 2009, the NRC staff approved the PNPS Spent Fuel Management Plan on a preliminary basis (Reference 4).

By letter dated November 10, 2015, ENOI notified the NRC of its intent to permanently cease power operations at PNPS no later than June 1, 2019 (Reference 5). As a result of its decision to permanently cease operations at PNPS and related changes to the anticipated schedule of decommissioning activities, spent fuel management activities, and decommissioning funding assumptions, ENOI is modifying the PNPS Spent Fuel Management Plan. This submittal provides the required Section 50.54(bb) notification. Attachment 1 provides the Updated Spent Fuel Management Plan (SFMP), which supersedes all prior versions of the SFMP.

There are no new regulatory commitments contained in this letter.

Should you have any questions concerning this letter or require additional information, please contact Mr. Peter J. Miner at (508) 830-7127.

Sincerely,



MKH/shr

Attachment: 1. Pilgrim Nuclear Power Station Updated Spent Fuel Management Plan

cc:

Mr. David C. Lew
Regional Administrator, Region I
U.S. Nuclear Regulatory Commission
2100 Renaissance Blvd, Suite 100
King of Prussia, PA 19406-2713

Mr. John Lamb, Senior Project Manager
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NRC Resident Inspector
Pilgrim Nuclear Power Station

Attachment 1

Letter 2.18.071

Pilgrim Nuclear Power Station

Updated Spent Fuel Management Plan

Pilgrim Nuclear Power Station
Updated Spent Fuel Management Plan

I. Background and Introduction

Entergy Nuclear Operations, Inc. (ENOI) submitted a Spent Fuel Management Plan on June 7, 2007 (Reference 1), as supplemented by its responses to the NRC staff's Requests for Additional Information, which ENOI submitted on April 9, 2008 (Reference 2) and October 14, 2008 (Reference 3). ENOI submitted its plan pursuant to 10 CFR 50.54(bb), which requires power reactor licensees to submit a spent fuel management and funding program for NRC review five years prior to the expiration of a reactor operating license. At the time, the PNPS operating license was set to expire on June 8, 2012. On January 7, 2009, the NRC staff approved the PNPS Spent Fuel Management Plan on a preliminary basis (Reference 4).

By letter dated November 10, 2015, ENOI notified the NRC of its intent to permanently cease power operations at PNPS no later than June 1, 2019 (Reference 5).

Pursuant to 10 CFR 50.54(bb), licensees are required to notify the NRC of any significant changes to their proposed spent fuel management plans. As a result of its decision to permanently cease operations at PNPS and related changes to the anticipated schedule of decommissioning activities, irradiated fuel management activities, and decommissioning funding assumptions, ENOI is modifying the PNPS Spent Fuel Management Plan (SFMP). This submittal provides the required Section 50.54(bb) notification, and this Updated SFMP supersedes all prior versions of the SFMP.

Pursuant to 10 CFR 50.82(a)(4)(i), on November 16, 2018, ENOI submitted a Post Shutdown Decommissioning Activities Report (PSDAR) for PNPS that included a site-specific decommissioning cost estimate (DCE) as an attachment (Reference 6). The DCE describes the bases for the assumptions regarding the U.S. Department of Energy's (DOE) acceptance of spent fuel from the industry and from PNPS. As discussed in the DCE (and subject to the assumptions, qualifications, and reservations stated therein), the SFMP is based on the assumption that DOE will commence acceptance of PNPS's spent fuel in 2030 and complete removal of all spent fuel from the site in 2062, consistent with the current DOE spent fuel management and acceptance strategy.¹ The DCE identifies the details, schedules, and costs of spent fuel management activities associated with the SFMP, along with license termination and site restoration activities and costs.

¹ As noted in the DCE, DOE's repository program assumes that spent fuel is accepted for disposal from the nation's commercial nuclear plants in the order in which it was removed from service ("oldest fuel first"). The contracts that U.S. generators have with the DOE provide a number of mechanisms for altering the oldest fuel first allocation scheme, including emergency deliveries, exchanges of allocations amongst generators, and the option of providing priority acceptance from permanently shut down nuclear reactors. PNPS will seek the most expeditious means of removing fuel from the site when DOE commences performance. Given DOE's failure to accept fuel under its contracts, however, it is unclear how these mechanisms will operate once DOE begins accepting spent fuel from commercial reactors. Accordingly, for planning purposes only, this SFMP conservatively assumes that DOE will accept spent fuel in an oldest fuel first order.

II. Spent Fuel Management Strategy

At the time of shutdown, there will be a total of 4,114 spent fuel assemblies at the PNPS site, including 580 fuel assemblies residing in the reactor as part of the current operating cycle, 2,378 spent fuel assemblies stored in the spent fuel pool, and 1,156 assemblies stored in 17 dry storage casks on an independent spent fuel storage installation (ISFSI) facility. In 2014, construction of the ISFSI pad was completed, which PNPS operates under the General License in 10 CFR 72.210. PNPS uses the Holtec HI-STORM 100 dry cask storage system for the spent fuel that is currently stored on the ISFSI. The system consists of a multipurpose canister (MPC) with a nominal capacity of 68 fuel assemblies and a concrete storage overpack. The existing ISFSI pad was constructed with a capacity of 40 dry storage casks, which is administratively limited to a capacity of 38 casks to allow for cask movement and access. PNPS completed fuel loading campaigns to the ISFSI in 2015, 2016, and 2018.

As indicated in the PNPS PSDAR (Reference 6), PNPS owner Entergy Nuclear Generation Company (ENGCO) has selected the SAFSTOR decommissioning option. The SFMP assumes that radiological decommissioning is completed within 60 years of permanent plant shutdown (i.e., by June 1, 2079). Following shutdown, the reactor building will be operated as an interim wet fuel storage facility for approximately three years after operations cease. During this time period, the spent fuel residing in the storage pool will be transferred to dry storage. The ISFSI will remain operational until DOE is able to complete the transfer of the fuel to a repository or interim storage facility.

The PSDAR and DCE describe three major phases related to spent fuel management at PNPS, which are summarized below.²

Table 1 - Spent Fuel Management Plan: Summary Schedule and Costs

Decommissioning Period	Start	End	Approximate Duration (Years)	Estimated Cost (thousands of 2018 dollars)
Periods 0 and 1: Planning and Preparations for Dormancy	2018	March 2020	1.84	\$93,869
Period 2a: Dormancy with Wet Fuel Storage	March 2020	2022	2.8	\$134,770
Period 2b: Dormancy with Dry Fuel Storage	2022	2062	40	\$191,611
TOTAL			44.64	\$420,250

² Appendix C to the DCE (Reference 6, Attachment 1) includes a detailed cost analysis of all decommissioning activities, including spent fuel management activities, by period.

1. Pre-Shutdown Planning and Preparations for SAFSTOR Dormancy

Pre-shutdown spent fuel management planning activities include designing a consolidated ISFSI facility that will include a single storage pad that will have space to accommodate a total of 61 casks, which will allow for dry storage of all spent fuel assemblies generated during the plant's operational history. The planned location for the consolidated ISFSI facility is in an area of the site that is southwest of the power block.

The estimated spent fuel management costs associated with ISFSI design, and other expenses during this initial phase, such as emergency planning and preparations for dormancy, total approximately \$93.9 million.

2. Dormancy with Wet Fuel Storage

The initial decommissioning activities to be performed after plant shutdown will focus primarily on preparing the plant for a period of safe-storage (also referred to as dormancy) and constructing the consolidated ISFSI facility. During this phase, spent fuel will remain in the spent fuel pool until it meets the criteria for transfer to dry storage. PNPS expects to begin construction of the consolidated ISFSI pad in 2019, assuming the timely receipt of required permits.

PNPS expects to begin transferring the remaining spent fuel from the spent fuel pool to dry storage in 2020 and to complete the transfer of all fuel to the consolidated ISFSI by mid-2022. In addition, the 17 casks that are currently stored on the existing ISFSI pad will be relocated to the consolidated ISFSI facility. In total, 4,114 spent fuel assemblies will be stored in 61 dry cask systems on the new consolidated ISFSI pad. After the fuel transfer is completed, the pool will be drained and supporting systems will be de-energized for the remainder of the dormancy period.

Costs in this phase total approximately \$134.8 million and include: construction of the consolidated ISFSI facility (including the new storage pad, other ISFSI infrastructure, and related security modifications), 44 additional dry cask systems, and transferring fuel from the spent fuel pool to the ISFSI.

3. Dormancy with Dry Fuel Storage

During this phase, the spent fuel will remain stored on the ISFSI until DOE accepts the fuel and removes it from the site. As discussed above and in the DCE (Reference 6, Attachment 1), for planning purposes, the SFMP assumes that DOE will begin removing fuel from PNPS in 2030 and will complete the removal of all spent fuel from the site in 2062, according to the schedule set forth in Table 2 below.

During this phase, programs and procedures required to support safe operation of the ISFSI will be maintained in accordance with applicable requirements. Equipment maintenance, monitoring, and inspection will be performed as necessary. PNPS will also maintain a 24-hour security force, which will safeguard the spent fuel for as long as it remains on site. A security barrier, sensors, alarms, and other surveillance equipment will be maintained as required to provide security for the spent fuel. The estimated average annual cost to operate the ISFSI during this phase is

approximately \$5 million, which reflects the portion of the total site caretaking costs that is allocated to the Spent Fuel Management cost category.

Late in the dormancy period, additional activities will include transferring the spent fuel from the ISFSI to the DOE. The estimated cost for the eventual transfer of the MPCs to a DOE-provided transport vehicle for off-site disposal is approximately \$10.5 million.³

The total estimated spent fuel management cost associated with this phase is approximately \$191.6 million.

Table 2 - Spent Fuel Management Schedule
(Fuel Assembly Totals by Location)

Year	Pool Inventory	ISFSI Inventory	DOE Acceptance
2018	2,378	1,156	
2019	2,958	1,156	
2020	2,958	1,156	
2021	2,958	1,156	
2022	0	4,114	
2023		4,114	
2024		4,114	
2025		4,114	
2026		4,114	
2027		4,114	
2028		4,114	
2029		4,114	
2030		4,094	20
2031		3,962	132
2032		3,534	428
2033		3,534	0
2034		3,442	92

³ As noted in the DCE (Reference 6, Attachment 1), DOE has breached its obligations to remove fuel from reactor sites on the contracted schedule, and has also failed to provide plant owners with information about how it will ultimately perform and fulfill its obligation. DOE officials have stated that DOE does not have an obligation to accept already-canistered fuel without an amendment to the Standard Contract, but DOE has not explained what costs any such amendment would involve. Consequently, the plant owner has no information or expectations on how DOE will remove fuel from the site in the future. In the absence of information about how DOE will specifically deal with already-canistered fuel, and for purposes of the DCE only, the PNPS DCE assumes that there will be no additional costs associated with DOE's acceptance of such fuel, as such fuel will be contained in MPCs developed to be suitable for storage, transport and permanent disposal. If this assumption is incorrect, it is assumed that DOE will have liability for costs incurred to transfer the fuel to DOE-supplied containers, and to dispose of existing containers.

Table 2 - Spent Fuel Management Schedule (continued)
(Fuel Assembly Totals by Location)

Year	Pool Inventory	ISFSI Inventory	DOE Acceptance
2035		3,210	232
2036		2,986	224
2037		2,986	0
2038		2,794	192
2039		2,794	0
2040		2,794	0
2041		2,626	168
2042		2,486	140
2043		2,350	136
2044		2,350	0
2045		2,144	206
2046		2,128	16
2047		1,984	144
2048		1,840	144
2049		1,676	164
2050		1,676	0
2051		1,516	160
2052		1,356	160
2053		1,356	0
2054		1,200	156
2055		1,048	152
2056		1,048	0
2057		896	152
2058		896	0
2059		752	144
2060		580	172
2061		580	0
2062		0	580
Total			4,114

III. ISFSI Decommissioning

The ISFSI pads and facilities will be decommissioned at the time of plant decommissioning or after DOE has removed all spent fuel from the site. The bases and assumptions used to formulate the cost estimate are discussed in the DCE (Reference 6, Attachment 1). As detailed in Appendix D to the DCE, the estimated cost to decommission the ISFSI is approximately \$9.4 million (assuming a 25% contingency).

IV. Funding Demonstration for License Termination and Spent Fuel Management Operations Costs

As shown in the DCE (Reference 6, Attachment 1), the projected total cost to decommission PNPS, after an extended period of safe storage, is estimated at \$1.66 billion (in 2018 dollars). This amount includes estimated costs associated with license termination (\$1.19 billion), spent fuel management (\$420.25 million), and site restoration (\$53.01 million) activities.

As of October 31, 2018, the PNPS decommissioning trust fund balance was \$1,051,722,466. Tables 3.2a and 3.2b of the DCE (Reference 6, Attachment 1) set forth the estimated annual expenditures for license termination and spent fuel management, respectively. For convenience, those tables are reproduced below as Tables 3 and 4. This annual expenditure information is used in the cash flow analysis in Table 5 below.⁴ The cash flow analysis demonstrates that the PNPS trust fund is sufficiently funded for all license termination, spent fuel management, and site restoration activities.

Thus, considering the fund balance of \$1.05 billion (as of October 31, 2018) and projected fund earnings during the SAFSTOR period (assuming an annual 2% growth rate), the trust fund is expected to have an excess of approximately \$152.87 million over the estimated license termination, spent fuel management costs, and site restoration costs.

⁴ The same cash flow analysis table is reproduced as Table 4 of ENOI's November 16, 2018 Request for Exemption from 10 CFR 50.82(a)(8)(i)(A) (Reference 7).

Table 3 - License Termination Expenditures
(thousands, 2018 dollars)

Year	Labor	Equip. & Materials	Energy	Waste Disposal	Other	Total
2018	0	0	0	0	19,142	19,142
2019	45,256	1,040	1,409	276	52,043	100,024
2020	22,178	1,040	1,572	539	36,245	61,574
2021	13,526	454	1,157	323	30,572	46,032
2022	13,526	454	1,157	323	28,339	43,799
2023	2,276	130	524	7	11,579	14,516
2024	2,282	130	525	7	3,953	6,897
2025	2,276	130	524	7	3,322	6,259
2026	2,276	130	524	7	2,947	5,884
2027	2,276	130	524	7	2,947	5,884
2028	2,282	130	525	7	2,953	5,897
2029	2,276	130	524	7	2,947	5,884
2030	2,276	130	524	7	2,947	5,884
2031	2,276	130	524	7	2,947	5,884
2032	2,282	130	525	7	2,953	5,897
2033	2,276	130	524	7	2,947	5,884
2034	2,276	130	524	7	2,947	5,884
2035	2,276	130	524	7	2,947	5,884
2036	2,282	130	525	7	2,953	5,897
2037	2,276	130	524	7	2,947	5,884
2038	2,276	130	524	7	2,947	5,884
2039	2,276	130	524	7	2,947	5,884
2040	2,282	130	525	7	2,953	5,897
2041	2,276	130	524	7	2,947	5,884
2042	2,276	130	524	7	2,947	5,884
2043	2,276	130	524	7	2,947	5,884
2044	2,282	130	525	7	2,953	5,897
2045	2,276	130	524	7	2,947	5,884
2046	2,276	130	524	7	2,947	5,884
2047	2,276	130	524	7	2,947	5,884
2048	2,282	130	525	7	2,953	5,897
2049	2,276	130	524	7	2,947	5,884
2050	2,276	130	524	7	2,947	5,884
2051	2,276	130	524	7	2,947	5,884
2052	2,282	130	525	7	2,953	5,897
2053	2,276	130	524	7	2,947	5,884
2054	2,276	130	524	7	2,947	5,884
2055	2,276	130	524	7	2,947	5,884
2056	2,282	130	525	7	2,953	5,897
2057	2,276	130	524	7	2,947	5,884
2058	2,276	130	524	7	2,947	5,884

Table 3 - License Termination Expenditures (continued)
(thousands, 2018 dollars)

Year	Labor	Equip. & Materials	Energy	Waste Disposal	Other	Total
2059	2,276	130	524	7	2,947	5,884
2060	2,282	130	525	7	2,953	5,897
2061	2,276	130	524	7	2,947	5,884
2062	2,276	130	524	7	2,947	5,884
2063	1,663	298	216	6	2,514	4,697
2064	1,668	298	217	6	2,521	4,710
2065	1,663	298	216	6	2,514	4,697
2066	1,663	298	216	6	2,514	4,697
2067	1,663	298	216	6	2,514	4,697
2068	1,668	298	217	6	2,521	4,710
2069	1,663	298	216	6	2,514	4,697
2070	1,663	298	216	6	2,514	4,697
2071	1,663	298	216	6	2,514	4,697
2072	1,668	298	217	6	2,521	4,710
2073	22,411	1,183	1,324	21	3,694	28,634
2074	38,252	8,293	2,154	5,384	7,668	61,751
2075	47,682	24,256	2,053	68,469	17,586	160,046
2076	63,341	15,092	1,775	41,144	16,992	138,344
2077	66,082	10,159	1,621	26,451	16,606	120,920
2078	56,725	7,373	1,230	17,765	13,112	96,205
2079	15,548	693	178	12	2,457	18,888
2080	137	0	0	0	0	137
Total	512,400	78,223	38,769	161,050	397,552	1,187,994

Table 4 - Spent Fuel Management Expenditures
(thousands, 2018 dollars)

Year	Labor	Equip. & Materials	Energy	Waste Disposal	Other	Total
2018	4,033	12,100	0	0	0	16,133
2019	11,838	35,513	0	0	12,665	60,016
2020	12,611	28,315	0	0	13,768	54,694
2021	12,272	24,230	0	0	12,396	48,898
2022	12,272	24,230	0	0	12,396	48,898
2023	4,188	0	0	0	8,694	12,882
2024	4,200	0	0	0	122	4,322
2025	4,188	0	0	0	122	4,310
2026	4,188	0	0	0	122	4,310
2027	4,188	0	0	0	122	4,310
2028	4,200	0	0	0	122	4,322
2029	4,188	0	0	0	122	4,310
2030	4,188	0	0	0	122	4,310
2031	4,274	259	0	0	122	4,655
2032	4,501	906	0	0	122	5,529
2033	4,188	0	0	0	122	4,310
2034	4,231	129	0	0	122	4,482
2035	4,361	518	0	0	122	5,000
2036	4,329	388	0	0	122	4,839
2037	4,188	0	0	0	122	4,310
2038	4,317	388	0	0	122	4,827
2039	4,188	0	0	0	122	4,310
2040	4,200	0	0	0	122	4,322
2041	4,317	388	0	0	122	4,827
2042	4,274	259	0	0	122	4,655
2043	4,274	259	0	0	122	4,655
2044	4,200	0	0	0	122	4,322
2045	4,317	388	0	0	122	4,827
2046	4,188	0	0	0	122	4,310
2047	4,274	259	0	0	122	4,655
2048	4,286	259	0	0	122	4,667
2049	4,317	388	0	0	122	4,827
2050	4,188	0	0	0	122	4,310
2051	4,274	259	0	0	122	4,655
2052	4,286	259	0	0	122	4,667
2053	4,188	0	0	0	122	4,310
2054	4,274	259	0	0	122	4,655
2055	4,274	259	0	0	122	4,655
2056	4,200	0	0	0	122	4,322
2057	4,274	259	0	0	122	4,655
2058	4,188	0	0	0	122	4,310

Table 4 - Spent Fuel Management Expenditures (continued)
(thousands, 2018 dollars)

Year	Labor	Equip. & Materials	Energy	Waste Disposal	Other	Total
2059	4,274	259	0	0	122	4,655
2060	4,329	388	0	0	122	4,839
2061	4,188	0	0	0	122	4,310
2062	4,576	1,164	0	0	122	5,862
2063	0	0	0	0	0	0
2064	0	0	0	0	0	0
2065	0	0	0	0	0	0
2066	0	0	0	0	0	0
2067	0	0	0	0	0	0
2068	0	0	0	0	0	0
2069	0	0	0	0	0	0
2070	0	0	0	0	0	0
2071	0	0	0	0	0	0
2072	0	0	0	0	0	0
2073	0	0	0	0	0	0
2074	0	0	0	0	0	0
2075	0	0	0	0	0	0
2076	0	0	0	0	0	0
2077	0	0	0	0	0	0
2078	0	0	0	0	0	0
2079	0	0	0	0	0	0
2080	0	0	0	0	0	0
Total	223,294	132,279	0	0	64,677	420,250

Table 5 - Annual Cash Flow Analysis

Pilgrim Nuclear Power Station - SAFSTOR Methodology		
Annual Cash Flow Analysis - Total License Termination, Spent Fuel Management, and Site Restoration Costs		
(In Thousands, 2018 Dollars)		
	Date	Amount
Total Trust Fund Balance as of	10/31/2018	\$ 1,051,722
Start of Decommissioning	06/01/2019	
Decommissioning Funds value at Calculation Date	10/31/2018	\$ 1,051,722
Total Estimated Costs at Calculation Date	10/31/2018	\$ 1,661,258
0.000%	Start of Decom to end of Decom - Assumes 0.0% Decom cost escalation rate	
2.000%	Start of Decom to end of Decom - Assumes 2.0% Earnings Rate	

Pilgrim Nuclear Power Station - SAFSTOR Methodology										
Annual Cash Flow Analysis - Total License Termination, Spent Fuel Management, and Site Restoration Costs										
(In Thousands in 2018 Dollars)										
Year	Column 1 50.75 License Termination Cost	Column 2 50.54 (bb) Spent Fuel Management Cost	Column 3 Site Restoration	Column 4 Total Cost	Column 5 Beginning of Year Trust Fund Balance	Column 6 Withdraw	Column 7 Contribute	Column 8 Balance for Earnings Calculation	Column 9 Trust Fund Earnings	Column 10 Year Ending Trust Fund Balance
2018	19,142	16,133	0	35,275	1,051,722	0	0	1,051,722	3,506	1,055,228
2019	100,024	60,016	0	160,040	1,055,228	195,315	0	859,913	17,198	877,112
2020	61,574	54,694	0	116,268	877,112	116,268	0	760,844	15,217	776,061
2021	46,032	48,898	0	94,930	776,061	94,930	0	681,131	13,623	694,753
2022	43,799	48,898	0	92,697	694,753	92,697	0	602,056	12,041	614,097
2023	14,516	12,882	0	27,398	614,097	27,398	0	586,699	11,734	598,433
2024	6,897	4,322	0	11,219	598,433	11,219	0	587,214	11,744	598,958
2025	6,259	4,310	0	10,569	598,958	10,569	0	588,390	11,768	600,158
2026	5,884	4,310	0	10,194	600,158	10,194	0	589,964	11,799	601,763
2027	5,884	4,310	0	10,194	601,763	10,194	0	591,570	11,831	603,401
2028	5,897	4,322	0	10,219	603,401	10,219	0	593,182	11,864	605,046
2029	5,884	4,310	0	10,194	605,046	10,194	0	594,852	11,897	606,749

Year	Column 1 50.75 License Termination Cost	Column 2 50.54 (bb) Spent Fuel Management Cost	Column 3 Site Restoration	Column 4 Total Cost	Column 5 Beginning of Year Trust Fund Balance	Column 6 Withdraw	Column 7 Contribute	Column 8 Balance for Earnings Calculation	Column 9 Trust Fund Earnings	Column 10 Year Ending Trust Fund Balance
2030	5,884	4,310	0	10,194	606,749	10,194	0	596,556	11,931	608,487
2031	5,884	4,655	0	10,539	608,487	10,539	0	597,948	11,959	609,907
2032	5,897	5,529	0	11,427	609,907	11,427	0	598,481	11,970	610,450
2033	5,884	4,310	0	10,194	610,450	10,194	0	600,257	12,005	612,262
2034	5,884	4,482	0	10,366	612,262	10,366	0	601,896	12,038	613,934
2035	5,884	5,000	0	10,884	613,934	10,884	0	603,050	12,061	615,111
2036	5,897	4,839	0	10,737	615,111	10,737	0	604,375	12,087	616,462
2037	5,884	4,310	0	10,194	616,462	10,194	0	606,268	12,125	618,394
2038	5,884	4,827	0	10,711	618,394	10,711	0	607,683	12,154	619,837
2039	5,884	4,310	0	10,194	619,837	10,194	0	609,643	12,193	621,836
2040	5,897	4,322	0	10,219	621,836	10,219	0	611,617	12,232	623,849
2041	5,884	4,827	0	10,711	623,849	10,711	0	613,138	12,263	625,401
2042	5,884	4,655	0	10,539	625,401	10,539	0	614,862	12,297	627,159
2043	5,884	4,655	0	10,539	627,159	10,539	0	616,621	12,332	628,953
2044	5,897	4,322	0	10,219	628,953	10,219	0	618,734	12,375	631,109
2045	5,884	4,827	0	10,711	631,109	10,711	0	620,398	12,408	632,806
2046	5,884	4,310	0	10,194	632,806	10,194	0	622,612	12,452	635,065
2047	5,884	4,655	0	10,539	635,065	10,539	0	624,526	12,491	637,017
2048	5,897	4,667	0	10,564	637,017	10,564	0	626,452	12,529	638,981
2049	5,884	4,827	0	10,711	638,981	10,711	0	628,270	12,565	640,836
2050	5,884	4,310	0	10,194	640,836	10,194	0	630,642	12,613	643,255
2051	5,884	4,655	0	10,539	643,255	10,539	0	632,717	12,654	645,371
2052	5,897	4,667	0	10,564	645,371	10,564	0	634,807	12,696	647,503
2053	5,884	4,310	0	10,194	647,503	10,194	0	637,309	12,746	650,056
2054	5,884	4,655	0	10,539	650,056	10,539	0	639,517	12,790	652,307
2055	5,884	4,655	0	10,539	652,307	10,539	0	641,769	12,835	654,604
2056	5,897	4,322	0	10,219	654,604	10,219	0	644,385	12,888	657,273
2057	5,884	4,655	0	10,539	657,273	10,539	0	646,734	12,935	659,669
2058	5,884	4,310	0	10,194	659,669	10,194	0	649,476	12,990	662,465

Year	Column 1 50.75 License Termination Cost	Column 2 50.54 (bb) Spent Fuel Management Cost	Column 3 Site Restoration	Column 4 Total Cost	Column 5 Beginning of Year Trust Fund Balance	Column 6 Withdraw	Column 7 Contribute	Column 8 Balance for Earnings Calculation	Column 9 Trust Fund Earnings	Column 10 Year Ending Trust Fund Balance
2059	5,884	4,655	0	10,539	662,465	10,539	0	651,927	13,039	664,965
2060	5,897	4,839	0	10,737	664,965	10,737	0	654,228	13,085	667,313
2061	5,884	4,310	0	10,194	667,313	10,194	0	657,119	13,142	670,262
2062	5,884	5,862	0	11,746	670,262	11,746	0	658,516	13,170	671,686
2063	4,697	0	0	4,697	671,686	4,697	0	666,989	13,340	680,329
2064	4,710	0	0	4,710	680,329	4,710	0	675,619	13,512	689,131
2065	4,697	0	0	4,697	689,131	4,697	0	684,434	13,689	698,122
2066	4,697	0	0	4,697	698,122	4,697	0	693,425	13,869	707,294
2067	4,697	0	0	4,697	707,294	4,697	0	702,596	14,052	716,648
2068	4,710	0	0	4,710	716,648	4,710	0	711,938	14,239	726,177
2069	4,697	0	0	4,697	726,177	4,697	0	721,480	14,430	735,909
2070	4,697	0	0	4,697	735,909	4,697	0	731,212	14,624	745,836
2071	4,697	0	0	4,697	745,836	4,697	0	741,139	14,823	755,962
2072	4,710	0	0	4,710	755,962	4,710	0	751,252	15,025	766,277
2073	28,634	0	325	28,959	766,277	28,959	0	737,318	14,746	752,065
2074	61,751	0	713	62,464	752,065	62,464	0	689,601	13,792	703,393
2075	160,046	0	261	160,307	703,393	160,307	0	543,086	10,862	553,947
2076	138,344	0	339	138,683	553,947	138,683	0	415,264	8,305	423,570
2077	120,920	0	379	121,298	423,570	121,298	0	302,271	6,045	308,317
2078	96,205	0	254	96,460	308,317	96,460	0	211,857	4,237	216,094
2079	18,888	0	19,836	38,724	216,094	38,724	0	177,371	3,547	180,918
2080	137	0	30,907	31,044	180,918	31,044	0	149,874	2,997	152,872
Total	1,187,994	420,250	53,014	1,661,258		1,661,258	0	38,996,799	762,407	152,872

Table 5 Definitions:

Column 1: 50.75 License Termination Cost

Reflects the total annual License Termination costs in 2018 dollars at a 0.0% escalation rate

Column 2: 50.54 (bb) Spent Fuel Management Cost

Reflects the total annual Spent Fuel Management costs in 2018 dollars at a 0.0% escalation rate

Column 3: Site Restoration Cost

Reflects the total annual Site Restoration costs in 2018 dollars at a 0.0% escalation rate

Column 4: Total Cost

Reflects the total annual License Termination costs plus total annual Spent Fuel Management costs plus total annual Site Restoration costs, all in 2018 dollars at a 0.0% escalation rate (Column 1 + Column 2 + Column 3)

Column 5: Beginning of Year Trust Fund Balance

Reflects the beginning of year Trust Fund balance in 2018 dollars at a 0.0% escalation rate and 2.0% Fund Earnings

Column 6: Withdraw

Reflects the annual expenditures from the Trust Fund in 2018 dollars at a 0.0% escalation rate

Column 7: Contribute

Reflects the annual contributions to the Trust Fund in 2018 dollars at a 0.0% escalation rate

Column 8: Balance for Earnings Calculation

Reflects the Trust Fund balance in 2018 dollars used to calculate the Trust Fund Earnings (Column 5 – Column 6)

Column 9: Trust Fund Earnings

Reflects earnings on funds remaining in the Trust Fund. A 2.0% earnings rate is used over a 0.0% cost escalation rate. The annual 2.0% earnings are calculated on the balance after the annual expenditures are removed (Column 8 * 2.0%)

Column 10: Year Ending Trust Fund Balance

Reflects the end of year Trust Fund balance after all projected earnings are added and all projected expenditures are deducted for year-end, specified at a 0.0% escalation rate and 2.0% fund earnings in 2018 dollars (Column 5 – Column 6 + Column 9)

V. Regulatory Activities

The SFMP assumes withdrawals from the PNPS decommissioning trust fund for spent fuel management. ENOI is making a separate submittal to request an exemption in accordance with 10 CFR 50.12 from the requirements of 10 CFR 50.82(a)(8)(i)(A), which if approved, would permit the use of decommissioning trust funds for spent fuel management and site restoration expenses (Reference 7). The availability of decommissioning funding sources will be periodically revisited to ensure that withdrawals from the fund do not inhibit the ability to complete license termination and spent fuel management activities.

In addition, in accordance with 10 CFR 50.82(a)(8)(vii), ENOI will submit a report on the status of spent fuel management funding by March 31 of each year. The report will include, current through the end of the previous calendar year, the amount of funds accumulated to cover the cost of managing spent fuel, the projected cost of managing spent fuel until it is transferred to DOE, 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.

VI. Summary

The spent fuel management activities described in this Updated SFMP must be performed in conjunction with license termination activities. The annual cash flow analysis provided in Table 5 demonstrates that the PNPS decommissioning trust fund with projected earnings is sufficient to cover the estimated license termination and spent fuel management costs.

VII. References

1. Letter, Entergy Nuclear Operations, Inc. to USNRC, "Spent Fuel Management Plan Submittal in accordance with 10 CFR 50.54(bb)," 2.07.055, dated June 7, 2007 (ML071700121)
2. Letter, Entergy Nuclear Operations, Inc. to USNRC, "Response to NRC Request for Additional Information (RAI) Regarding Pilgrim Nuclear Power Station Spent Fuel Management Plan Pursuant to 10 CFR 50.54(bb)," 2.08.018, dated April 9, 2008 (ML081060520)
3. Letter, Entergy Nuclear Operations, Inc. to USNRC, "Response to Request for Additional Information to Support the Review of the Pilgrim Nuclear Power Station Spent Fuel Management Plan Pursuant to 10 CFR 50.54(bb) and the Preliminary Decommissioning Cost Estimate Pursuant to 10 CFR 50.75(f)(3)," 2.08.052, dated October 14, 2008 (ML082910039)
4. Letter, USNRC to Entergy Nuclear Operations, Inc., Pilgrim Nuclear Power Station - Safety Evaluation Re: Spent Fuel Management Program and Preliminary Decommissioning Cost Estimate (TAC Nos. MD8036 and MD9416), 1.09.001, dated January 7, 2009 (ML083190292)
5. Letter, Entergy Nuclear Operations, Inc. to USNRC, "Notification of Permanent Cessation of Power Operations," 2.15.080, dated November 10, 2015 (ML15328A053)

6. Letter, Entergy Nuclear Operations, Inc. to USNRC, "Pilgrim Nuclear Power Station Post-Shutdown Decommissioning Activities Report," 2.18.070, dated November 16, 2018
7. Letter, Entergy Nuclear Operations, Inc. to USNRC, "Request for Exemption from 10 CFR 50.82(a)(8)(i)(A)," 2.18.069, dated November 16, 2018



Nuclear Management Company, LLC

April 21, 2006

L-HU-06-16
10 CFR 50.75
10 CFR 50.54

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

Palisades Nuclear Plant
Docket No. 50-255
License No. DPR-20

Irradiated Fuel Management Plan and Preliminary Decommissioning Cost Estimates for
Palisades Nuclear Plant

- References: 1) Nuclear Management Company, LLC (NMC) letter to US Nuclear Regulatory Commission (NRC), "Application for Renewed Operating License," dated March 22, 2005. (ADAMS Accession No. ML050940434)
- 2) Nuclear Management Company, LLC (NMC) letter to US Nuclear Regulatory Commission (NRC), "Decommissioning Funding Status," dated March 22, 2006. (ADAMS Accession No. ML060810686)

The enclosed Irradiated Fuel Management Plan (Enclosure 1) and Preliminary Decommissioning Cost Estimate (Enclosure 2) are being submitted in accordance with Title 10 of the *Code of Federal Regulations* (10 CFR), Part 50, Section 50.54(bb) "Conditions of Licenses," and 10 CFR 50.75(f)(2), "Reporting and Recordkeeping for Decommissioning Planning," respectively, for the aforementioned plant. As holder of the plant operating license, Nuclear Management Company, LLC (NMC) is submitting these reports on behalf of the plant owner, Consumers Energy. The financial information presented herein reflects information provided to NMC by the plant owner, Consumers Energy.

Pursuant to 10 CFR 50.54(bb), a licensee shall "submit written notification to the Commission 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 at the reactor 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." Accordingly, the Irradiated Fuel Management Plan (Enclosure 1) is provided for your review and preliminary approval.

Additionally, 10 CFR 50.75(f)(2), "Reporting and recordkeeping for decommissioning planning" states, "each power reactor licensee shall at or about 5 years prior to the projected end of operations submit a preliminary decommissioning cost estimate which includes an up-to-date assessment of the major factors that could affect the cost to decommission." Accordingly, the Preliminary Decommissioning Cost Estimate (Enclosure 2) is provided for your review and approval.

NMC submitted a sufficient application for renewal of an operating license (Reference 1) and therefore, in accordance with 10 CFR 2.109, "Effect of Timely Renewal Application," "the existing license will not be deemed to have expired until the application has been finally determined." Although NMC is seeking license renewal, the Irradiated Fuel Management Plan and Preliminary Decommissioning Cost Estimate are submitted based on the current operating license expiration date of March 24, 2011 for Palisades Nuclear Plant. If Palisades' license is renewed, the current Irradiated Fuel Management Plan and Preliminary Decommissioning Cost Estimate would no longer be applicable and a new plan and cost estimate will be submitted in accordance with 10 CFR 50.54(bb) and 10 CFR 50.75(f)(2), respectively.

This letter contains no new commitments and no revisions to existing commitments.



Edward J. Weinkam
Director, Nuclear Licensing & Regulatory Services
Nuclear Management Company, LLC

Enclosures (2)

cc: Regional Administrator, USNRC, Region III
NRR Project Manager, Palisades Nuclear Plant, USNRC
NRC Resident Inspector, Palisades Nuclear Plant, USNRC
Consumers Energy:
Manager of Depreciation and Decommissioning, Jan Anderson
Asset Manager, Steve Wawro

Enclosure 1

Irradiated Fuel Management Plan For Palisades Nuclear Plant

Background

The Preliminary Decommissioning Cost Estimate (see Enclosure 2) in accordance with 10 CFR 50.75(f)(2) for Palisades Nuclear Plant (PNP) evaluates a SAFSTOR decommissioning option with a March 2011 shutdown date. The Irradiated Fuel Management Plan is also based on the SAFSTOR analysis and March 2011 shutdown date. There are two licensed independent spent fuel storage installations (ISFSIs) on the PNP site. The newly constructed ISFSI was designed to store all spent fuel in dry storage if needed, including spent fuel currently stored in the old ISFSI. Consumers Energy reserves the right to choose the ultimate decommissioning option in accordance with its business needs, recognizing the need to ensure the chosen option meets NRC requirements for decommissioning funding.

This Irradiated Fuel Management Plan also considers impact of the spent fuel currently stored at Consumers Energy's Big Rock Point Nuclear Plant (BRP) in Charlevoix County, Michigan. BRP was permanently shut down on August 29, 1997. The spent fuel currently resides in an on-site ISFSI.

Spent Fuel Management Strategy

The NRC requires (10 CFR 50.54(bb)) that licensees establish a program to manage and provide funding for the caretaking of all irradiated fuel at the reactor site until title of the fuel is transferred to the U. S. Department of Energy (DOE). Interim storage of the fuel will be in the storage pool and/or ISFSIs located on the PNP site until the DOE has completed the transfer. The ISFSIs are independently licensed and operated and will accommodate the inventory of spent fuel residing in PNP's storage pool at the conclusion of the required cooling period. The newly constructed ISFSI was designed to store all spent nuclear fuel on-site. Once the spent fuel is emptied, the Auxiliary Building can be prepared for long-term storage.

The spent fuel pool will remain operational for a minimum of eight years following the cessation of operations. The pool will be isolated and a spent fuel island created. Over the eight-year period, the spent fuel will be packaged into transportable steel canisters for loading into DOE-provided transport casks. The canisters will be stored in concrete overpacks at the PNP ISFSIs until the DOE is able to receive them.

The shipping of spent nuclear fuel assemblies to DOE during decommissioning is based upon several assumptions. Consumers Energy directed TLG Services, Inc. to prepare the "Decommissioning Cost Study for Palisades Nuclear Plant" using 2010 as the year DOE would begin accepting spent fuel. The DOE generator allocation/receipt schedules are based upon the oldest fuel receiving the highest priority, and Consumers Energy has no allocations in year 1. It is assumed that the BRP would first use Consumers' allocations, beginning in year 2. Shipment of PNP spent fuel would commence once BRP spent fuel had been completely removed from the site. For purposes of the TLG study, this date was assumed to be 2013. However, any delay in the startup of the repository or decrease in the rate of acceptance will correspondingly prolong the transfer.

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process and result in the fuel remaining at the site longer. In the SAFSTOR scenario, spent fuel is expected to remain at the site for approximately 37 years after the cessation of operations. Consequently, costs are included within this analysis for the continued operation of the storage pool and ISFSIs, as required, and for the long-term caretaking of the spent fuel until the year 2048. At the conclusion of the spent fuel transfer process, each ISFSI will be decommissioned.

Operation and maintenance costs for the storage facilities (ISFSIs and the spent fuel pool) are included within the estimate below and address the cost for staffing the facilities, maintenance of necessary operational requirements as well as security, insurance, and licensing fees. The estimate includes the costs to purchase, load, and transfer the fuel storage canisters to an ISFSI. A cost-estimate for spent fuel management at PNP under the SAFSTOR scenario may be found in Table 2.

In the event that PNP ceases operation in 2011, PNP will continue to comply with existing NRC licensing requirements, including the operation and maintenance of the systems and structures needed to support continued operation of the spent fuel pool and each ISFSI, as necessary, under the decommissioning scenario ultimately selected. In addition, PNP will also comply with applicable license termination requirements in accordance with 10 CFR 50.82 with respect to plant shutdown and post-shutdown activities including seeking such NRC approvals and on such schedules as necessary to satisfy these requirements consistent with the continued storage of irradiated fuel.

Cost Estimate and Funding For Spent Fuel Management Based on the SAFSTOR Decommissioning Option

The "Decommissioning Cost Study for Palisades Nuclear Plant," developed by TLG Services, Inc. included cost estimates of \$297.9 million for spent fuel management, \$584.1 million for decommissioning and \$78.3 million for site restoration using a SAFSTOR scenario (Table 2). The total cost to decommission is estimated to be \$960.3 million in 2003 dollars. The NRC minimum decommissioning financial assurance requirement as reported in Reference 2 and set forth in 10 CFR 50.75(c) for PNP is approximately \$327.2 million.

As of December 31, 2005, the PNP decommissioning trust fund balance was \$544.1 million. As approved by Michigan Public Service Commission (MPSC), this fund is being supplemented with annual contributions of approximately \$5.5 million through the end of 2011. Adjustments to annual contributions amounts require Michigan Public Service Commission (MPSC) approval in rate proceedings. To the extent that the trust fund balance exceeds costs required for radiological decommissioning, trust fund monies, in conjunction with Consumers Energy operating revenues, will be used to pay for spent fuel management.

The following items are key costs estimates:

(1) The estimated cost to isolate the spent fuel pool and fuel handling systems is \$9.6 million. This cost is based on spent fuel pool isolation costs at other decommissioning facilities and engineering judgment. This cost is considered part of the activities

Enclosure 1

necessary to maintain the spent fuel in a safe and controlled state both during the initial decommissioning activities and during the fuel cool-down period.

(2) Annual costs (excluding labor) of approximately \$977,000 and \$60,000 are used for operation and maintenance of the spent fuel pool and each ISFSI, respectively.

(3) Annual cost for spent fuel management in the ISFSI is estimated at approximately \$6 million (Table 1, years 2033-2047). This cost is based on actual costs at decommissioned facilities, estimated costs for facilities similar to PNP, and engineering judgment. These costs would be incurred annually during the storage period.

(4) An average cost of \$250,000 is used for labor to load/transport the spent fuel from the pool to the ISFSI pad, based on industry experience.

(5) The ISFSI Decontamination & Dismantling costs are estimated at \$8.3 million.

The following schedule shows the fuel management costs as it relates to decommissioning periods for a SAFSTOR with dry storage scenario:

Period # (a)	Title	Cost 2003\$ (thousands) ^(b)	Period Duration, Months
0/1	SAFSTOR Preparations (includes pre-shutdown early planning costs)	15,531	18.0
2	12.5 Year Dormancy Maintenance (includes spent fuel transfer to ISFSI)	160,398	150.0
3	Decommissioning Preparations	2,987	18.1
4	Delayed Decommissioning	8,232	49
5b	Site Restoration	3,707	19.5
5c	Post Decommissioning ISFSI Operations (annual average of approximately \$6 million)	98,777	198.9
5d, e, f	ISFSI Decontamination & Site Restoration	8,318	6.0
	TOTALS ^(c)	297,950	459.5

(a) Figure 4.2, Decommissioning Timeline, TLG Services, Inc. Decommissioning Cost Study for Palisades Nuclear Plant. March 2004.

(b) Table C, TLG Services, Inc. Decommissioning Cost Study for Palisades Nuclear Plant. March 2004.

(c) Columns may not add due to rounding.

Enclosure 2

Palisades Nuclear Plant Preliminary Decommissioning Cost Estimate

I. Introduction

This report presents a summary of the preliminary estimate of the cost to decommission Palisades Nuclear Plant (PNP), as required by 10CFR50.75(f)(2). This cost estimate is based on the "Decommissioning Cost Study for Palisades Nuclear Plant" conducted by TLG Services, Inc. and premised on the assumption that the plant permanently ceases to operate in March 2011. The estimate assumes the eventual removal of all contaminated and activated plant components and structural materials, such that the operating licenses may be terminated to permit unrestricted use of the site. Although Nuclear Management Company, LLC (NMC) is currently seeking license renewal for PNP, this cost estimate is being submitted based on the current operating license expiration date for PNP. If license renewal for PNP is granted, this Preliminary Decommissioning Cost Estimate would no longer be applicable and a new estimate will be submitted in accordance with 10CFR50.75(f)(2).

II. Comparison of the Preliminary Cost Estimate to the Minimum Required Decommissioning Fund

The minimum decommissioning financial assurance requirement for PNP, as reported in Reference 2 and set forth in 10CFR50.75(c), is approximately \$327.2 million. The total preliminary decommissioning cost estimate base on the "Decommissioning Cost Study" is approximately \$960.3 million. This estimate includes approximately \$584.1 million for decommissioning costs, \$297.9 million for spent fuel management and \$78.3 million for site restoration (Table 2).

III. Assessment of Major Factors That Could Affect Preliminary Cost Estimate

A. Decommissioning Option/Method

This Preliminary Decommissioning Cost Estimate assumes a SAFSTOR decommissioning option with dry storage of spent nuclear fuel. This estimate assumes PNP cessation of operation in March 2011 and a Department of Energy (DOE) spent fuel repository open in 2010. Interim storage of the fuel will be in the storage pool and/or an ISFSI located on the PNP site until the DOE assumed title to the spent fuel. The ISFSIs, which are independently licensed and operated, will accommodate the inventory of spent fuel residing in PNP's storage pool at the conclusion of the required cooling period. Once emptied, the Auxiliary Building will be prepared for long-term storage. Decommissioning of the ISFSIs will commence once DOE has accepted title to all PNP fuel. This cost estimate scenario includes the decontamination and dismantlement of the facility, spent fuel management and restoration of the site.

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B. Potential for Known or Suspected Contamination

The Preliminary Decommissioning Cost Estimate does not assume the remediation of any significant volume of contaminated soil. This assumption may be affected by continued plant operations and/or future regulatory actions, such as the development of site-specific release criteria.

C. LLW Disposition Plan

Low Level (Radioactive) Waste (LLW) disposal costs include processing, packaging, shipping, and burial/vendor costs. Palisades currently has access to the disposal facility in Barnwell, South Carolina; however, future use of this facility is likely to be limited. This Preliminary Decommissioning Cost Estimate assumes that additional disposal capacity will be available to support reactor decommissioning, particularly for the isolation of the more highly radioactive material. Therefore, for estimating purposes, waste disposal costs were generated using available pricing schedules for the currently operating facilities, i.e., at Barnwell in South Carolina and the Envirocare facility in Utah. Due to the high cost per cubic foot of LLW disposal, decontamination, recycling, conditioning and metal processing were incorporated into the decommissioning cost calculations in order to reduce the overall LLW disposal costs.

D. Preliminary Schedule of Decommissioning Activities

A schedule of the decommissioning scenario is illustrated in Table 2. Activity and period-dependent costs are estimated for each of the 5 decommissioning time periods, post-decommissioning ISFSI operation, and ISFSI decontamination and decommissioning. These time periods are briefly described in Section IV, below.

E. Other Factors That Could Significantly Affect the Cost to Decommission

NMC is currently unaware of any major site-specific factors that could have a significant effect on the cost of decommissioning. In order to anticipate unknown or unplanned occurrences during decommissioning, e.g. tool breakage, accidents, illnesses, weather delays, and labor stoppages, contingencies are applied to the cost estimates. Contingencies are defined in the American Association of Cost Engineers "Project and Cost Engineers' Handbook" as "specific provision for unforeseeable elements of cost within the defined project scope; particularly important where previous experience relating estimates and actual costs has shown that unforeseeable events which will increase costs are likely to occur." The amount of contingency depends on the status of design, procurement and construction; and the complexity and uncertainties within the defined project scope. The "Decommissioning Cost Study" conducted by TLG Services, Inc, examined the major activity-related problems (decontamination, segmentation, equipment handling, packaging, transport, and waste disposal) that necessitate a contingency. The composite contingency value calculated for the PNP SAFSTOR alternative is 20.37%. It should be noted that contingency, as used in this analysis, does not account for price escalation and inflation in the cost of decommissioning over the remaining operating life of the station.

Enclosure 2

IV. Preliminary Cost Estimate Considerations

The Preliminary Decommissioning Cost Estimate is based on costs associated with the entire decommissioning work scope, including those activities related to the following periods of the decommissioning project: (0/1) SAFSTOR Preparations, (2) Dormancy, (3) Decommissioning Preparations, (4) Decommissioning Operations and (5) Site Restoration. The cost estimate also includes ISFSIs operating and decommissioning costs. The scope of each of those activities is described below. Disposition of LLW is also accounted for in the Preliminary Decommissioning Cost Estimate, as described in Section III.C, above.

A summary of activities and time duration for each SAFSTOR period follows (see Table 2 for cost estimates for each period):

(0/1) SAFSTOR Preparations: Includes preliminary engineering and planning to permanently de-fuel the reactor, revision of technical specifications applicable to operating conditions and requirements, a characterization of the facility and major components, and the development of the Post-Shutdown Decommissioning Activities Report (PSDAR). This period includes activities including, but not limited to, transfer of the spent fuel to the ISFSI, draining and de-energizing of non-contaminated systems, disposal of contaminated filter elements and resin beds, decontamination of the reactor coolant system, draining of the reactor vessel, preparing lighting, alarm, and security systems, and performing radiation surveys. Period duration is estimated at 18 months.

(2) Dormancy: Includes 24-hour security and surveillance, preventative and corrective maintenance of security systems, area lighting, buildings, heating and ventilation, routine radiological and environmental surveillance programs, and maintenance of structural integrity. Transfer of remaining spent fuel in the spent fuel pool to the ISFSI. Shipments of spent fuel from the ISFSI to the DOE should begin and occur throughout this period. Period duration is estimated at 150 months.

(3) Decommissioning Preparations: Includes reactivation of site services, engineering and planning, a detailed site characterization, the assembly of a decommissioning management organization, specification of transport and disposal requirements for activated and/or hazardous materials, final planning for decommissioning activities and the writing of activity specifications and detailed procedures. Period duration is estimated at 18.1 months.

(4) Decommissioning Operations: Includes physical decommissioning activities associated with the removal and disposal of contaminated and activated components and structures, including the successful termination of the 10CFR50 operating license. Period duration is estimated at 49 months.

(5) Site Restoration: Includes activities required to remove contaminated materials and verify that residual radionuclide concentrations are below NRC limits. This will include prompt removal of site structures, removal of foundations and exterior walls to a nominal depth of three feet below grade, and fill and grading of the site. Period duration is estimated at 19.5 months.

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ISFSI Operations and Decommissioning: The ISFSIs will continue to operate under a separate and independent license following the termination of the 10CFR50 license. At the conclusion of spent fuel operations, each ISFSI will be decommissioned. Once the canisters are removed, the modules will be dismantled, the storage pad removed, and the area will be graded and landscaped. Period duration is estimated at 204.9 months.

V. Plans for Adjusting Levels of Funding

NMC submitted a sufficient application for renewal of an operating license (Reference 1) and therefore, in accordance with 10 CFR 2.109, "Effect of Timely Renewal Application," "the existing license will not be deemed to have expired until the application has been finally determined." Although NMC is seeking license renewal, the Preliminary Decommissioning Cost Estimate is submitted based on the current operating license expiration date for PNP—March 24, 2011. If license renewal for Palisades is granted, the Preliminary Decommissioning Cost Estimate would no longer be applicable and a new plan and cost estimate will be submitted in accordance with 10 CFR 50.75(f)(2).

The cost to decommission PNP is estimated to be \$960.3 million in 2003 dollars. The "Decommissioning Cost Study" for PNP developed by TLG Services, Inc. included cost estimates of approximately \$584.1 million for decommissioning costs, \$297.9 million for spent fuel management and \$78.3 million for site restoration using a SAFSTOR scenario. The total estimated decommissioning costs by period and decommissioning activity are provided in Tables 1 and 2.

The NRC minimum decommissioning financial assurance requirement for PNP as reported in Reference 2 and set forth in 10CFR50.75(c) is approximately \$327.2 million. As of December 31, 2005, the PNP decommissioning trust fund balance was \$544.1 million.

Consumers Energy applies reasonable earnings rates to the decommissioning funds throughout the decommissioning periods described above. In addition, the Preliminary Decommissioning Cost Estimate includes reasonable escalation factors for the decommissioning activities. Based on a cash flow analysis for the decommissioning activities to be performed for the periods described above, NMC believes that there is reasonable assurance that adequate decommissioning funds will be available to decommission PNP as described herein (assuming a 2011 shutdown). Consumers Energy plans to review the decommissioning fund status on a regular basis as described above.

Table 1 ^(a)
PNP Schedule of Annual Expenditures: SAFSTOR Scenario
(Thousands, 2003 dollars)

Year	Labor	Equipment & Materials	Energy	Burial	Other	Total
2008	0	0	0	0	8,698	8,698
2009	0	0	0	0	0	0
2010	0	0	0	0	0	0
2011	31,770	4,089	951	1,395	14,531	52,736
2012	31,337	5,504	1,103	1,253	12,854	52,051
2013	11,754	67	905	29	15,330	28,086
2014	11,754	67	905	29	15,330	28,086
2015	11,754	67	905	29	15,330	28,086
2016	11,786	67	908	29	15,372	28,163
2017	11,754	67	905	29	15,330	28,086
2018	11,754	67	905	29	15,330	28,086
2019	6,037	67	439	29	8,280	14,852
2020	2,767	67	172	29	4,251	7,286
2021	2,760	67	171	29	4,239	7,266
2022	2,760	67	171	29	4,239	7,266
2023	2,760	67	171	29	4,239	7,266
2024	2,767	67	172	29	4,251	7,286
2025	33,132	460	751	29	8,467	42,840
2026	47,846	19,175	896	13,849	17,353	99,119
2027	48,137	18,246	873	25,880	8,247	101,384
2028	45,222	4,710	686	20,784	6,547	77,950
2029	45,099	4,697	684	20,727	6,530	77,737
2030	18,915	2,255	282	1,157	12,902	35,512
2031	23,616	7,190	171	0	17,358	48,336
2032	10,958	3,053	107	0	9,858	23,977
2033	1,608	0	60	0	4,301	5,969
2034	1,608	0	60	0	4,301	5,969
2035	1,608	0	60	0	4,301	5,969
2036	1,612	0	60	0	4,313	5,985
2037	1,608	0	60	0	4,301	5,969
2038	1,608	0	60	0	4,301	5,969
2039	1,608	0	60	0	4,301	5,969
2040	1,612	0	60	0	4,313	5,985
2041	1,608	0	60	0	4,301	5,969
2042	1,608	0	60	0	4,301	5,969
2043	1,608	0	60	0	4,301	5,969
2044	1,612	0	60	0	4,313	5,985
2045	1,608	0	60	0	4,301	5,969
2046	1,608	0	60	0	4,301	5,969
2047	1,608	0	60	0	4,301	5,969
2048	1,624	705	60	22	20,023	22,434
2049	2,490	1,027	0	2,590	2,048	8,155
^(b)	454,688	71,920	14,198	88,027	331,491	960,325

Table 2 ^(a)
PNP Summary of SAFSTOR Cost Estimate by Period Cost and Activity Cost
(Thousands, 2003 dollars)

	Total Contingency	Total Costs	NRC License Term Costs	Spent Fuel Management Costs	Site Restoration Costs
Period 0: Pre-Shutdown Early Planning	305	8,698	0	8,698	0
Period 1: Transition & Preparations	13,855	96,323	89,490	6,833	0
Period 2: Dormancy	22,478	229,730	69,332	160,398	0
Period 3: Preparations	14,756	110,217	106,256	2,987	974
Period 4: Decommissioning Operations	50,131	312,938	299,777	8,232	4,929
Period 5: Site Restoration, ISFSI Operations and D&D	9,609	78,794	2,678	3,707	72,409
Post-Decommissioning ISFSI Operations	50,237	115,308	16,531	98,777	0
ISFSI Decontamination & Decommissioning	1,156	8,318	0	8,318	0
^(b)	162,527	960,325	584,064	297,948	78,312

^(a) TLG Services, Inc. Decommissioning Cost Study for Palisades Nuclear Plant. March 2004.

^(b) Columns may not add due to rounding.

EXHIBIT 2

AFFIRMATION ITEM

RESPONSE SHEET

TO: Annette Vietti-Cook, Secretary

FROM: Chairman Allison M. Macfarlane

SUBJECT: SECY-14-0072 – FINAL RULE: CONTINUED
STORAGE OF SPENT NUCLEAR FUEL (RIN 3150-
AJ20)

Approved X Disapproved X Abstain

Not Participating

COMMENTS: Below Attached X None



SIGNATURE

8/7/2014

DATE

Entered on "STARS" Yes X No

Chairman Macfarlane's Comments on SECY-14-0072
"Proposed Rule: Continued Storage of Spent Nuclear Fuel"

Introduction

I approve publishing the rule for the Continued Storage of Spent Nuclear Fuel, subject to the following comments and edits to the *Federal Register* Notice (FRN) and the final Generic Environmental Impact Statement for continued storage of spent nuclear fuel (GEIS). I do not approve publishing the GEIS without addressing the potential range of environmental impacts for indefinite storage, with and without institutional controls.

Under consideration is a rulemaking regarding the environmental impacts of continued storage of spent nuclear fuel *beyond* the licensed life of nuclear power reactor operations.¹ This is a departure from a "Waste Confidence Decision" by the Commission, which historically included a set of findings about the availability of a mined geologic repository and the safe management of spent nuclear fuel in the interim. The staff has by contrast prepared the GEIS for Commission consideration.² The GEIS addresses the environmental impacts of continued above ground storage and provides a regulatory basis for completing this rulemaking. The GEIS also documents the results of extensive engagement with the public on the matter and accounts for the feedback we received.

An important backdrop to the Commission's decision on this matter is how to make a determination about the environmental impacts of on-site storage of spent nuclear fuel until a repository is sited and constructed at an unknown time in the future – while not inadvertently enabling the continued postponement of efforts to secure a geologic disposal solution. In essence, the GEIS concludes that unavoidable adverse environmental impacts are "small" for short-term, long-term, and indefinite time frames for storage of spent nuclear fuel. The proverbial "elephant in the room" is this: if the environmental impacts of storing waste indefinitely on the surface are essentially small, then is it necessary to have a deep geologic disposal option?

Deep geologic disposal is necessary. A majority of the public, industry, academia, and regulators agree on the need for geologic storage. Their reasoning is based on a number of factors: intergenerational equity, safety risks posed by unmonitored spent fuel, the high costs of indefinite storage, and the potential security and proliferation risks posed by lower activity spent fuel. However, siting and operating a repository is challenging, politically and technically. I believe it is essential to account for the broader context of national policy related to the management and disposition of spent nuclear fuel. In short, the U.S. government has yet to meet its own long-established responsibility to site a repository for the permanent disposal of spent nuclear fuel, contrary to the hopes expressed in previous Waste Confidence decisions. I want to ensure that the NRC, through its own policymaking, does not tip the balance in the direction of avoiding this necessary task.

¹ This rule is not applicable to the assessment of environmental impacts of spent fuel storage that occur during a reactor's licensed life for operation.

² The requirement to complete an environmental impact statement for major federal actions was established by the National Environmental Policy Act (NEPA) to promote informed decision-making by federal agencies and to ensure that information about potential environmental impacts of a pending federal action are available to both agency leadership and the public.

Therefore, my vote last year on the draft “Waste Confidence” rule continues to underpin my review of this final rule.³ I am pleased that staff has addressed my belief that the Commission should not make a finding regarding the feasibility of repository availability as Commission policy. Staff is instead recommending that the Commission remove “waste confidence” from the lexicon and not include findings regarding repository availability in the final rule. I also objected to the assumption that institutional controls, the ability of the state to assure the safety and security of spent fuel, would continue indefinitely. I appreciate the staff’s expanded discussion on institutional controls in Appendix B.3.4 of the GEIS, including the potential environmental impacts of both a temporary and a permanent loss of control. I still believe, however, that the GEIS needs to fully analyze the potential range of environmental impacts for indefinite storage, with and without institutional controls.

Lastly, I compliment our technical and legal staff for their work to complete this complex task on schedule. The Commission’s charge to the staff demanded broad-based engagement with the public and extensive internal debate and deliberation. I am particularly appreciative of the staff’s openness to consider the range of perspectives offered by the public and the Commission during this undertaking.

Repository Availability and Safe Storage

Consistent with my previous vote, I support the approach to discontinue a Commission policy decision on predicting the timing of a repository. The Commission’s original policy was that it “would not continue to license reactors if it did not have reasonable confidence that wastes can and will be in ‘due course’ be disposed of safely.” The resultant Waste Confidence Decision had historically been a set of five generic findings that consisted of two key ingredients: (1) affirmation that spent fuel can be safely stored for a certain period of time, and (2) affirmation that a repository to permanently dispose the spent fuel would be available within that timeframe. The first ingredient has been proven true thus far with experience. The second has not.⁴ The timing of a repository is based on policy decisions and societal factors that are beyond the authority and control of the Commission.

Given the current progress being made in some countries and the U.S. experience with – and lessons learned from the operation of – the Waste Isolation Pilot Project, I have reasonable confidence that a deep geologic repository can be designed, authorized, constructed, and opened to accept waste for permanent disposal.⁵ But there is not convincing evidence that a repository will be available in a “due course” of time given the nation’s legislative and executive branch policy impasse. I will have confidence in the timing when a renewed national consensus emerges on a repository for spent nuclear fuel. In this context, however, I do not agree with certain supporting statements in the FRN and GEIS that seem to subtly affirm Commission conclusions that a repository will be available in the near-term (presumably by the middle of this century) as the “most likely scenario.” These statements may be viewed as Commission policy and have no significant bearing on the environmental impact findings in the GEIS.⁶ Therefore,

³ Chairman Macfarlane’s Comments on SECY-13-0061, “Proposed Rule: Waste Confidence - Continued Storage of Spent Nuclear Fuel,” July 12, 2013. Available at <http://pbadupws.nrc.gov/docs/ML1321/ML13217A261.pdf>

⁴ The original Waste Confidence Decision (1984), which set precedent on the structure of the Commission’s approach, had determined that a repository would be available by 2009.

⁵ Sweden, Finland, and France have selected repository sites already and Canada is making significant progress.

⁶ It is important to note that both the plans of the current Administration to establish a repository by 2048, and the plans of the previous Administration to license and operate Yucca Mountain, would continue to be dependent on

the staff should revise statements in the GEIS and FRN to characterize repository availability in the near-term as “one reasonable scenario” rather than the “most likely scenario.”

Institutional Controls During Indefinite Storage

Again, consistent with my previous vote, I do not fully approve the final GEIS without a formal analysis of indefinite storage to fully address a loss of institutional controls as one scenario. While I acknowledge that NEPA does not require consideration of worst case scenarios, I find that this is a unique and unprecedented review: the task of examining the impacts of indefinitely storing spent fuel on the surface without a repository – which would require millennia of active human oversight. Other power industries (e.g., coal or gas) may not be required to predict and disclose the indefinite impacts of their waste products (e.g., carbon pollution, heavy metals in coal ash) with the same rigor as considered here in this GEIS.⁷ But we must.

Based on comments received on the draft GEIS, the staff has provided a discussion of the loss of institutional controls (see Appendix B.3.4). The staff recognizes some relevant analyses and literature, including the environmental impact statement for Yucca Mountain that analyzes environmental consequences of a storage alternative assuming loss of institutional controls.⁸ The staff also notes the difficulty in reasonably foreseeing loss of institutional control scenarios and in predicting future consequences. The staff maintains that the most reasonably foreseeable assumption is that institutional controls will continue indefinitely, claiming in part that it would be illogical for any government to abandon the storage facilities given the significant hazards posed by spent fuel. Nonetheless, the staff concludes that a temporary loss of control would have impacts similar to spent fuel storage accidents and that a permanent loss of institutional controls would be a “catastrophe to the environment.” These impacts “across nearly all resource areas would be clearly noticeable and destabilizing to the environment.”⁹

In its remand, the Court “focused on the effects of failure to secure permanent storage.”¹⁰ Current institutional controls have already stalled in the U.S., in the sense that permanent disposal of spent fuel in a deep geologic repository is in itself a primary institutional control that was designated by Congress to permanently isolate long-lived radionuclides from the environment and human population. The court’s remand was based on the federal government’s failure thus far to implement the primary institutional control of permanent

approvals and long-term commitment from future Congresses and Administrations (e.g., authorizations, appropriations).

⁷ The staff in fact may need to consider indefinite or irreversible impacts of these technologies when implementing the GEIS and comparing alternate power replacement sources in site-specific EIS for reactors.

⁸ U.S. Department of Energy, “Final Supplemental Environmental Impact Statement for a Geologic Repository for the Disposal of Spent Nuclear Fuel and High-Level Radioactive Waste at Yucca Mountain, Nye County, Nevada.” DOE EIS-0250F-S1, Office Civilian Radioactive Waste Management, Las Vegas, Nevada, 2008.

National Academy of Sciences “*Technical Bases for Yucca Mountain Standards*,” National Academy of Sciences / National Research Council of Board on Radioactive Waste Management, Committee on the Remediation of Buried and Tank Waste, National Academy Press, Washington, D.C., 1995.

National Academy of Sciences, “*Long-Term Institutional Management of the U.S. Department of Energy Legacy Waste Sites*,” National Academy of Sciences/National Research Council of Board on Radioactive Waste Management, Committee on the Remediation of Buried and Tank Waste, National Academy Press, Washington, D.C., 2000

⁹ “Clearly noticeable and destabilizing” impacts are associated with LARGE environmental impacts as defined in Section 1.8.5 of the GEIS.

¹⁰ *New York v. NRC*, 681, F.3d 471, 479 (D.C. Cir. 2012).

isolation. On this basis alone it is reasonable to question whether political and societal willingness to maintain obvious institutional controls will continue forever. Objectively, there are significant uncertainties such as (1) the lack of experience in repeatedly repackaging spent fuel into new storage devices over time, (2) the lack of a guarantee that responsible parties would pay for the costs of repackaging over time, and (3) unforeseen events in our natural environment and society. These all pose challenges to the assumption that indefinite institutional controls is the only scenario to consider in the resource impact assessments of the GEIS.

In my view, a thorough and complete analysis would have refined and expanded the assumptions made in the DOE analysis and analyzed the impact of radionuclides on the local environment that would occur if the barriers maintained by institutional controls failed.¹¹ I believe the agency should present a complete analysis of indefinite storage, including the full range of potential impacts from the worst case scenario. I disagree in part with the staff's views about the difficulty of quantitatively measuring impact, and believe it is relatively straightforward to calculate bounding impacts of indefinite storage. There is no need, however, to hypothesize which institutions will exist hundreds of years from now, or imagine what a future society would be like. I agree with staff that these are impossible tasks. We should only put forward what we can know with some certainty: if the casks containing the spent fuel and the fuel cladding were to fail, we can still calculate the concentrations of radionuclides at a given time. We can then qualitatively argue, underpinned by this factual analysis, that the impacts on the environment, surrounding soils, air, surface and ground waters would be LARGE.

I therefore maintain the position that the staff should fully evaluate the potential range of environmental impacts for indefinite, no-repository storage under two scenarios – keeping and losing institutional controls. Chapters 4 and 5 of the GEIS should be updated to systematically examine indefinite storage in the major resource areas that would be affected by uncontrolled releases from loss of institutional controls. Factually stating these impacts is transparent, stays closest to using assumptions based on factual data, and best conveys the potential range of environmental and societal consequences of generating spent nuclear fuel and failing to dispose of it in a repository – regardless of how unthinkable, remote, or speculative it may be deemed to be today.

Spent Fuel Management Funds and Storage Costs (An Institutional Control Issue)

In the GEIS, the staff estimate that costs for activities related to onsite spent fuel storage, away-from reactor storage, periodic replacement of casks, and/or the use of dry transfer systems could reach hundreds of millions to billions of (2014) dollars for each site during a hundred-year lifetime (e.g., long-term scenario). They also note the Standard Contract of 10 CFR Part 961 requires the federal government to take title to and dispose of spent fuel, and numerous successful lawsuits filed by licensees have resulted in payments from the Judgment Fund for partial breaches of the Standard Contract.¹²

¹¹ An underlying assumption of the impacts in the GEIS is that as long as the spent fuel remains sealed and isolated in a dry storage cask, there will be no significant exposures to the natural environment and humans that surround the cask.

¹² The NRC staff acknowledges that, because of delays in the siting and licensing of a repository, the federal government bears an increasing share of the financial responsibility for storage costs. Although the annual costs for continued storage are manageable, cumulative costs will be large. The staff references a GAO report that indicates that the federal government has estimated it will pay a total of approximately \$20 billion in damage awards and

To ensure safety and security at spent fuel storage sites, NRC requires that licensees have sufficient financial resources (e.g., revenue, trust funds) to maintain spent fuel management operations. In the GEIS, the staff points to spent fuel management funding requirements as the mechanism to ensure decommissioned licensees have these resources. This system and processes suffice over the short term. The question remains as to how to assure funding over the long-term and indefinite storage scenarios.

The business plan for nuclear power reactor licensees has been that the federal government would assume ownership of spent fuel under the Standard Contract, and would cover any additional costs. Decommissioned licensees will likely not have sufficient revenue to pay for the reoccurring expenses such as repackaging of spent fuel, construction of dry transfer facilities, and increased security needs assumed in the GEIS. As spent fuel ages, its radioactivity decreases, and hence it loses its self-protecting qualities that increase vulnerability to theft. As a result, security requirements for storage facilities will increase over time. It is only logical that the federal government would have to step in at some point to directly finance indefinite storage; or licensees would have to rely upon favorable judgments from the courts to reimburse them indefinitely for continued storage costs. While funding near-term storage is not a crisis, the staff should revise the GEIS and associated comments in Appendix D to reflect the genuine reality that the U.S. government will have to pay for the long-term storage of spent fuel.¹³

Site-specific Environmental Issues

The NRC received numerous public comments on the use of a generic analysis that would represent the environmental impacts for each location in the U.S. where storage of commercial spent nuclear fuel may continue. As discussed in question A5 of the Federal Register Notice (FRN), the NRC staff determined that the impacts of continued storage will not vary significantly across sites, despite variations in site-specific characteristics. Some commenters still questioned whether the generic analysis can adequately account for site-specific conditions and unique attributes surrounding each facility. Some commenters also expressed concern that the GEIS would preclude a site-specific evaluation of spent fuel storage where they live. I am receptive to some of these concerns, in particular, concerns that some power plant sites may have unique resources, liabilities, or other characteristics, such as location in a marine or wet environment, that influence environmental impacts. The staff assigns impact ranges to a few areas, such as historic and cultural resources. In addition, staff points out that each future site-specific storage application (in the continued storage phase) will have its own site-specific environmental analysis.¹⁴ For purposes of this rulemaking, I believe a generic environmental impact statement (with a full understanding of indefinite storage as discussed above) is the best approach for establishing this rule. However, in implementing the GEIS findings into site-specific environmental analyses, the staff should develop approaches and procedures that are transparent to the public on how these impact ranges are considered for each specific site.

settlements by the year 2020 and \$500 million per year after that, if DOE does not accept fuel by 2021 and spent fuel continues to accumulate at reactor sites.

¹³ This substantial financial burden again underscores the importance of considering scenarios that cover the range of possibilities related to the impact of the loss of institutional controls over an indefinite timeframe.

¹⁴ This could result in a conundrum if the licensee or NRC determines there is a significant safety or environmental issue during operations or in a future licensing proceeding – because the spent fuel has already been generated and exists at the site. Unlike reactor facilities, dry storage casks are passive systems that cannot immediately “cease operating.” Dry storage casks must remain safe and secure until they are transferred to a regional storage or disposal facility.

I am also concerned about generic statements in the GEIS that could imply that all current reactor sites that enter the continued storage phase will be automatically subject to specific licensing actions and have site-specific environmental reviews. Storage under a site-specific license will result in a site-specific environmental review. However, the majority of current reactor licensees store spent fuel under their general license and use storage casks that are certified by NRC through rulemaking, based on generic NEPA assessments. These sites therefore do not have site-specific NEPA analyses. The staff should revise the response to question A10 of the FRN to clarify that appropriate site-specific NEPA analysis may not be conducted for continued storage until the end of the short term storage timeframe for general license storage.

Finally, I take note of the significant number of comments on spent fuel pool fire hazards. Some commented that the spent fuel pool fire risk depends on site-specific factors and cannot be assessed generically. Others disagree with the risk-based impact finding of SMALL, which results from the low probability assigned to spent fuel pool loss of water and fire events.¹⁵ I have previously commented on spent fuel fire risks in regard to the need for optimizing spent fuel management at operating reactors with pools and dry cask storage.¹⁶ One key objective of NEPA is full disclosure of potential environmental impacts so that decision makers can use this knowledge to inform decisions. In this regard, I approve the record of discussion in the GEIS: while deemed a very low probability, the potential consequences of a spent fuel fire could be significant and destabilizing to the environment (see Appendix F of the GEIS).

Periodic Re-examination of the GEIS and Rule

The GEIS should not be a one-time exercise. The GEIS that supports this continued storage rule contains a great level of specificity in its analyses and assumptions regarding long-term storage. These assumptions are based on the best-available information today. The GEIS will need to remain viable over the long-term. It underpins both the rule language in 10 CFR Part 51 and the way in which staff examines spent fuel storage impacts in site-specific NEPA reviews. There is also a significant amount of public interest with valuable input on this matter. The staff proposes that the Commission review the GEIS for possible revision when warranted by significant events that may call into question the appropriateness of the rule.

For effectiveness, openness, and in the spirit of public participation in the NEPA process, a periodic review of the GEIS is warranted. On a ten year periodic basis, the staff should examine the GEIS, including: (1) the fundamental assumptions that underpin the impact findings for all three storage scenarios, (2) changes in U.S. national policy or direction on long-term spent fuel

¹⁵ NRC uses the terms SMALL, MODERATE, and LARGE to define the standard of significance in assessing environmental issues. SMALL environmental effects are not detectable or are so minor that they will neither destabilize nor noticeably alter an important attribute of the resource. MODERATE environmental effects are sufficient to alter noticeably, but not to destabilize important attributes of the resource. LARGE environmental effects are clearly noticeable and are sufficient to destabilize important attributes of the resource. For risk-based determinations, such as analyses of spent fuel pool fires, the probability of occurrence and potential consequences have been factored into the determination of significance.

¹⁶ See Chairman Macfarlane comments on COMSECY-13-0030, "Staff Evaluation and Recommendation for Japan Lessons-Learned Tier 3 Issue on Expedited Transfer of Spent Fuel," April 8, 2014. Key elements of managing spent fuel fire risks is the thermal management of recently discharged fuel assemblies and reducing source terms in spent fuel pools. In this regard, I believe the risks for spent fuel fires in a pool during the continued storage period is generically lower than at operating plants. The decay heat significantly decreases after the first few years of reactor shutdown, thus making thermal management factors less relevant.

management, and (3) experience gained through licensing proceedings that implement the revised rule. Based on this formal examination, the staff should provide a recommendation on whether to supplement the GEIS or rule, if needed. To support this approach and identify implementation issues that may need more timely resolution, the staff on a periodic basis (e.g., every 3 years), should provide an information paper to the Commission that reports any significant events, major research activities, and licensing proceedings that have bearing on the rule and GEIS. The response to item A14 and other areas of the proposed rule should be revised accordingly to reflect this plan to periodically re-examine the GEIS and Rule.

Other Corrections to Final FRN and GEIS

In addition to the changes noted above, the staff should update the FRN and GEIS as shown in Attachments 1 and 2 of my vote, to reflect other important changes and clarifications.

Conclusion

I approve the general approach for assessing impacts in the short term and longer term storage scenarios, but I do not endorse the determination of impacts of indefinite storage of spent nuclear fuel without an additional scenario that accounts for the impact in each resource area of the potential loss of institutional controls. I believe a "worst case" estimate of potential environmental impacts is needed to fully inform decision makers about the entire range of potential environmental impacts of generating new spent fuel without a repository for permanent disposal.

In order to have a full and complete record of the potential range of environmental impacts of generating spent fuel without a deep geologic repository, the GEIS should fully examine indefinite storage with and without institutional controls. Further, I believe that a ten-year periodic review of the GEIS is warranted. On a three year basis, the staff should provide an information paper to the Commission that reports on any significant events, major research activities, and licensing proceedings that have bearing on the rule.

Finally, I note that at least one commenter has suggested that development of a repository in the U.S. has devolved into a Sisyphean task. I agree that much in the national management of spent fuel and development of a geologic repository over the past decades fits this analogy. I believe that it is essential that the Nuclear Regulatory Commission should not, through its own regulatory policy-making, inadvertently give impetus to policy makers to avoid the pursuit of a repository. There is a well-recognized, internationally-accepted finding, and long-standing national policy, that the only suitable end point for high-level nuclear waste is permanent isolation in a deep geologic repository. I remain firm in my belief that indefinite or even long-term surface storage is not the appropriate alternative to deep geologic disposal.

If nuclear power is going to be an essential element of our nation's base load power, particularly as a means to counter carbon-induced climate change, legislative and executive branch leaders must bear the responsibility to chart a path for final disposition of spent nuclear fuel.


Allison M. Macfarlane 8/7/2014
Date

EXHIBIT 3

CEP Regular Meeting
SONGS Dismantlement and Removal of Spent
Fuel from San Onofre

Thursday, November 21, 2019

5:30 - 8:30 p.m.

Oceanside, California

Public comment?

Write to: nuccomm@songs.sce.com

Agenda Topic	Presenter	Time
CEP and SCE welcome & opening comments	David Victor Doug Bauder	5:30 - 5:35 (5 min)
CEP general updates <ul style="list-style-type: none"> NRC NEIMA CAB meeting: CEP visit to Holtec International, Inc. in Camden, NJ 3Q CEP meeting questions and answers 	David Victor David Victor D. Victor, D. Stetson, J. Kern	5:35 – 5:50 (15 min)
SONGS decommissioning update <ul style="list-style-type: none"> Decommissioning plan Fuel transfer operations Environmental stewardship 	Doug Bauder Lou Bosch Ron Pontes	5:50 – 6:10 (20 min)
Dismantlement & removal of plant structures <ul style="list-style-type: none"> Decommissioning general contractor/<i>SONGS Decommissioning Solutions</i> - Radiological safety 	Tom Dieter (SDS) Bob Corbett (SDS)	6:10 – 6:30 (20 min)
Advancing Spent Fuel Removal from San Onofre <ul style="list-style-type: none"> Experts Team SONGS Strategic Plan update 	Tom Isaacs (ET) Phil Niedzielski-Eichner (NWT) Brian Gutherman (NWT) Joe Hezir (NWT)	6:30 – 6:50 (20 mins)
Nuclear Waste Technical Review Board <ul style="list-style-type: none"> Mission and recent reports 	Bret Leslie	6:50 – 6:55 (5 min)
Break		6:55 – 7:05 (10 min)
Public comment		7:05 - 8:05 (60 min)
Facilitated dialogue	Dan Stetson Jerry Kern	8:05 – 8:25 (20 min)
SCE and CEP closing comments	Doug Bauder David Victor	8:25 – 8:30 (5 min)

Welcome and Opening Comments

David Victor and Doug Bauder

CEP General Community Updates

- NRC NEIMA community advisory board meeting
- CEP Visit to Holtec International, Inc.
- 3rd Quarter CEP Meeting Questions and Answers

CEP Updates

David Victor, Dan Stetson & Jerry Kern

SAN ONOFRE
COMMUNITY
ENGAGEMENT
PANEL

- NRC public meeting on community advisory board best practices – Aug. 29, 2019 in San Juan Capistrano
- CEP leadership visit with Holtec – Sept. 17, 2019



3Q CEP Meeting Q&A

Dan Stetson & Jerry Kern

Answers to questions related to the following topics are available on [songscommunity.com](https://www.songscommunity.com):

1. Information on double walled canisters assessed by SCE
2. Why the Holtec system was selected among the top three vendors
<https://www.songscommunity.com/need-to-know/overview/sce-releases-comprehensive-dry-storage-overview-paper>
3. “Risk driven” inspections and reason for the number of canisters inspected
4. TN/NUHOMS canister inspections using robotics
5. Determine if there are any leaking canisters in U.S.
6. How much low level radiological waste is on site and expected to be shipped
7. Information on sea-level rise
https://www.songscommunity.com/internal_redirect/cms.ipressroom.com.s3.amazonaws.com/339/files/201910/3Q%20CEP%20QA%20Document%20Rev.%203%20FINAL%2011-18-19.pdf
8. NRC requirements on canister retrievability
https://www.songscommunity.com/internal_redirect/cms.ipressroom.com.s3.amazonaws.com/339/files/201910/201911180405/Canister%20UnloadingTraining%20Exercise%20versus%20Retrievability%20Requirements.pdf
9. Write a white paper on Inspection & Maintenance and Aging Management Program for CEP members and general audience and post it on the website
https://www.songscommunity.com/internal_redirect/cms.ipressroom.com.s3.amazonaws.com/339/files/201910/CEP%20White%20Paper%20Licensing%20Inspection%20and%20Mitigation%20for%20TN%20and%20Holtec%20Systems%2011%2012%2019.pdf



Decommissioning San Onofre

Nuclear Generating Station

SONGS Decommissioning Update

Doug Bauder
Chief Nuclear Officer and
VP Decommissioning



Decommissioning
San Onofre
Nuclear Generating Station

Decommissioning Update Topics

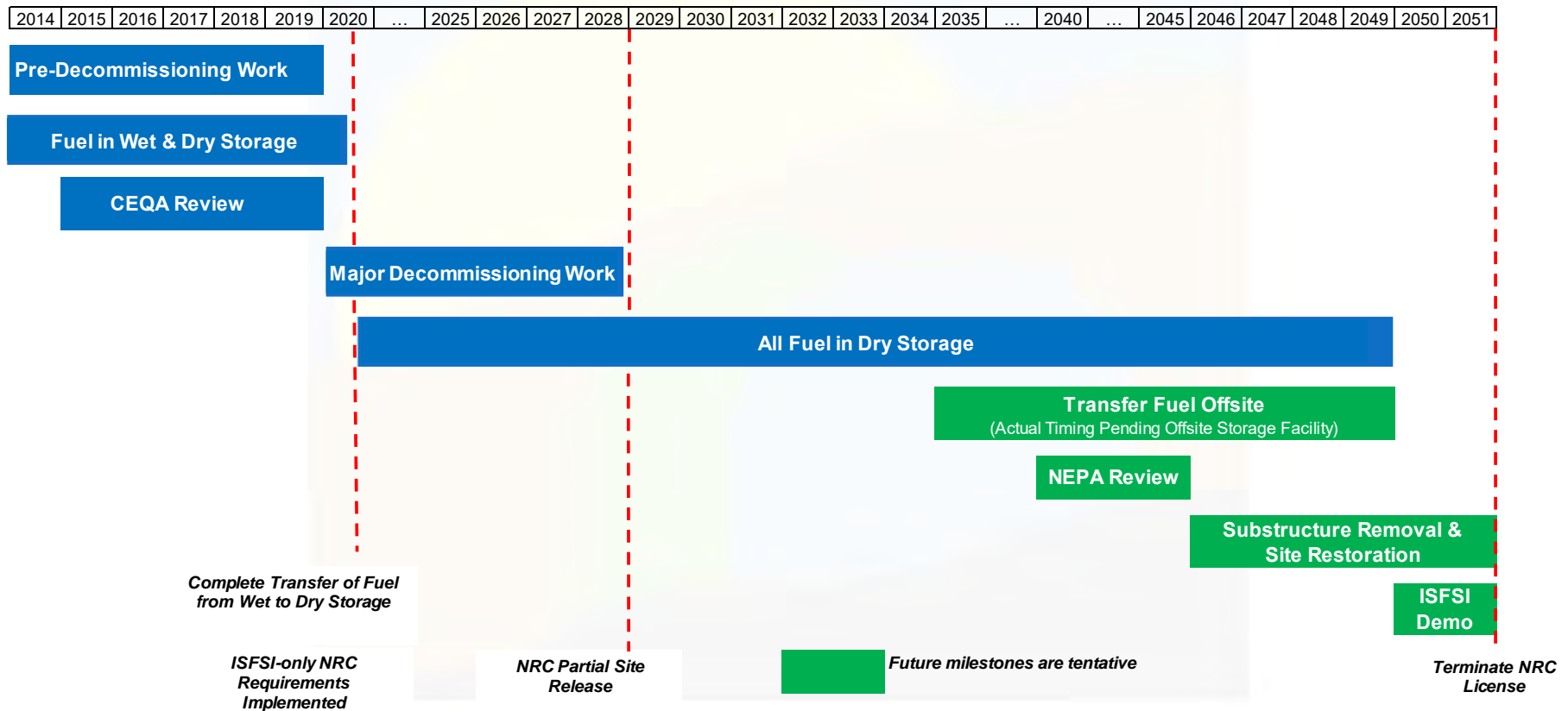
- Decommissioning plan
- Fuel Transfer Operations Update
- Environmental Stewardship
 - Permitting
 - Radiation monitoring and reporting
 - Environmental monitoring – public notifications



Decommissioning
San Onofre
Nuclear Generating Station

Decommissioning Plan

SONGS Decommissioning Plan



SUBJECT TO SONGS DECOMMISSIONING AGREEMENT, SECTION 19.3



Decommissioning San Onofre

Nuclear Generating Station

Fuel Transfer Operations

Lou Bosch
SONGS Plant Manager



Decommissioning
San Onofre
Nuclear Generating Station

Decommissioning Principles

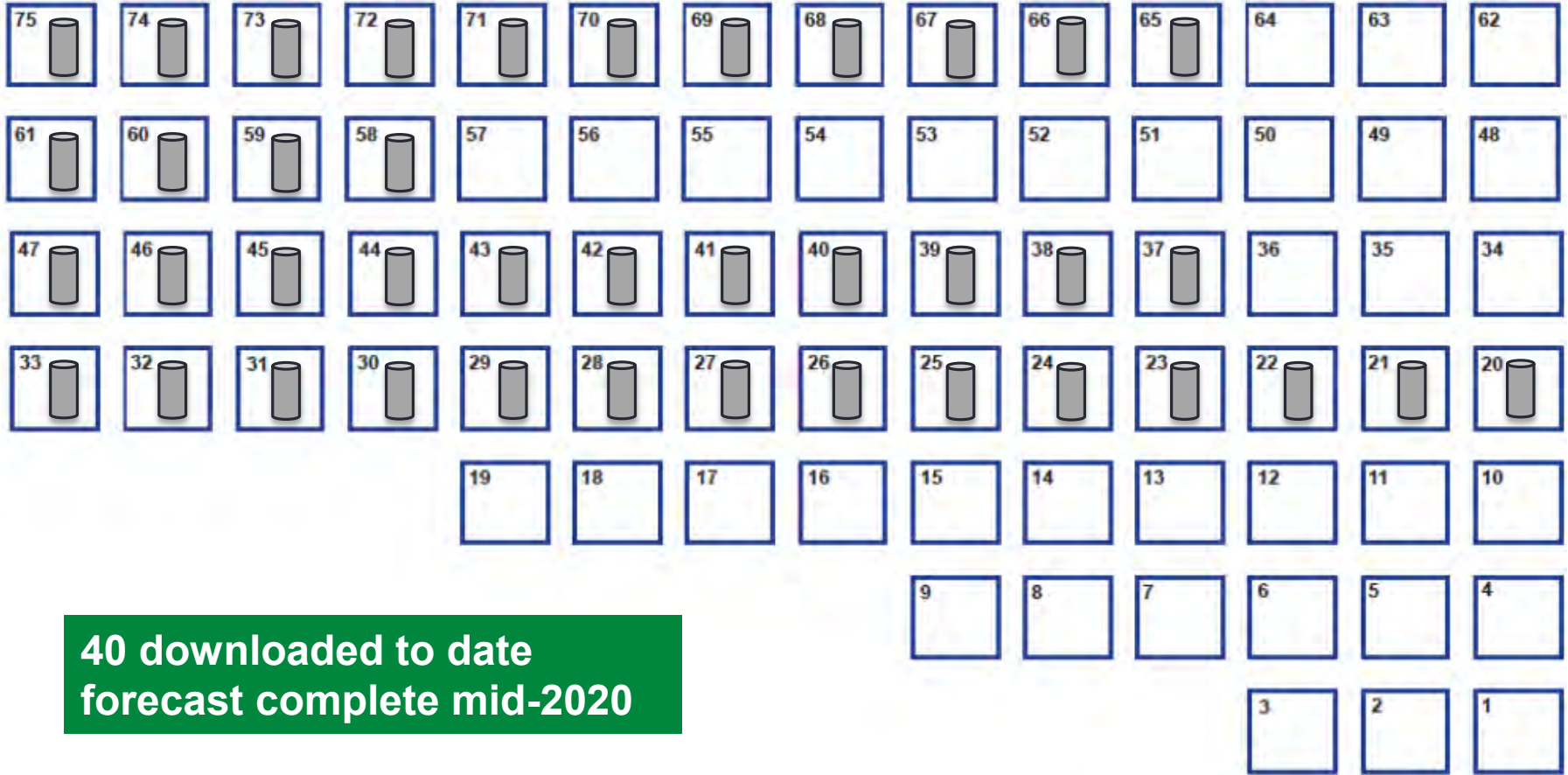
Safety
Stewardship
Engagement

For more information on SONGS visit
www.SONGScommunity.com



Decommissioning
San Onofre
Nuclear Generating Station

Tracking Fuel Movement



**40 downloaded to date
forecast complete mid-2020**

Pool To Pad Transfer Summary

- Continued focus on Safety
- Low threshold for use of Corrective Action Program
- Early identification of issues and prompt resolution
- Schedule pressure not an issue



Decommissioning
San Onofre
Nuclear Generating Station

Challenges

- Shield cone
- Vertical Cask Transporter (VCT) diesel exhaust fumes
- Vertical Cask Transporter (VCT) tower height sensor cable failed
- Unit 2 cask crane speed sensor broken bolt





Decommissioning
San Onofre
Nuclear Generating Station

Status Summary

- No serious safety or human performance issues
- Continued good teamwork
- Healthy and effective relationship between Holtec and SCE
- Continuous improvement actions are in process
 - Procedure revisions to improve clarity



Decommissioning **San Onofre** Nuclear Generating Station

Environmental Stewardship

Ron Pontes
Manager Environmental
Decommissioning

Permitting: California Environmental Quality Act

Two permits required to start dismantlement and removal of plant structures

MILESTONE	TIMING
Final Environmental Impact Report (EIR) and lease certified by CSLC at public meeting	Approved March 21, 2019
Coastal Development Permit (CDP) application for onshore work approved by CCC at public meeting	Approved October 17, 2019

Offshore work on intake and discharge conduits requires a CDP from CCC with a public meeting anticipated by mid-2021



Decommissioning
San Onofre
Nuclear Generating Station

Dry Cask Storage Radiation Monitoring System

- Radiation monitoring:
 - Added in response to public interest; SCE exceeds NRC requirements
 - ISFSI radiation data to be streamed to offsite agencies
 - Monthly public reports published by CA Department of Public Health, Radiologic Health Branch
 - System will be in service before dismantlement of the plant begins
 - System installation and testing underway





Decommissioning
San Onofre
Nuclear Generating Station

Liquid Batch Radiological Releases

- Liquid batch radiological releases
 - Effluents processed and cleaned to ensure safety to people, marine life, and the environment
 - Releases performed since start of Unit 1 operations
 - Performed in accordance with NRC license and regulations (none require advance notice due to low, safe levels)
 - All releases monitored, measured and reported annually to the NRC (reports are available to the public at the NRC website)
 - Significantly reduced following shutdown of Unit 1 in 1992 and shutdown of Units 2 and 3 in 2013

Reporting Future Liquid Batch Releases

- SCE will notify the public 48 hours prior to release via the website
- Information will include
 - ✓ Estimated volume
 - ✓ Estimated duration
 - ✓ Radiological characterization



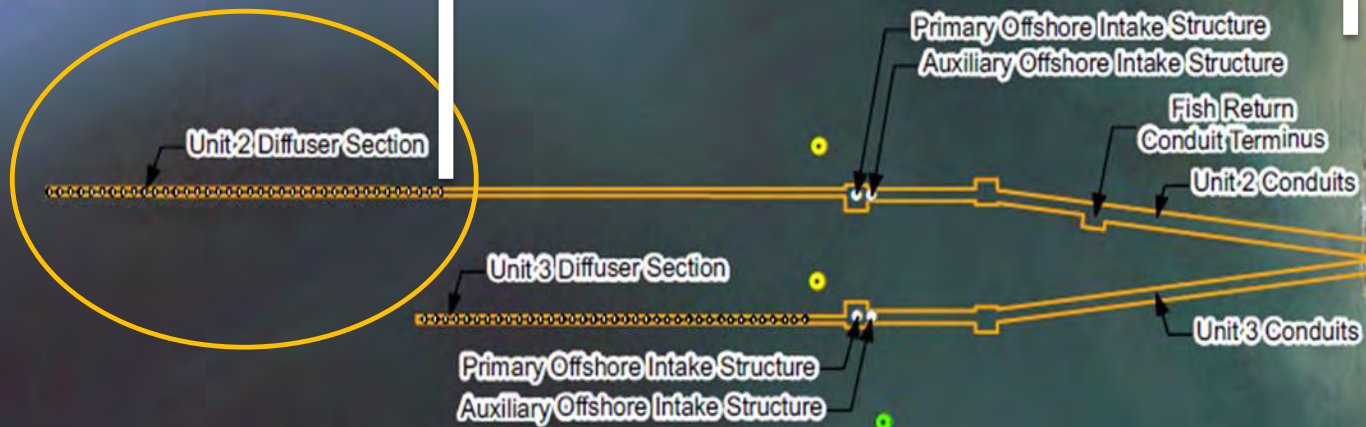
Decommissioning
San Onofre
Nuclear Generating Station

Radiological Environmental Monitoring

- To ensure health & safety of the public and environment, SCE conducts year-round radiological monitoring including:
 - Ocean water
 - Soil
 - Kelp
 - Beach sand sediment
 - Non-migratory fish species surrounding the plant
- Environmental monitoring results will be posted to www.SONGScommunity.com
- Batch release is anticipated in mid-December 2019
- Additional batch releases planned during 1Q 2020



Discharge starts
6,000 feet off shore



Pacific Ocean





Decommissioning San Onofre

Nuclear Generating Station

SONGS Dismantlement and Removal of Plant Structures

Doug Bauder
Chief Nuclear Officer and
VP Decommissioning

SONGS Decontamination and Dismantlement



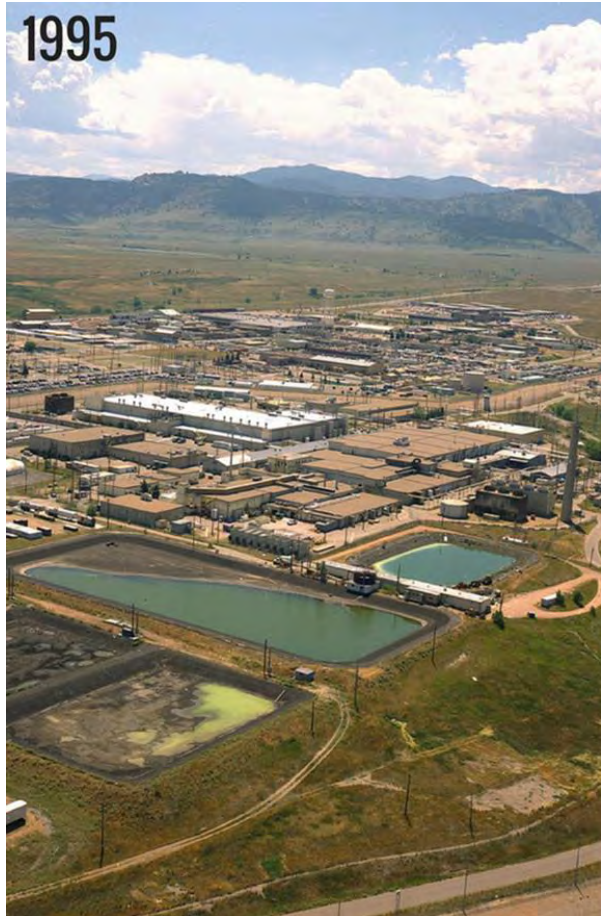
Thomas J. Dieter
Executive Sponsor
SONGS Decommissioning*Solutions*
(SDS)

Thomas J. Dieter

Executive Sponsor, SONGS Decommissioning*Solutions* (SDS)



Vice President and Project Manager Rocky Flats Closure Project



ZION Decommissioning SDS Partner *EnergySolutions*



**Zion Nuclear Station
Sept 2010**

**Zion Nuclear Station
Sept 2019**



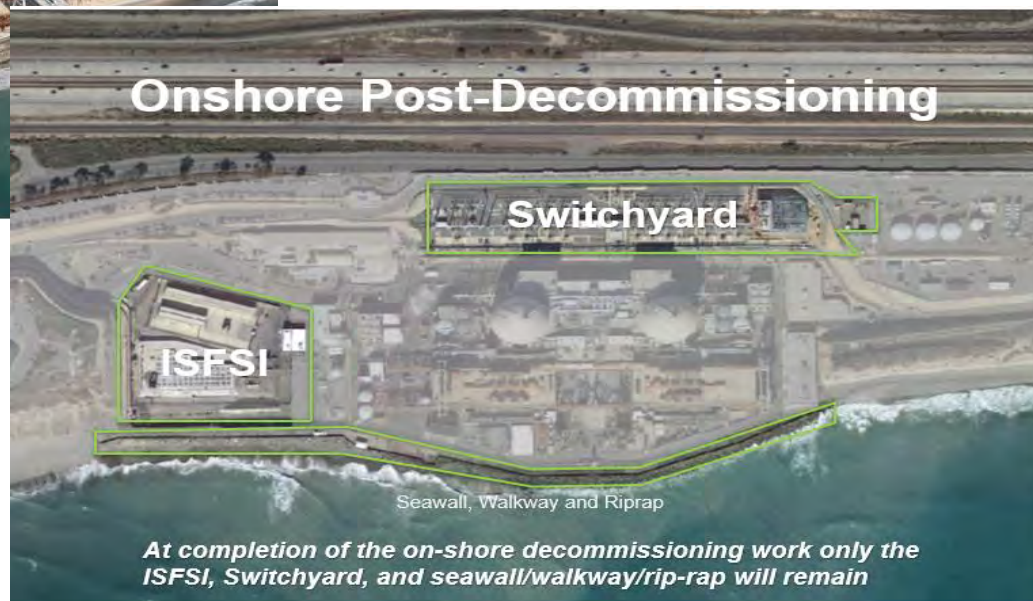
D&D Start Date
Oct 2010

Current Status
Demo Complete
Oct 2019

Projected
Finish
Early 2020

Original
Planned
Completion
[Dec 2020]

San Onofre Decommissioning Project



Decommissioning Video

- SDS video of San Onofre plant dismantlement



Bob Corbett

Radiation Protection Manager, SONGS Decommissioning *Solutions* (SDS)



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Radiological Safety During Decommissioning

- #1 Priority: Ensure radiological safety for both site workers and public
 - Employ fully trained and qualified staff
 - Maintain control of radioactive material (keep it where it belongs)
 - Verification methods include: surveys, sampling, and monitoring
 - Site condition will meet or exceed federal standards when complete



Decommissioning **San Onofre**

Nuclear Generating Station

Advancing Spent Fuel Removal from San Onofre

Tom Isaacs

Experts Team Chair &
Independent Strategic Advisor
for Waste Management



Decommissioning
San Onofre
Nuclear Generating Station

A Unique Effort to Relocate Spent Nuclear Fuel Offsite

- A utility exploring alternatives for removing spent nuclear fuel from a commercial nuclear plant is unique in the U.S.
- A Strategic Plan will consider a range of alternatives for offsite storage/disposal and recommend actions that SCE can take to:
 - advance viable solutions for relocating spent fuel off-site,
 - be ready to transport once a site becomes available, and
 - advance policy and regulations to promote off-site storage/disposal



Decommissioning
San Onofre
Nuclear Generating Station

SONGS Experts Team is Providing Guidance and Peer Review

Team Member	Expertise
Tom Isaacs (Chairman)	Siting and licensing
Kris Cummings	Nuclear engineering
Gary Lanthrum	Transportation
Allison Macfarlane	Siting and licensing
Rick Moore	Transportation
Dr. Josie Piccone	Radiation monitoring and detection

- Roles and activities of Experts Team
 - Helped select consultant North Wind Team to develop Strategic Plan
 - Providing ongoing guidance and peer review on Strategic Plan
 - Assisting in the selection of the consultant to develop a Conceptual Transportation Plan
 - Will provide guidance and peer review on Conceptual Transportation Plan

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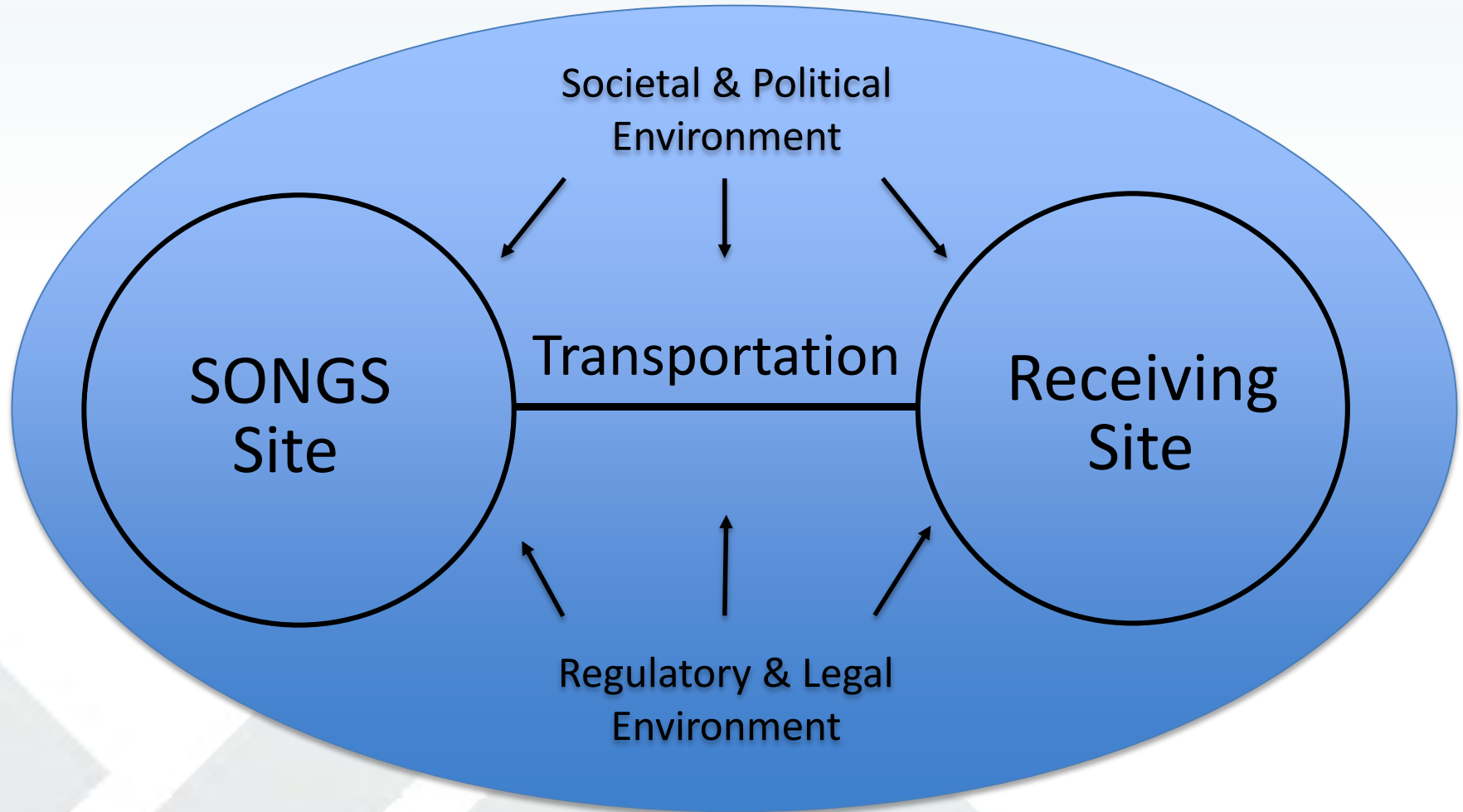


STRATEGIC PLAN FOR SONGS SPENT FUEL REMOVAL

Today's North Wind Team Members:

- **Phil Niedzielski-Eichner | Team Director**
- **Brian Gutherman | Regulatory Lead**
- **Joe Hezir | Legislative and Policy Lead**

An Old Problem



Seeking a SONGS Solution

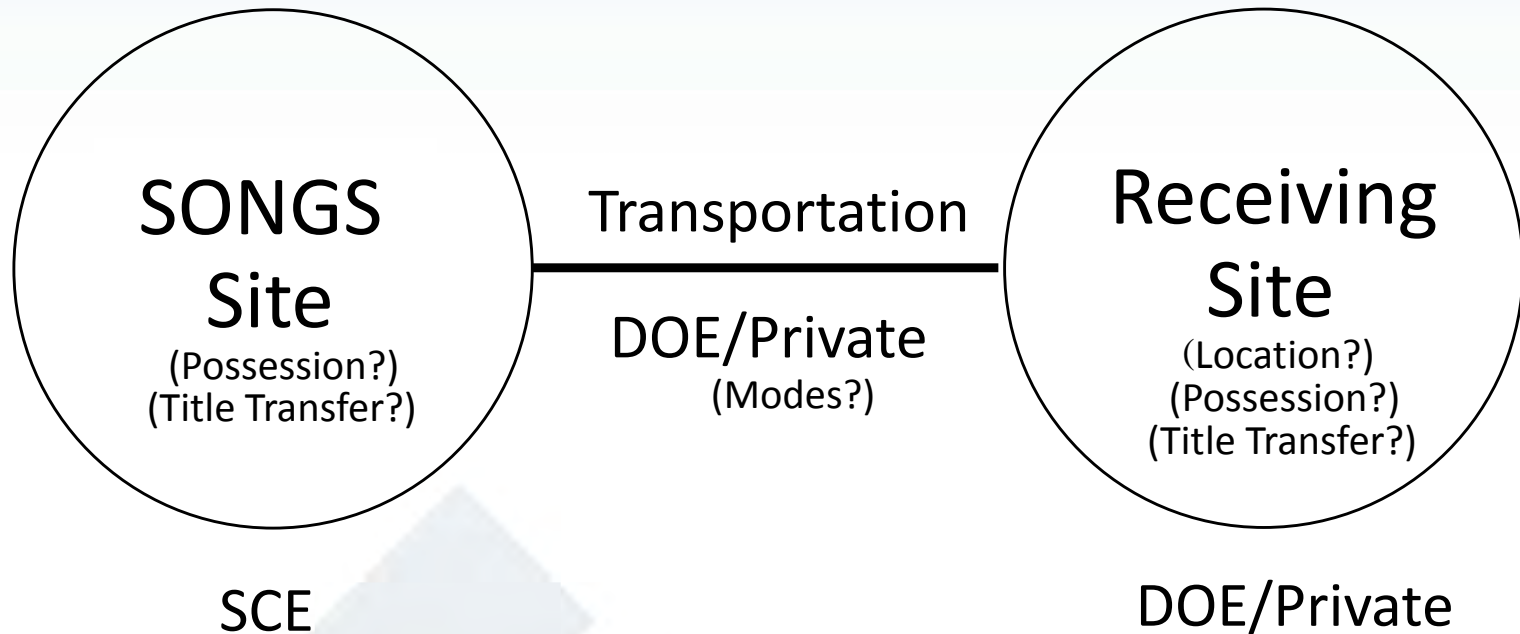
- Develop a strategy to relocate the SONGS spent fuel to an offsite storage or disposal facility
 - Conduct economic, regulatory, logistical, legal and statutory analysis of a range of alternatives
 - Examine potential sources of funding
 - Identify actions required to implement viable solutions
 - Solicits local, regional and national stakeholder input
- Identify actions that will enhance SCE's readiness to ship spent fuel offsite

TALENT WORKING ON THE SOLUTION

North Wind Team Member	Role and Subject Matter Expertise
Phillip Niedzielski-Eichner	Team Director, Policy and Legal Analysis
Elizabeth Helvey	Project Manager, Transportation Stakeholder Engagement
Ernest Moniz	Senior Advisor Former Secretary of Energy
Tom Hassenboehler	Senior Advisor Former Congressional Staff Director
Steven Croley	Policy and Legal Analysis
Brian Gutherman	Regulatory, Cask Loading and Operations
Joseph Hezir	Strategic Planning and Options Analysis
Jeanette Pablo	Legal Advisor
Joseph Rivers	Environmental Analysis
Timothy Runyon	Transportation Operations and Regulatory Analysis
Marika Tatsutani	Writer and Editor
James Voss	Engineering and Operations
Mary Woollen	Stakeholder Engagement

Analyze the Alternatives

Brian Gutherman



Tackle Hard Questions

- SONGS Site
 - When and under what conditions does possession and title transfer of the spent fuel occur?
 - What does SCE need to do to prepare for transportation?
 - What are the national implications of SONGS actions?
- Transportation
 - If not DOE, who is the shipper?
 - How would a private shipping model work (e.g., licensing, insurance)
 - What transportation modes are available and feasible?
 - Strategic Plan content | Conceptual Transportation Plan content
- Receiving Site
 - Federal or private facility?
 - Timeframe for licensing, construction, operation?
 - Commercial arrangements

Legislative & Funding Challenges

Joe Hezir

- Legislative
 - McNerney/Shimkus (House)
 - Levin (House)
 - Murkowski/Alexander/Feinstein (Senate)
- Funding
 - Congressional Appropriation
 - Nuclear Waste Fund
 - Judgment Fund
 - Private Investment

The Schedule

- Commenced work June 2019
- Publish Strategic Plan in December 2020

Stay Involved

- Continue to follow national efforts and understand historical barriers to success
- Track progress at [website address]
- Submit comments to [website address]
- Attend CEP meetings for progress reports



U.S. Nuclear Waste Technical Review Board

NWTRB
www.nwtrb.gov

U.S. Nuclear Waste Technical Review Board: Its Mission and Recent Reports on Management of DOE Spent Nuclear Fuel and Preparing for Nuclear Waste Transportation

Presented to:

SONGS Community Engagement Panel (CEP)

Presented By:

Bret Leslie, Senior Professional Staff

San Onofre Nuclear Generating Station CEP Meeting

November 21, 2019

Oceanside, CA

Board Mission

- The U.S. Nuclear Waste Technical Review Board (Board) was established by Congress as an independent federal agency in the 1987 amendments to the Nuclear Waste Policy Act
- The Board evaluates the “technical and scientific validity” of U.S. Department of Energy (DOE) Nuclear Waste Policy Act-related activities, wherever in DOE the activities are undertaken, including
 - Activities relating to packaging or transportation of spent nuclear fuel (SNF) and high-level radioactive waste (HLW)
 - Site characterization, design, and development of facilities for disposing of SNF or HLW



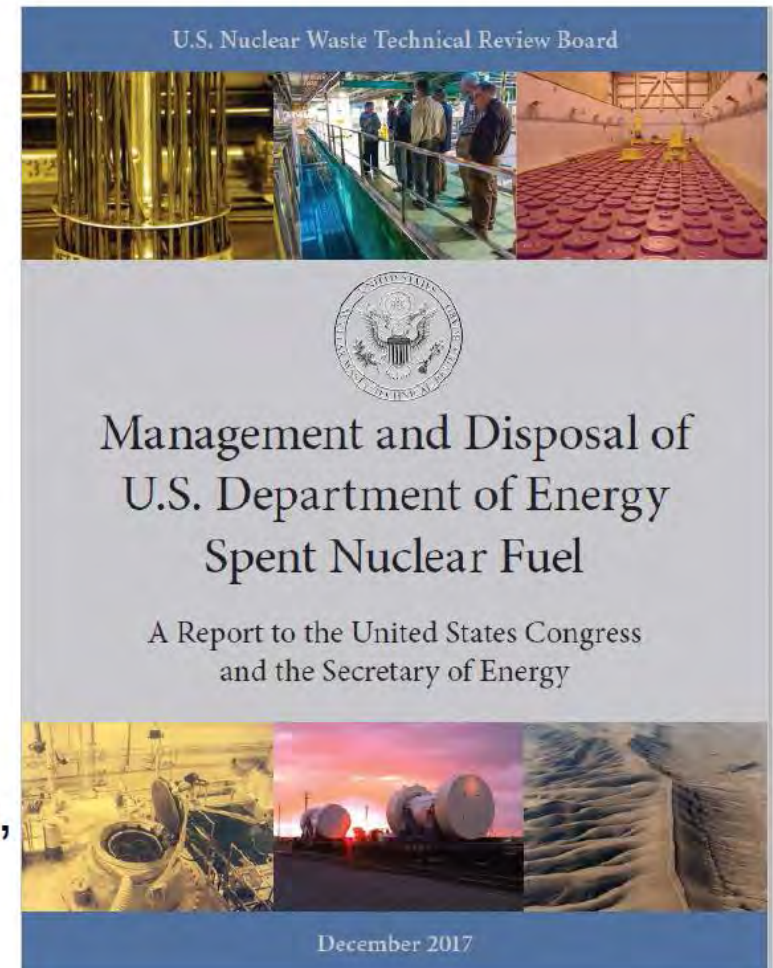
Board Mission (continued)

- The Board's interest in the management of SNF at utility sites is limited to the impact this may have on the operations DOE may need to undertake after taking title to the SNF
- Statements or presentations in Board public meetings are not Board positions
- The Board's positions are found in our reports to Congress and DOE and in our correspondence to DOE or to Congress



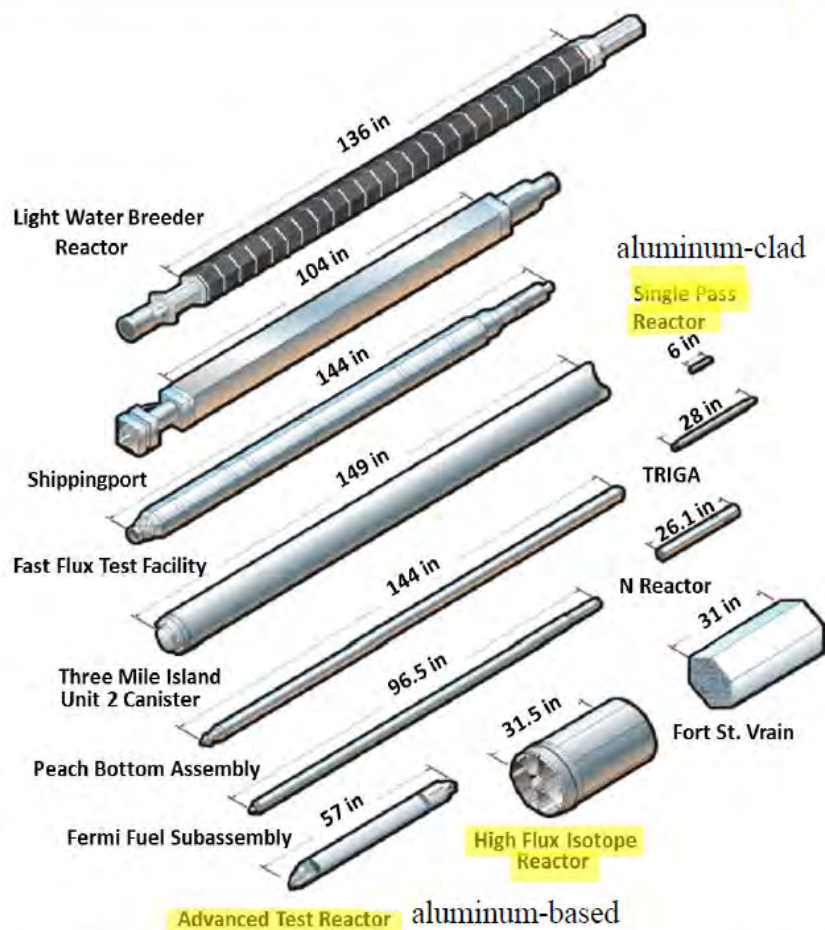
Board Report on the Management of DOE Spent Nuclear Fuel

- Covers the management and disposal of the full range of SNF managed by DOE
- Discusses differences between the characteristics of different types of SNF managed by DOE
- Examined technical issues related to DOE SNF packaging and storage that might affect continued storage, transportation, and disposal by DOE



Board Report on DOE Spent Nuclear Fuel (continued)

- Findings and recommendations are specific to the type(s) of DOE SNF identified, e.g.:
 - Potential accumulation of hydrogen gas relates to dry-storage of aluminum-clad and aluminum-based DOE SNF, not commercial SNF or “sodium-bonded” DOE SNF
 - The monitoring and inspection recommendations relate to the DOE standardized canister, not dual-purpose canisters used for storage of commercial SNF

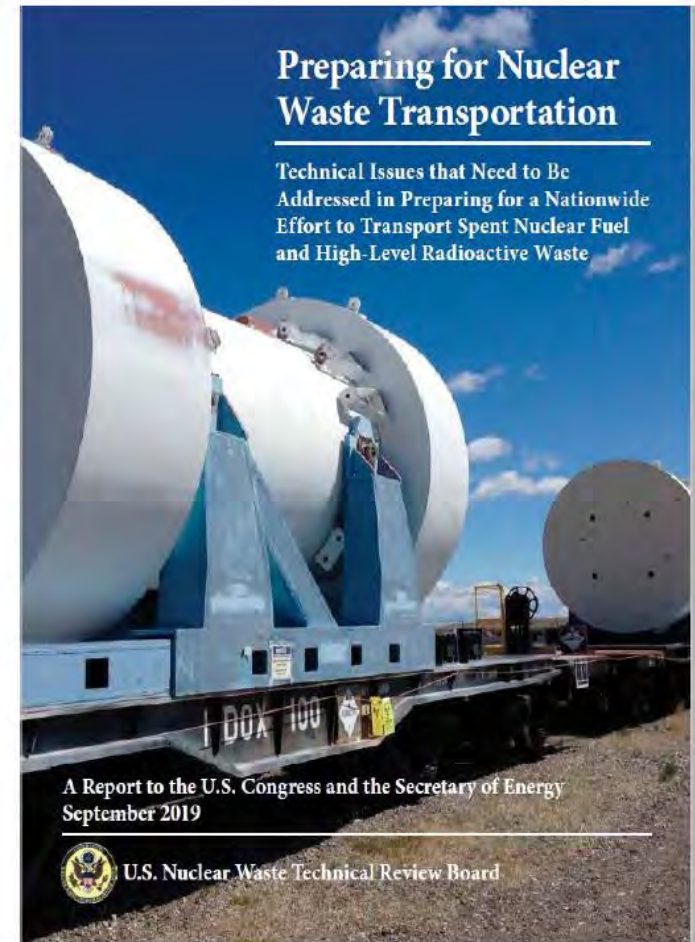


There are approximately 250 types of DOE SNF. Aluminum-clad and aluminum-based fuel types are highlighted



Board Report on Transportation

- Identified and evaluated technical issues that need to be addressed by DOE in preparing a nationwide effort to transport SNF and HLW
- The Board analyzed two possible scenarios as basis for its evaluation but made no recommendations on whether either of these options is preferable
 - DOE accepts bare commercial SNF assemblies (i.e., SNF assemblies not sealed inside SNF canisters) from nuclear utilities
 - DOE accepts SNF assemblies pre-packaged in casks or canisters



Board Report on Transportation (cont.)

- The Board did not suggest that repackaging of most SNF in dry-storage would be required prior to removal from nuclear power plant sites
- The report also includes discussion of DOE analysis of transportation of SNF away from the nuclear power plant sites in the existing casks and canisters
- The Board recommended that, for planning purposes, DOE should allow for a minimum of a decade to develop new cask and canister designs for SNF and HLW storage and transportation



BREAK

Information Booths Available

Public Comment

Submit written comments to:
nuccomm@songs.sce.com



Decommissioning
San Onofre
Nuclear Generating Station

CLOSING COMMENTS

DAVID VICTOR AND DOUG BAUDER



Decommissioning
San Onofre
Nuclear Generating Station

2020 CEP Meetings

Planned Focus Topics	*Timing
SONGS Strategic Plan for Removing Spent and Dismantlement	11-21-19
1Q CEP Meeting	Feb. 27, 2020
Dry Cask Storage Design, Potential Events, & Remedies	Mar. 26, 2020
2Q CEP Meeting	May 28, 2020
3Q CEP Meeting	Aug. 20, 2020
4Q CEP Meeting	Nov. 19, 2020

* Topics to be determined

Subject to Change

56



Decommissioning San Onofre Nuclear Generating Station

Acronyms

AMP	Aging Management Program
C&D	Cold & Dark
CAP	Corrective Action Program
CCC	California Coastal Commission
CDP	Coastal Development Permit
CEC	Cavity Enclosure Container
CEP	Community Engagement Panel
CEQA	California Environmental Quality Act
CIS	Consolidated Interim Storage
CISCC	Chloride-Induced Stress Corrosion Cracking
CPUC	California Public Utilities Commission
CSLC	California State Lands Commission
D&D	Decontamination & Dismantlement
DA	Decommissioning Agreement; Decommissioning Agent
DCE	Decommissioning Cost Estimate
DDT	Decommissioning & Dismantlement Team
DGC	Decommissioning General Contractor
DID	Defense-in-Depth
DOD	Department of Defense
DOE	Department of Energy
DON	Department of Navy
DSAR	Defueled Safety Analysis Report (replaces FSAR)
DSC	Dry Storage Canister
D-SEIS	Draft Supplemental Environmental Impact Statement
D-SER	Draft Safety Evaluation Report
DTF	Decommissioning Trust Fund
EIR	Environmental Impact Report
EP	Emergency Plan
EPRI	Electric Power Research Institute
FIER	Final Environmental Impact Report
FTO	Fuel Transfer Operations
GEIS	Generic Environmental Impact Statement
HI-PORT	Holtec International – (Engineered Low Profile) Transporter
HI-TRAC	Holtec International – Transfer Cask

IFMP	Irradiated Fuel Management Plan
ISFSI	Independent Spent Fuel Storage Installation
LAR	License Amendment Request
LOED	Large Organism Exclusion Device
MAPS	Managing Aging Programs in Storage
MARSSIM	Multi-Agency Radiation Survey Site & Investigation Manual
MOU	Memorandum of Understanding
NAHC	Native American Heritage Commission
NDCTP	Nuclear Decommissioning Cost Triennial Proceeding
NDE	Non Destructive Examination
NDTF	Nuclear Decommissioning Trust Fund
NEI	Nuclear Energy Institute
NEPA	National Environmental Policy Act
NGS	Nuclear Generating Station
NOP	Notice of Preparation
NPP	Nuclear Power Plant
NRC	Nuclear Regulatory Commission
OC	Orange County
PDEP	Permanently Defueled Emergency Plan
PDTs	Permanently Defueled Technical Specifications
PSDAR	Post-Shutdown Decommissioning Activities Report
Q&A	Questions & Answers
REIR	Request for Environmental Impact Review
SCE	Southern California Edison
SD	San Diego
SDG&E	San Diego Gas & Electric
SDS	SONGS Decommissioning Solutions
SFP	Spent Fuel Pool
SFPI	Spent Fuel Pool Island
SLC	State Lands Commission (CA)
SLR	Sea Level Rise
SONGS	San Onofre Nuclear Generating Station
TBA	To Be Announced
VCT	Vertical Canister Transporter
ZCAP	Zion Community Advisor Panel



Decommissioning
San Onofre
Nuclear Generating Station

APPENDIX



Decommissioning
San Onofre
Nuclear Generating Station

Used Fuel Readiness for Transportation

- Some fuel qualified for transport now
- Remaining fuel qualifies over time

	NOW	'20	'21	'22	'23	'24	'25	'26	'27	'28	'29	'30	TOTAL
Units 2/3 AREVA NUHOMS 24PT4	33												33
Unit 1 AREVA NUHOMS 24PT1	2				1					5		9	17
Units 2/3 HOLTEC MPC-37		67		2	2		1			1			73

EXHIBIT 4

ADVICE LETTER (AL) SUSPENSION NOTICE
ENERGY DIVISION

Utility Name: Southern California Edison

Date Utility Notified: December 24, 2019

Utility Number/Type: U 338-E

[X] Emailed to: Darrah.Morgan@sce.com,

Advice Letter Number(s) 4122-E

AdviceTariffManager@sce.com

Date AL(s) Filed) December 4, 2019

ED Staff Contact: David Zizmor

Utility Contact Person: Dara Morgan

ED Staff Email: David.Zizmor@cpuc.ca.gov

Utility Phone No.: 626-302-2086

ED Staff Phone No.: 415-703-1575

[X] INITIAL SUSPENSION (up to 120 DAYS from the expiration of the initial review period)

This is to notify that the above-indicated AL is suspended for up to 120 days beginning January 6, 2020 for the following reason(s) below. If the AL requires a Commission resolution and the Commission's deliberation on the resolution prepared by Energy Division extends beyond the expiration of the initial suspension period, the advice letter will be automatically suspended for up to 180 days beyond the initial suspension period.

[] A Commission Resolution is Required to Dispose of the Advice Letter

[] Advice Letter Requests a Commission Order

[X] Advice Letter Requires Staff Review

The expected duration of initial suspension period is 120 days

[] FURTHER SUSPENSION (up to 180 DAYS beyond initial suspension period)

The AL requires a Commission resolution and the Commission's deliberation on the resolution prepared by Energy Division has extended beyond the expiration of the initial suspension period. The advice letter is suspended for up to 180 days beyond the initial suspension period.

If you have any questions regarding this matter, please contact David Zizmor at David.Zizmor@cpuc.ca.gov.

cc:

EDTariffUnit

PUBLIC VERSION

December 4, 2019

**ADVICE 4122-E
(U 338-E)**

**PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA
ENERGY DIVISION**

SUBJECT: Request for Authorization of Disbursements from the
Decommissioning Master Trusts for 2020 San Onofre Nuclear
Generating Station (SONGS) 2&3 Forecasted
Decommissioning Costs

I. PURPOSE AND INTRODUCTION

Southern California Edison Company (SCE) respectfully submits this Tier 2 advice letter (AL) requesting that the California Public Utilities Commission (Commission) authorize disbursements of \$405.5 million¹ (SCE share, 2020 \$) from the San Onofre Nuclear Generating Station Unit Nos. 2&3 (SONGS 2&3) nuclear decommissioning trusts (NDTs) for SCE's share of 2020 SONGS 2&3 forecasted decommissioning costs.²

SCE does not seek in this AL any rate increase or additional funding for the NDTs. The trusts have accumulated funds for more than 30 years, funded by SCE customers pursuant to the Nuclear Facilities Decommissioning Act of 1985 (Decommissioning Act).³ Accordingly, SCE seeks to pay for SONGS 2&3 decommissioning expenses by utilizing the NDTs for their intended purposes.

This AL follows the direction provided by the Commission in D.11-07-003, which established the advice letter process and content requirements for reporting costs; D.14-12-082, which adopted the process to be followed by SCE for SONGS 2&3 decommissioning activities;⁴ and D.16-04-019, which adopted the two-step process

¹ \$535.0 million (100% share, 2020 \$). See Attachment 6.

² The participants respective decommissioning cost shares are set forth in Section 4.21 of the SONGS Decommissioning Agreement, dated April 23, 2015. Based on this agreement, SCE's share is approximately 76% of the costs.

³ California Public Utilities Code, Section 8321, et. seq.

⁴ D.14-12-082, p. 40.

(forecast and recorded) for reporting decommissioning costs and disbursing NDT funds.⁵ In addition, in accordance with D.18-11-034, this AL provides additional information regarding the SONGS decommissioning schedule and status of certain activities (i.e., fuel transfer operations, environmental permitting process, and other developments occurring in the past year).

II. BACKGROUND

A. SONGS 2&3 STATUS

SONGS 2&3 was a 2250-megawatt nuclear generation facility consisting of two pressurized water reactors that commenced operation in 1983 and 1984, respectively. On June 7, 2013, SCE announced plans to permanently retire SONGS 2&3. On June 12, 2013, SCE submitted a Certification of Permanent Cessation of Power Operations to the NRC. SCE submitted to the NRC a Certification of Permanent Removal of Fuel for SONGS Unit 3 on June 28, 2013, and for SONGS Unit 2 on July 22, 2013. As a result of these submittals, SCE now holds an NRC license that does not permit power operations but does authorize the possession of the SONGS 2&3 facilities and licensed nuclear material (i.e., spent nuclear fuel).

B. CPUC REGULATORY PROCEEDINGS

On March 1, 2016, SCE and San Diego Gas & Electric Company (SDG&E), jointly filed Application (A.)16-03-004 for the 2015 Nuclear Decommissioning Cost Triennial Proceeding (NDCTP). The application included a number of requests relating to SCE's and SDG&E's 2016 SONGS 1 Decommissioning Cost Estimate (DCE), recorded decommissioning costs for SONGS 1, 2, and 3; and SCE's share of the 2016 Palo Verde Nuclear Generating Station Unit Nos. 1, 2, and 3 (PVNGS) DCE. SCE's application (A.15-01-014) and SDG&E's application (A.15-02-006) for a reasonableness review of 2014 SONGS 2&3 decommissioning costs were consolidated with the 2015 NDCTP.

On December 7, 2018, the Commission issued D.18-11-034 for Phases 2 and 3 of the 2015 NDCTP. That decision adopted the Milestone Framework and required the utilities' advice letters to provide schedule performance of Major Projects, to identify any expected impacts of delays upon undistributed costs, and to provide plans to avoid or minimize such schedule and cost impacts. Accordingly, SCE is providing this information as part of Attachment 11 to this advice filing.

In addition, D.18-11-034 required SCE and SDG&E to meet with the Energy Division and interested parties to discuss the potential for additional modifications to the annual Tier 2 advice letter process for requesting NDT disbursements and reporting recorded decommissioning costs. SCE held these meetings in early 2019. Working with the Energy Division and interested parties, SCE has incorporated, at their request in this

⁵ D.16-04-019, Ordering Paragraph 4, p. 34.

advice filing: (1) the SONGS 2&3 NDT balances, (2) the percent expended of the SONGS 2&3 NDT, and (3) an expanded overview of project performance.

On March 15, 2018, SCE and SDG&E jointly filed A.18-03-009 for the 2018 NDCTP. SCE and SDG&E requested in the application that the Commission, among other things find: (1) the 2017 SONGS 1 DCE is reasonable; (2) the 2017 SONGS 2&3 DCE is reasonable; (3) SONGS 1 decommissioning expenses incurred during 2016-2017 are reasonable; (4) certain SONGS 2&3 decommissioning expenses incurred during 2016-2017 are reasonable; and (5) the Utilities are compliant with prior Commission decisions regarding the NDCTP. These issues are all still pending before the Commission.

C. CPUC AUTHORITY TO APPROVE DISBURSEMENTS

The Commission's authority to approve access to the NDTs, as requested in this AL, is governed by SCE's Nuclear Facilities Qualified and Non-Qualified CPUC Decommissioning Master Trust Agreements for the San Onofre and Palo Verde Nuclear Generating Stations (Master Trust Agreements), which the Commission approved in D.87-05-062. The Master Trust Agreements expressly provide that the advice letter process may be utilized for obtaining disbursements. Specifically, Section 2.01 of the Master Trust Agreement states:

The Trustee shall make payments of the Decommissioning Costs in accordance with the following procedures... (4)(d) a CPUC Order authorizing either Interim Disbursements or Final Disbursements.

Section 1.01 (8) of the Master Trust Agreements further provides:

CPUC Order shall mean an order or resolution issued by the CPUC after the Company, the Committee, the CPUC Staff, the Trustee, and other interested parties have been given notice and an opportunity to be heard. The order may be issued with or without hearing or *by the CPUC Advice Letter procedure or comparable procedure.*" (emphasis added)

III. 2019 STATUS UPDATE

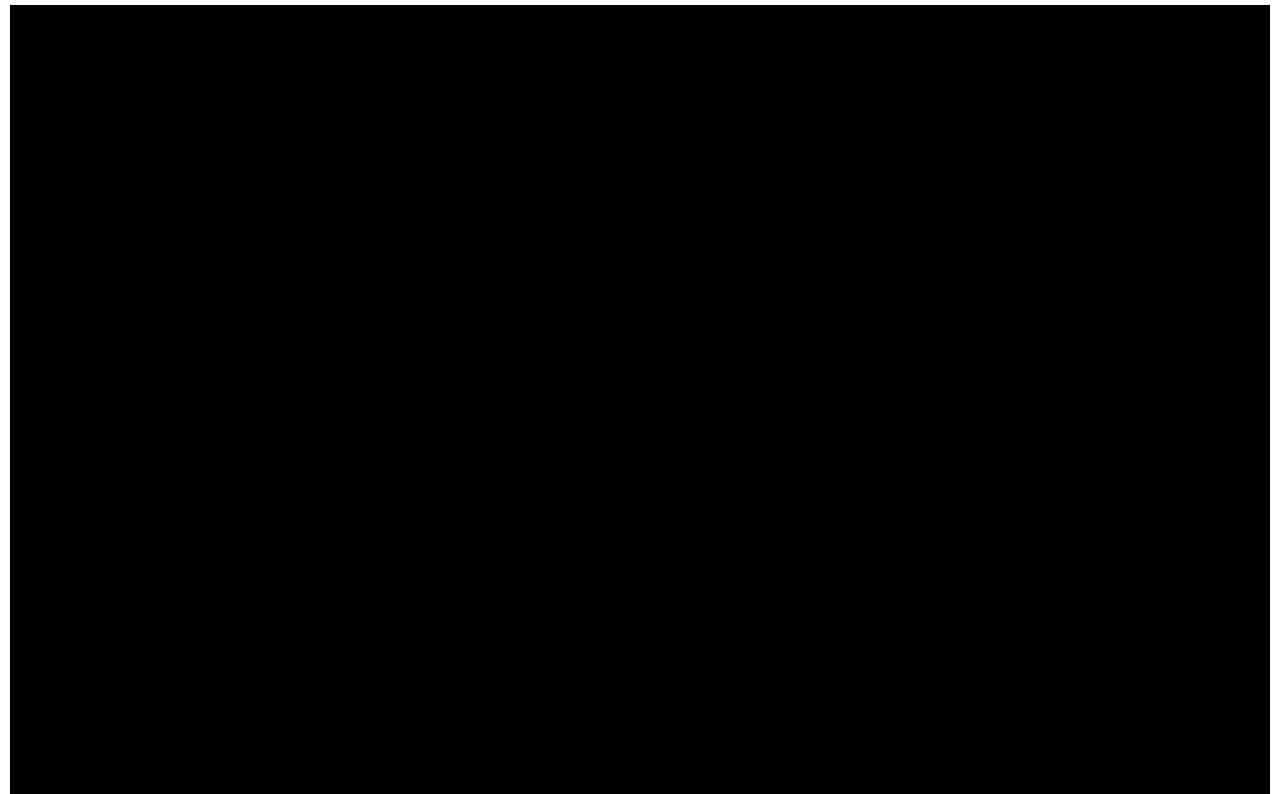
On March 21, 2019, the California State Lands Commission (CSLC) certified its Final Environmental Impact Report (FEIR) regarding SCE's decommissioning of the SONGS facility. On October 17, 2019, the California Coastal Commission (CCC) approved SCE's application for a Coastal Development Permit (CDP) for the onshore portion of the SONGS decommissioning project and on October 21, 2019, issued the corresponding CDP (No. 09-19-0194). Having obtained certification of the FEIR and issuance of the CDP, SCE now has the regulatory approvals needed to authorize the SONGS decommissioning general contractor, SONGS Decommissioning *Solutions*

(SDS), to commence decontamination and dismantling (D&D) activities of SONGS 2&3. SCE anticipates that SDS will commence D&D activities in early 2020.⁶

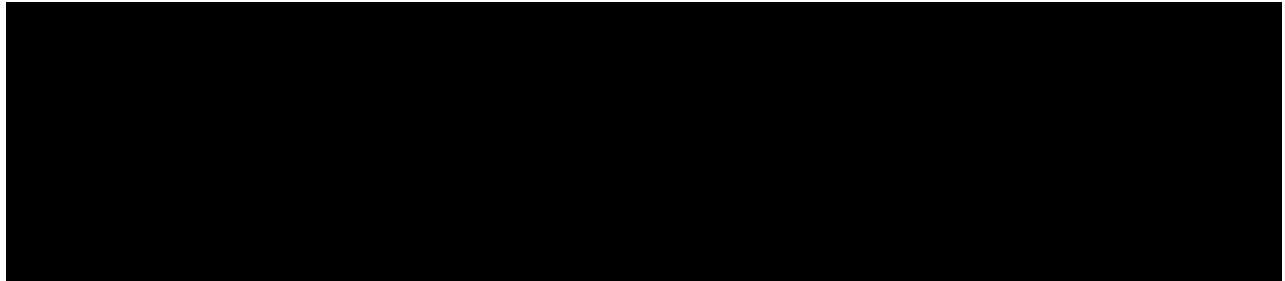
While awaiting the issuance of the CDP, SDS performed detailed planning of many of the D&D activities and executed contracts with several subcontractors who will be performing various portions of the D&D work scope. In addition, one of SDS's offsite subcontractors completed the fabrication of specialized equipment that will be used to perform underwater segmentation of the highly radioactive SONGS 2&3 reactor vessels and internals.

During the period that SONGS Fuel Transfer Operations (FTO) were suspended following the August 3, 2018 canister downloading event, SCE and Holtec reviewed all aspects of FTO and updated FTO procedures, processes, equipment, and staffing. On July 15, 2019, after having satisfied themselves and the U.S. Nuclear Regulatory Commission that appropriate corrective actions had been incorporated, FTO resumed and as of November 22, 2019, 41 of 73 canisters have been safely transferred from the wet storage pools into dry storage in the on-site Independent Spent Fuel Storage Installation (ISFSI). SCE forecasts completing FTO by mid-to-late 2020.

IV. CONTRACTUAL ISSUES



⁶ CCC confirmation of SCE's compliance with certain conditions in the CDP is required before SCE will be authorized to issue the Notice to Proceed to SDS. SCE anticipates that the CCC will confirm SCE's compliance with these conditions by the end of 2019 or early in 2020.



V. PREVIOUS ADVICE LETTER REQUESTS FOR NDT WITHDRAWALS

On November 28, 2018, SCE submitted Tier 2 AL 3903-E requesting Commission approval to withdraw up to \$341.3 million from SCE's SONGS 2&3 NDTs for decommissioning costs forecasted for 2019. SCE received authorization from the Commission, effective December 28, 2018. SCE will submit a Tier 2 AL reporting 2019 recorded decommissioning costs in comparison to this forecast in the spring of 2020.

Attachment 9 provides a breakdown of total amounts requested by SCE in advice letters and approved by the Commission to date.

VI. PRESENT REQUEST

The approval sought by this AL will authorize disbursements from the NDTs for the 2020 forecasted costs. SCE will submit a separate advice letter in the spring of 2021 providing 2020 recorded cost information and a comparison to the forecasted costs provided in this AL. In addition, the final recorded 2020 decommissioning costs will be subject to the Commission's reasonableness review in a future NDCTP or other proceeding, as designated by the Commission.

To present the 2020 forecasted costs in 2014 dollars, SCE de-escalated current dollars (i.e., year of expense dollars) based on the forecasted de-escalation factors summarized in Attachment 7. Summarizing costs in 2014 dollars allows the Commission to compare the 2020 forecasted costs in this AL to the 2017 SONGS 2&3 DCE, which is currently being reviewed in the 2018 NDCTP. Although costs are presented in 2014 dollars for comparison, SCE is requesting disbursement of funds based on the expected year of expense or 2020 dollars in this AL.

In Table 1 below, SCE summarizes 2020 forecasted costs compared to the corresponding cost estimate provided in the 2017 DCE.

Table 1
Comparison Of 2020 Forecast Costs To 2017 DCE
(Dollars In Millions)

	2017 DCE (forecast for 2020)	2020 Forecast Advice Letter	Variance To 2017 DCE
100% Share, 2020 \$	\$ 191.7	\$ 535.0	\$ (343.3)
SCE Share, 2020 \$	145.4	405.5	(260.1)
100% Share, 2014 \$	166.3	461.8	(295.5)

A. DISBURSEMENTS FOR 2020 EXPENSES

The 2017 SONGS 2&3 DCE included \$166.3 million (100% share, 2014 \$) for 2020 activities and associated expenses. For the same time period, SCE currently forecasts expenditures of \$461.8 million (100% share, 2014\$), or \$295.5 million (100% share, 2014 \$) more than included in the DCE for this year. As explained in further detail below, the variance includes costs for work deferred from 2018 and 2019 to 2020, as well as accelerated from later years into 2020.

This variance occurred primarily due to the regulatory delays SCE experienced in obtaining certification of the FEIR and approval of the CDP. In addition, SCE experienced delays due to the nearly year-long suspension of fuel transfer operations following the August 3, 2018 canister downloading event. The cash flows for these activities were deferred from prior years to 2020.

The activities for which SCE seeks 2020 NDT disbursements, are further discussed in Attachment 2.

In accordance with D.16-04-019, SCE is providing the following additional information to assist in the review of this AL:

Attachment 1	Graph Tracking Total 2017 DCE Estimate and Actual and Forecasted Decommissioning Expenditures
Attachment 2	Description of Work Activities and Preliminary Variance Explanations for 2020 Forecasted Expenses with Reference to the 2017 DCE
Attachment 3	Comparison of 2017 DCE Estimated and Forecasted Expenditures by Cost Category and DCE Line Number
Attachment 4	Comparison of 2017 DCE Estimated and Forecasted Cash Flow
Attachment 5	Schedule

Attachment 6	Adjusted Total Amounts Requested to Date Including Previous Advice Letters
Attachment 7	Forecasted Escalation and De-Escalation Factors
Attachment 8	2018 Final Escalation Factor & SLA Adjustment – Updated Advice Letter 3988-E 2018 Recorded Costs in 2014\$
Attachment 9	SCE Trust Fund Disbursement Amounts Requested, Approved, and Withdrawn
Attachment 10	2017 DCE Waste Disposal Adjustment
Attachment 11	Status Report for Projected 2021 NDCTP Completed Projects

V. REQUEST FOR RELIEF

For the reasons explained above, SCE requests that the Commission approve this AL by authorizing disbursements from the NDTs of up to \$405.5 million (SCE share, 2020 \$) for 2020 SONGS 2&3 forecasted decommissioning expenditures.

VI. OTHER INFORMATION

A. TIER DESIGNATION

Pursuant to GO 96-B, Energy Industry Rule 5.2, this advice letter is submitted with a Tier 2 designation.

B. EFFECTIVE DATE

SCE requests that this advice letter become effective on January 3, 2020, the 30th calendar day after the date of filing.

C. NOTICE

Anyone wishing to protest this advice letter may do so by letter via U.S. Mail, facsimile, or electronically, any of which must be received no later than December 24, 2019, which is 20 days after the date of this advice letter. Protests should be mailed to:

CPUC, Energy Division
Attention: Tariff Unit
505 Van Ness Avenue, 4th Floor
San Francisco, California 94102
Facsimile: (415) 703-2200
E-mail: EDTariffUnit@cpuc.ca.gov

Copies of protests should also be mailed to the attention of the Director, Energy Division, Room 4004, at the address shown above.

The protest and all other correspondence regarding this advice letter should also be sent by letter and transmitted via facsimile or electronically to the attention of:

Gary A. Stern, Ph.D.
Managing Director, State Regulatory Operations
Southern California Edison Company
8631 Rush Street
Rosemead, California 91770
Telephone: (626) 302-9645
Facsimile: (626) 302-6396
E-mail: AdviceTariffManager@sce.com

Laura Genao
Managing Director, State Regulatory Affairs
c/o Karyn Gansecki
Southern California Edison Company
601 Van Ness Avenue, Suite 2030
San Francisco, California 94102
Facsimile: (415) 929-5544
E-mail: Karyn.Gansecki@sce.com

With a copy to:
Jose L. Perez
Principal Manager, Nuclear CPUC Regulatory Affairs and Compliance
Southern California Edison Company
2244 Walnut Grove Avenue
Rosemead, California 91770
Telephone: (949) 368-9133
E-mail: Jose.Perez@sce.com

There are no restrictions on who may file a protest, but the protest shall set forth specifically the grounds upon which it is based and must be received by the deadline shown above.

In accordance with General Rule 4 of GO 96-B, SCE is serving copies of this advice filing to the interested parties shown on the attached GO 96-B, A.12-12-012 et al, I.12-10-013, A.15-01-014, A.16-03-004, and A.18-03-009 service lists.

Address change requests to the GO 96-B service list should be directed by electronic mail to AdviceTariffManager@sce.com or at (626) 302-4039. For changes to all other service lists, please contact the CPUC's Process Office at (415) 703-2021 or by electronic mail at Process_Office@cpuc.ca.gov.

Further, in accordance with Public Utilities Code Section 491, notice to the public is hereby given by filing and keeping the advice filing at SCE's corporate headquarters. To view other SCE advice letters filed with the CPUC, log on to SCE's web site at <https://www.sce.com/wps/portal/home/regulatory/advice-letters>.

For questions, please contact Jose Perez at (949) 368-9133 or by electronic mail at Jose.Perez@sce.com.

Southern California Edison Company

/s/ Gary A. Stern, Ph.D
Gary A. Stern, Ph.D.

GAS:jp:jm
Enclosures



ADVICE LETTER SUMMARY

ENERGY UTILITY



MUST BE COMPLETED BY UTILITY (Attach additional pages as needed)

Company name/CPUC Utility No.: Southern California Edison Company (U 338-E)

Utility type:

☒ ELC ☐ GAS ☐ WATER
☐ PLC ☐ HEAT

Contact Person: Darrah Morgan

Phone #: (626) 302-2086

E-mail: AdviceTariffManager@sce.com

E-mail Disposition Notice to: AdviceTariffManager@sce.com

EXPLANATION OF UTILITY TYPE

ELC = Electric GAS = Gas WATER = Water
PLC = Pipeline HEAT = Heat

(Date Submitted / Received Stamp by CPUC)

Advice Letter (AL) #: 4122-E

Tier Designation: 2

Subject of AL:

Request for Authorization of Disbursements from the Decommissioning Master Trusts for 2020 San Onofre Nuclear Generating Station (SONGS) 2&3 Forecasted Decommissioning Costs

Keywords (choose from CPUC listing): Compliance

AL Type: ☐ Monthly ☐ Quarterly ☐ Annual ☒ One-Time ☐ Other:

If AL submitted in compliance with a Commission order, indicate relevant Decision/Resolution #: Decisions 11-07-003 and 14-12-082

Does AL replace a withdrawn or rejected AL? If so, identify the prior AL:

Summarize differences between the AL and the prior withdrawn or rejected AL:

Confidential treatment requested? ☒ Yes ☐ No

If yes, specification of confidential information: See Confidentiality Declaration

Confidential information will be made available to appropriate parties who execute a nondisclosure agreement. Name and contact information to request nondisclosure agreement/ access to confidential information: Contact Walker.Matthews@sce.com or 626-302-6879

Resolution required? ☐ Yes ☒ No

Requested effective date: 1/3/2020

No. of tariff sheets: -0-

Estimated system annual revenue effect (%):

Estimated system average rate effect (%):

When rates are affected by AL, include attachment in AL showing average rate effects on customer classes (residential, small commercial, large C/I, agricultural, lighting).

Tariff schedules affected: None

Service affected and changes proposed¹:

Pending advice letters that revise the same tariff sheets: None

¹Discuss in AL if more space is needed.

Protests and all other correspondence regarding this AL are due no later than 20 days after the date of this submittal, unless otherwise authorized by the Commission, and shall be sent to:

CPUC, Energy Division
Attention: Tariff Unit
505 Van Ness Avenue
San Francisco, CA 94102
Email: EDTariffUnit@cpuc.ca.gov

Name: Gary A. Stern, Ph.D.
Title: Managing Director, State Regulatory Operations
Utility Name: Southern California Edison Company
Address: 8631 Rush Street
City: Rosemead
State: California Zip: 91770
Telephone (xxx) xxx-xxxx: (626) 302-9645
Facsimile (xxx) xxx-xxxx: (626) 302-6396
Email: advicetariffmanager@sce.com

Name: Laura Genao c/o Karyn Gansecki
Title: Managing Director, State Regulatory Affairs
Utility Name: Southern California Edison Company
Address: 601 Van Ness Avenue, Suite 2030
City: San Francisco
State: California Zip: 94102
Telephone (xxx) xxx-xxxx: (415) 929-5515
Facsimile (xxx) xxx-xxxx: (415) 929-5544
Email: karyn.gansecki@sce.com

Clear Form

ENERGY Advice Letter Keywords

Affiliate	Direct Access	Preliminary Statement
Agreements	Disconnect Service	Procurement
Agriculture	ECAC / Energy Cost Adjustment	Qualifying Facility
Avoided Cost	EOR / Enhanced Oil Recovery	Rebates
Balancing Account	Energy Charge	Refunds
Baseline	Energy Efficiency	Reliability
Bilingual	Establish Service	Re-MAT/Bio-MAT
Billings	Expand Service Area	Revenue Allocation
Bioenergy	Forms	Rule 21
Brokerage Fees	Franchise Fee / User Tax	Rules
CARE	G.O. 131-D	Section 851
CPUC Reimbursement Fee	GRC / General Rate Case	Self Generation
Capacity	Hazardous Waste	Service Area Map
Cogeneration	Increase Rates	Service Outage
Compliance	Interruptible Service	Solar
Conditions of Service	Interutility Transportation	Standby Service
Connection	LIEE / Low-Income Energy Efficiency	Storage
Conservation	LIRA / Low-Income Ratepayer Assistance	Street Lights
Consolidate Tariffs	Late Payment Charge	Surcharges
Contracts	Line Extensions	Tariffs
Core	Memorandum Account	Taxes
Credit	Metered Energy Efficiency	Text Changes
Curtailable Service	Metering	Transformer
Customer Charge	Mobile Home Parks	Transition Cost
Customer Owned Generation	Name Change	Transmission Lines
Decrease Rates	Non-Core	Transportation Electrification
Demand Charge	Non-firm Service Contracts	Transportation Rates
Demand Side Fund	Nuclear	Undergrounding
Demand Side Management	Oil Pipelines	Voltage Discount
Demand Side Response	PBR / Performance Based Ratemaking	Wind Power
Deposits	Portfolio	Withdrawal of Service
Depreciation	Power Lines	

SCE's 2019 FALL ADVICE LETTER

DECLARATION OF JOSE LUIS PEREZ

REGARDING THE CONFIDENTIALITY OF CERTAIN DATA

I, Jose Luis Perez, declare and state:

1. I am employed by Southern California Edison (SCE) as a Principal Manager for Nuclear CPUC Regulatory Affairs and Compliance. In my position as Principal Manager, I am familiar with the Decommissioning General Contractor (DGC) Agreement between SCE, *EnergySolutions* Services, Inc. (*EnergySolutions*), and AECOM Energy & Construction, Inc. (AECOM), dated December 20, 2016 (DGC Agreement). *EnergySolutions* and AECOM formed a joint venture known as SONGS Decommissioning*Solutions* (SDS). I also am familiar with the Independent Spent Fuel Storage Installation (ISFSI) Agreement between SCE and Holtec International (ISFSI Agreement), dated December 5, 2015. I had responsibility for overseeing and reviewing the Fall advice letter and its attachments, which contain certain confidential information pertaining to the DGC Agreement and ISFSI Agreement. Doug Bauder, Vice President of SONGS Decommissioning and Chief Nuclear Officer, delegated authority to me to sign this declaration regarding the confidentiality of this information, as described below.

2. I am making this declaration in accordance with the instructions set forth in Decision 16-08-024 and Decision 17-09-023 of R. 14-11-001, which were issued August 25, 2016, and September 28, 2017, respectively, and govern the submission of confidential documents to the Commission.

3. I have personal knowledge of the facts and representations herein and, if called upon to testify, could and would do so, except for those facts expressly stated to be based upon information and belief, and as to those matters, I believe them to be true.

4. Listed below are the data for which SCE is seeking confidential protection and the basis for SCE's confidentiality request. Paragraphs 5-10 also provide additional reasons supporting SCE's confidentiality claim.

Location of Confidential Data	Pages (if available)	Description of Information that is Confidential	Basis for SCE's Confidentiality Claim
Advice Letter	Section IV, Contractual issues	1. Discussion of contractual issues	California Gov. Code § 6255 (the public interest served by not disclosing the information outweighs the public interest served by disclosure of the record).
Advice Letter	Attachment 2, pp. 1-2, 4-5;	2. DGC Agreement contract terms, including decommissioning plans and pricing terms contained therein. 3. Contingency and cost-estimating information pertaining to the DGC Agreement and ISFSI Agreement.	California Gov. Code § 6255 (the public interest served by not disclosing the information outweighs the public interest served by disclosure of the record).

5. Both the DGC Agreement and ISFSI Agreement require SCE to make reasonable efforts to protect the confidentiality of the terms and conditions in the agreements. The agreements and discussions between SCE and its contractors regarding contractual issues under those agreement require confidentiality because the agreements and discussions involve commercially sensitive pricing terms and proprietary information, such as work sequencing and scope. If this information was publicly disclosed without protection, competitors, including potential vendors for decommissioning sub-contract work and other activities, could mis-use the information to the detriment of SCE's customers. For example, if a vendor seeking to bid on a subcontract or another activity knew the DGC Agreement or ISFSI Agreement pricing terms, the vendor would have an opportunity to adjust its bid prices (e.g., the vendor could bid higher than it otherwise may have bid).

6. Public release of this information could also hinder SCE's ability to obtain favorable contract terms for related decommissioning work not covered under the DGC Agreement and ISFSI Agreement. For example, if a vendor (who SCE has not yet contracted with for SONGS decommissioning) was aware of various terms in the DGC Agreement and ISFSI Agreement, the vendor could mis-use this information during contract negotiations to extract terms favorable to the vendor that the vendor may not have otherwise sought.

7. Finally, it is also in the best interest of the long-term success of the SONGS decommissioning project that SDS and Holtec remain commercially competitive throughout the terms of the DGC Agreement and ISFSI Agreement, respectively. Both agreements are long-term agreements that will require SDS' and Holtec's continued performance for the next decade and beyond. If information regarding the agreements was disclosed without protection, their competitors could mis-use the information against them during the bidding process for other decommissioning projects across the world and potentially threaten the financial health of both companies. This in turn could threaten the companies' ability to complete contractually required services for SONGS in the future without interruption.

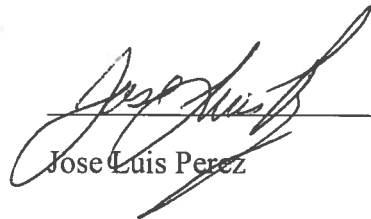
8. The other category of information that SCE seeks to maintain as confidential is contingency. SCE applied various contingency amounts on the remaining decommissioning work identified in the 2017 SONGS 2&3 decommissioning cost estimate (DCE) used in this advice letter, including work to be completed under the DGC Agreement and ISFSI Agreement. The contingency reflects SCE's judgment of potential costs, based on the technical complexity, contracting status, estimating approach, and timing, of the remaining work scope. It is in SCE customers' interest for contingency included for the DGC Agreement and ISFSI Agreement to be protected as confidential, because the disclosure of the information without protection could allow vendors to mis-use the information to the detriment of SCE's customers. For example, if a vendor (including SDS, Holtec, or one of their competitors) knew the contingency SCE has applied in the 2017 DCE to work to be completed under the DGC Agreement and ISFSI Agreement, the vendor would have an opportunity to manipulate its negotiating strategy pertaining to new contracts and/or change orders regarding that work (e.g., the vendor could demand higher prices than it otherwise would have demanded).

9. The confidential information identified in Paragraph 4 cannot be provided in a form that can be further aggregated, redacted, summarized, masked, or otherwise protected in a manner that would allow partial disclosure of the data while protecting confidential information.

10. For the reasons described above, the confidential information should be protected from public disclosure. Information regarding the DGC Agreement and ISFSI Agreement, including the pricing terms of those agreements and contingency SCE applied in the 2017 DCE for work remaining under those agreements, is market sensitive information that should remain confidential under GO-66-C Section 2.2(b) (“unfair business advantage”) and GO 66-C Section 2.8 (“Information obtained in confidence from other than a business regulated by this Commission where the disclosure would be against the public interest”).

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

Executed on November 25, 2019 at San Onofre Nuclear Generating Station, near San Clemente, California.

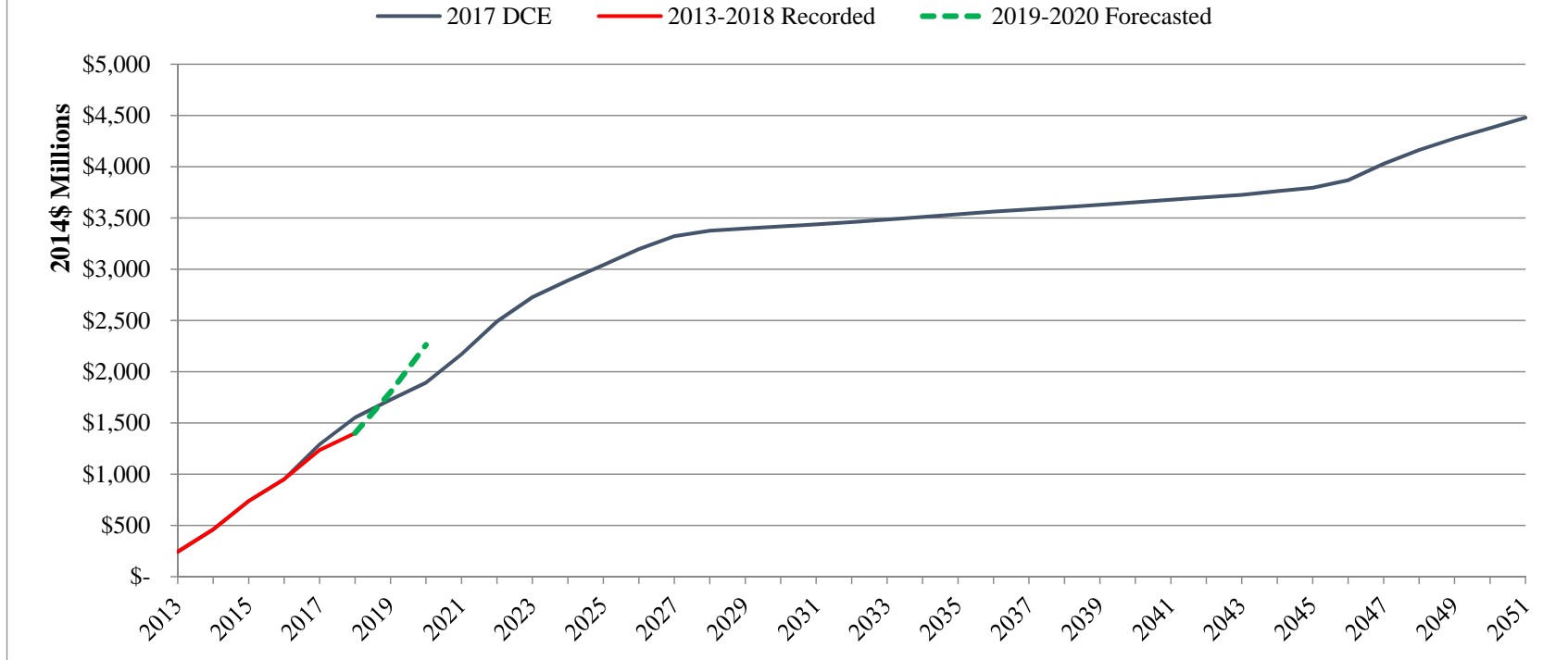


Jose Luis Perez

Attachment 1

Graph Tracking Total 2017 DCE Estimate and Actual and Forecasted
Decommissioning Expenditures

2017 Decommissioning Cost Estimate and Recorded & Forecasted Decommissioning Expenditures (100% Level, 2014\$)



General Note:

(A) The 2019 forecast includes amounts for certain milestone payments that have slipped into 2020 from 2019 (i.e., there is a substantial 2019 underrun as explained further in this AL). These milestones have been included in this Advice Letter's 2020 forecast. The 2019 underrun will be reflected in the Spring 2020 recorded costs Advice Letter, showing the forecasted costs through 2020 (dashed/green line) as tracking more closely to the DCE (blue line).

Attachment 2

Description of Work Activities and Preliminary Variance Explanations
for 2020 Forecasted Expenses with Reference to the 2017 DCE

Description of Work Activities and Preliminary Variance Explanations for 2020 Forecasted Expenses with Reference to the 2017 Decommissioning Cost Estimate

The 2017 SONGS 2&3 Decommissioning Cost Estimate (DCE) included \$166.3 million for 2020 activities and associated expenses. For the same time period, SCE currently forecasts expenditures of \$461.8 million, or \$295.5 million more than included in the DCE for this year. As explained in further detail below, the variance includes costs for work deferred from 2018 and 2019 to 2020, as well as accelerated from later years into 2020.

Table 1
Summary Comparison Of 2020 Forecasted Expenses To The 2017 DCE
(2014 Dollars In Millions, 100% Level)

		2017 DCE	Forecasted	Variance
1	Major Projects (Distributed)			
2	Decontamination, Demolition, & Disposal		\$ 231.3	
3	ISFSI		65.4	
4	Other Major Projects	19.2	26.9	(7.7)
5	Subtotal	\$ 88.1	\$ 323.6	\$ (235.5)
6				
7	Undistributed			
8	Labor-Staffing	\$ 47.3	\$ 81.8	\$ (34.5)
9	Non-Labor	22.1	47.7	(25.6)
10	Service Level Agreements	8.8	8.7	0.1
11	Subtotal	\$ 78.2	\$ 138.2	\$ (60.0)
12				
13	Total	\$ 166.3	\$ 461.8	\$ (295.5)

The variance is primarily the result of the delays associated with environmental permitting activities and transferring the spent nuclear fuel to the ISFSI. Having completed the environmental permitting activities and nearing completion of fuel-transfer activities, SCE anticipates performing many of the activities in 2020 that were previously planned to be performed in 2018 and 2019, and in later years. This results in an increased work scope for 2020 as compared to the DCE schedule and the associated cash flow for 2020. These shifts in the timing of expenditures do not change overall estimated decommissioning costs.

The forecast provided in this Advice Letter was developed by SONGS personnel based on the current decommissioning project schedule, expected contract milestone payments, and expected SCE staffing level in 2020.

SCE discusses below the major activities planned to be performed in 2020, and explains variances by distributed cost activities and undistributed costs.

Table 2
Comparison Of 2020 Forecasted Expenses To The 2017 DCE
(2014 Dollars In Millions, 100% Level)

Category		2017 DCE	Forecasted	Variance
1 Major Projects (Distributed)				
2	Initial D&D Activities		\$ 19.5	
3	Internals and Vessel Segmentation		21.8	
4	Steam Generator Removal		46.1	
5	Non-Essential System Removal		17.8	
6	Removal of Spent Fuel Systems/ Equipment		0.3	
7	Containment Building Demo		14.1	
8	Initial Plant Building Demo		11.0	
9	Final Survey/License Reduction		2.4	
10	D&D Waste		98.3	
11	Decontamination, Demolition, & Disposal Subtotal		\$ 231.3	
12				
13	ISFSI		65.4	
14	ISFSI Subtotal		\$ 65.4	
15				
16	ISFSI CDP Settlement	-	1.7	(1.7)
17	Coastal Development Permit Extensions	0.4	0.3	0.1
18	ISFSI Aging Management	6.5	4.9	1.6
19	GTCC Waste	7.7	13.8	(6.1)
20	Siren Removals	-	0.0	(0.0)
21	NIA Sump Modifications	0.4	-	0.4
22	NEPA	1.6	0.5	1.1
23	Mesa Turnover	2.3	5.4	(3.1)
24	DCE Updates	0.3	0.3	0.0
25	Other Major Projects Subtotal	\$ 19.2	\$ 26.9	\$ (7.7)
26				
27	Total Major Projects (Distributed)	\$ 88.1	\$ 323.6	\$ (235.5)
28				
29 Undistributed				
30	Labor-Staffing	\$ 47.3	\$ 81.8	\$ (34.5)
31	Non-Labor	22.1	47.7	(25.6)
32	Service Level Agreements	8.8	8.7	0.1
33				
34	Total Undistributed	\$ 78.2	\$ 138.2	\$ (60.0)
35				
36	Grand Total	\$ 166.3	\$ 461.8	\$ (295.5)

Distributed Cost Activities – Major Projects

Based on the Milestone Framework approved by the CPUC, all distributed cost activities have been incorporated into Major Projects. For the period January 1, 2020 through December 31, 2020, Major Project costs in the 2017 DCE were estimated to be \$88.1 million. SCE now forecasts that \$323.6 million will be incurred for Major Projects in 2020, or \$235.5 million more than included in the DCE. The variances are discussed in more detail below:

- **Decontamination, Demolition, & Disposal (Table 2 Lines 2 through 11)**

On December 20, 2016, SCE awarded the decommissioning general contract to SONGS Decommissioning Solutions (SDS) to perform the major decontamination & dismantlement (D&D) activities for SONGS 2&3 decommissioning. Beginning on the contract effective date of January 9, 2017, SDS began planning and preparing for the major D&D activities. The 2017 DCE assumed that the major D&D activities would begin in January 2019 after the California State Lands Commission (CSLC) completed its environmental review of the decommissioning project as required under the California Environmental Quality Act (CEQA), and after the California Coastal Commission (CCC) issued the required Coastal Development Permit (CDP) in late 2018. However, due to regulatory delays beyond SCE's control, the CCC did not issue the CDP to SCE until October 2019.

During this permitting delay period, SCE completed certain activities that could be performed outside the scope of the pending permitting process, including the detailed planning of many D&D activities and executing contracts with several subcontractors who will be performing various portions of the D&D work scope. In addition, one of SDS's offsite subcontractors completed the fabrication of specialized equipment that will be used to perform underwater segmentation of the highly radioactive SONGS 2&3 reactor vessels and internals.

Now that the CDP has been issued, and barring any unexpected legal impediments, SCE forecasts that work on major D&D activities will begin in early 2020 (i.e., Phase II of the DGC Agreement).¹ An overview of significant work forecasted to be performed by the DGC in 2020 is provided below.

Initial D&D Activities

- Survey, preparation, and removal of the four Unit 3 reactor vessel concrete missile shields from containment and stage for packaging.
- Disassembly, rigging, and removal of the Unit 2 steel missile shields from containment and stage for packaging.
- Modification of the Unit 2 containment exterior concrete shield door and internal equipment hatch opening.

Internals and Vessel Segmentation

- Completion of the reactor vessel segmentation equipment design and delivery to site.
- Delivery of reactor vessel internals segmentation equipment to site.
- Reactor vessel and internals segmentation equipment mock-up, testing, and training.

¹ CCC confirmation of SCE's compliance with certain conditions in the CDP is required before SCE will issue the Notice to Proceed to SDS. SCE anticipates that the CCC will confirm SCE's compliance with these conditions by the end of 2019 or early in 2020.

Steam Generator Removal

- Preparation and air gapping² of reactor coolant supply and feedwater piping as necessary for removal of steam generators.
- Size reduction activities to facilitate future disposal.

Initial Plant Building Demolition

- Demolition of the high flow make-up demineralizer area structures, systems, and components.
- Subcontract award for design and fabrication of the demolition isolation enclosure³ and the material handling facility for loading and shipping debris.

Non-Essential Systems Removal

- Removal of non-essential systems (e.g., interior/exterior equipment and components) from the Administration, Warehouse, and Shop (AWS) Building, site Maintenance Buildings, South Security Processing Facility, Outage Control Center, and other ancillary buildings.
- Demolition of the main and reserve auxiliary transformers.

Containment Building Demolition

- Detension and removal of horizontal and vertical metal strand tendons in both Containment Buildings including the collection of tendon grease as necessary to package and prepare for shipping.

D&D Waste

- Preparation and loading of waste material generated during decommissioning activities for off-site transportation.
- Transportation and disposition of waste materials generated during decommissioning activities.

Although certain D&D activities have been deferred or advanced in the D&D schedule for performance in 2020, the total cost for these activities has not changed, and the costs for these activities in the DGC contract remains consistent with the costs included in the 2017 DCE. For January 1, 2020 through December 31, 2020, DGC costs included in the 2017 DCE were [REDACTED] million. SCE now forecasts that it will incur [REDACTED] million for DGC costs in 2020, or [REDACTED] million more than estimated in the DCE. For additional context and comparison, the DGC Agreement assumed a total of [REDACTED] million of work would be performed during the first year of physical D&D activities (i.e., during 2019). As noted above, the variance of \$162.4 million is primarily the result of the regulatory delays associated with environmental permitting

² Air gapping is the physical isolation of the installed components, in this case the steam generators, from all potential inputs, outflows, or energy sources. The steam generators' primary system (hot and cold leg) and secondary system (main feedwater and main steam line) pipes are severed and capped, preparing the steam generators for removal.

³ The demolition isolation enclosure will be a large temporary enclosure that will be installed between SONGS 2 and SONGS 3 to support major demolition activities. It will serve as a physical barrier between the demolition work and the outside elements and will maintain negative pressure ventilation to prevent the spread of radioactive contamination.

activities. Most of this variance is related to SDS' anticipated waste disposal effort (i.e., [REDACTED] million of the [REDACTED] million total variance).

- **ISFSI & Fuel Transfer Operations (Table 2 lines 13 through 14)**

The 2017 DCE forecasted that the fuel transfer operations (FTO) would be completed by mid-2019, therefore, the DCE assumed \$0 in 2020 for this project. SCE now forecasts [REDACTED] million for 2020 ISFSI-related activities, resulting in the [REDACTED] million variance shown in Table 2. Following the August 3, 2018 canister downloading event, SCE and Holtec stopped FTO activities, pending a review of the event and implementation of various corrective actions. SCE and Holtec resumed FTO activities on July 15, 2019, following the NRC's review of the corrective actions implemented. SCE anticipates completing FTO activities by mid-to-late 2020.⁴ For 2020, SCE will incur FTO costs relating to its oversight of Holtec, waste disposal, and various other milestone payments related to FTO completion. As noted above, the DCE forecasted these costs to be incurred by SCE prior to 2020. The schedule change created a timing variance relative to the DCE, but not a cost change for the contractual costs included in the DCE.

- **Other Major Projects (Table 2 Lines 16 through 25)**

For 2020, the 2017 DCE estimated \$19.2 million for Other Major Projects. SCE now forecasts \$26.9 million will be incurred in 2020 for Other Major Projects, resulting in a \$7.7 million increase. As discussed below, the primary driver for this variance is the GTCC Waste Storage project and the timing impacts related to the delayed issuance of the CDP. The remainder of the variance for Other Major Projects is driven by project timing issues unrelated to the CDP. Nevertheless, the total budgets for all Other Major Projects do not exceed the 2017 DCE estimated cost.

- **GTCC Waste Storage (Table 2 Line 19)**

SCE forecasts \$13.8 million in 2020 related to GTCC Waste Storage, whereas the 2017 DCE included \$7.7 million in 2020. The 2017 DCE assumed that SCE will be required to license and purchase ten new canisters for storing GTCC waste generated during the segmentation of the reactor vessel internals and move the GTCC to the ISFSI. The DCE assumed that SCE would start the GTCC Waste Storage project in 2018 and complete it in 2020. However, due to the delayed issuance of the CDP, the anticipated GTCC canister procurement activities and associated expenses did not occur in 2018 as the DCE estimated. SCE now estimates the canister procurement process will start in 2020.

Undistributed Costs

For January 1, 2020 through December 31, 2020, undistributed costs in the 2017 DCE were estimated to be \$78.2 million. SCE now forecasts these costs at \$138.2 million, or \$60.0 million more than included in the DCE. The variances are discussed below.

⁴ SCE currently forecasts that it will have transferred 45 of the 73 canisters to the ISFSI by the end of 2019.

- **Undistributed Labor-Staffing (Table 2 Line 30)**

The 2017 DCE included \$47.3 million in 2020 undistributed labor, which includes SCE utility staff, security force, and DGC staff. SCE now forecasts \$81.8 million in 2020, or \$34.5 million more than estimated in the DCE. The increase, in part, is due to SCE's need to maintain the appropriate level of security staffing to keep SONGS safe and compliant with NRC regulations during the FTO project. Additionally, as long as spent fuel remains in the spent fuel pools, SCE is required to maintain an operations organization consistent with NRC regulations. SCE currently anticipates that a staffing ramp down will occur at the completion of the FTO project that will maintain compliance with site programs and plans approved by the NRC, such as the ISFSI-only technical specifications, the security plan, the emergency plan, and the ISFSI-only decommissioning quality assurance plan. In addition, SCE forecasted higher DGC monthly staffing costs during 2020 than were estimated in the DCE. The primary reason for the variance is the impact on DGC staff resulting from the delayed start of D&D activities and the need to maintain the site programs (e.g., maintenance, engineering, and chemistry), that were transitioned to the DGC in 2018 until Phase II of the contract commences in early 2020.

- **Undistributed Non-Labor (Table 2 Line 31)**

The 2017 DCE included \$22.1 million in 2020 for undistributed non-labor costs. SCE now forecasts \$47.7 million in 2020, or \$25.6 million more than estimated in the DCE. The primary reason for this variance is a timing delay in the expenditure for severance costs associated with the post-FTO staffing ramp down. Additionally, contracted services is higher than forecasted in the DCE due to required site infrastructure maintenance activities that either were not estimated or will be higher than estimated in the 2017 DCE, including repairs to the public beach walkway and adjacent rip-rap resulting from ocean currents and wave action. Finally, SCE will be required to incur costs associated with the special conditions and mitigation requirements imposed by the CSLC and the CCC arising from the FEIR and the CDP. These compliance and mitigation-related costs imposed during the environmental permitting process could not have been known at the time the DCE was developed and were therefore not included in the estimate.

Attachment 3

Comparison of 2017 DCE Estimated and Forecasted Expenditures by
Cost Category and DCE Line Number

**Detailed Comparison Of 2020 Forecasted Costs To The 2017 DCE
(2014 Dollars in Millions, 100% Level)**

	DCE No.	Major Project ⁽¹⁾	Description ⁽²⁾	2020			Forecasted Inception To Date Through 2020 ⁽⁴⁾	Total 2017 DCE ⁽³⁾⁽⁵⁾	Current Start	Current Finish
				[A]	[B]	[C=A-B]				
				2017 DCE ⁽³⁾	Forecasted	Variance				
1	LT-2-D-2.17	Historical Site Assessment /Characterization	Perform Historic Site Assessment and Site Characterization	\$ -	\$ -	\$ -	\$ 6.2	\$ 6.2	1/17/2014	7/14/2015
2	Historical Site Assessment/Characterization Subtotal			\$ -	\$ -	\$ -	\$ 6.2	\$ 6.2		
3										
4	LT-2-D-2.16	Legacy Radwaste Disposal	Disposition of Legacy Wastes	-	-	-	11.6	11.6	1/2/2014	6/30/2015
5	LT-1-D-1.05	Legacy Radwaste Disposal	Disposition of Legacy Waste	-	-	-	8.4	8.4	7/19/2013	10/10/2013
6	Legacy Radwaste Disposal Subtotal			\$ -	\$ -	\$ -	\$ 20.0	\$ 20.0		
7										
8	SR-1-D-14.04	Project Governance and Admin	Fuel Cancellation Expense	-	-	-	54.4	54.4	7/8/2013	10/30/2015
9	Project Governance and Admin Subtotal			\$ -	\$ -	\$ -	\$ 54.4	\$ 54.4		
10										
11	LT-2-D-2.02	Regulatory Compliance	Prepare Post-Shutdown QA Plan	-	-	-	0.4	0.4	1/2/2014	8/21/2015
12	LT-2-D-2.03	Regulatory Compliance	Prepare Post-Shutdown Security Plan	-	-	-	0.1	0.1	1/2/2014	4/22/2015
13	LT-2-D-2.04	Regulatory Compliance	Prepare Post-Shutdown Fire Protection Plan	-	-	-	0.0	0.0	1/2/2014	4/22/2015
14	LT-2-D-2.06	Regulatory Compliance	Prepare Preliminary Defueled Technical Specifications	-	-	-	0.3	0.3	1/2/2014	7/17/2015
15	LT-2-D-2.08	Regulatory Compliance	Implement Technical Specification Modifications	-	-	-	0.1	0.1	7/10/2015	8/21/2015
16	LT-2-D-2.09	Regulatory Compliance	Prepare Post-Shutdown Emergency Preparedness Plan	-	-	-	1.7	1.7	1/2/2014	10/29/2015
17	LT-2-D-2.11	Regulatory Compliance	Prepare Post-Shutdown Decommissioning Activities Report (PSDAR)	-	-	-	0.2	0.2	1/2/2014	6/19/2014
18	LT-2-D-2.12	Regulatory Compliance	Post-Shutdown Decommissioning Activities Report (PSDAR) - NRC Review	-	-	-	0.2	0.2	9/24/2014	8/21/2015
19	LT-2-D-2.14	Regulatory Compliance	Prepare Decommissioning Cost Estimate (DCE)	-	-	-	1.2	1.2	1/2/2014	7/30/2014
20	SNF-1-D-7.03	Regulatory Compliance	Post Fukushima Modifications - Unit 2	-	-	-	0.1	0.1	6/7/2013	12/31/2013
21	SNF-2-D-FLEX	Regulatory Compliance	Flex Initiative	-	-	-	0.2	0.2	1/2/2014	12/31/2014
22	SNF-2-D-8.02	Regulatory Compliance	Decay Heat Analysis	-	-	-	0.2	0.2	1/2/2014	8/28/2014
23	SNF-2-D-8.03	Regulatory Compliance	Zirconium Fire/ Shine Analysis	-	-	-	0.1	0.1	1/2/2014	8/28/2014
24	SNF-2-D-8.05	Regulatory Compliance	Prepare Irradiated Fuel Management Plan & NRC Review	-	-	-	0.0	0.0	1/2/2014	8/19/2015
25	Regulatory Compliance Subtotal			\$ -	\$ -	\$ -	\$ 4.9	\$ 4.9		
26										
27	LT-2-D-2.31	Transition Modifications - Phase 1	Transition Project Modifications	-	-	-	1.1	1.1	8/1/2015	10/16/2015
28	Transition Modifications - Phase 1 Subtotal			\$ -	\$ -	\$ -	\$ 1.1	\$ 1.1		
29										
30	SNF-1-D-7.01	Security Programs	Security Shutdown Strategy	-	-	-	2.9	2.9	11/1/2013	12/31/2013
31	SNF-2-D-8.01	Security Programs	Security Shutdown Strategy	-	-	-	4.5	4.5	1/3/2014	11/13/2014
32	Security Programs Subtotal			\$ -	\$ -	\$ -	\$ 7.5	\$ 7.5		
33										
34	LT-2-D-2.22	DGC RFP & Prep	Select Decommissioning General Contractor (DGC)	-	-	-	13.8	13.8	4/11/2014	12/20/2016
35	DGC RFP & Preps Subtotal			\$ -	\$ -	\$ -	\$ 13.8	\$ 13.8		
36										
37	LT-2-D-LOED	Transition Modifications - Phase 2	Large Organism Exclusion Device Modification	-	-	-	1.3	1.3	8/1/2015	10/13/2016
38	LT-3-D-RecB	Transition Modifications - Phase 2	Records Backlog	-	-	-	1.9	1.9	5/5/2016	12/31/2016
39	LT-3-D-S&S	Transition Modifications - Phase 2	Simplification & Streamlining Project	-	-	-	1.3	1.3	3/6/2015	11/30/2016
40	LT-D-SPV	Transition Modifications - Phase 2	Special Purpose Vehicle Support	-	-	-	0.4	0.4	10/1/2015	3/16/2016
41	Transition Modifications - Phase 2 Subtotal			\$ -	\$ -	\$ -	\$ 5.0	\$ 5.0		
42										
43	LT-2-D-2.26	Spent Fuel Islanding	Install Spent Fuel Pool System Modifications - Unit 2	-	-	-	4.2	4.2	11/3/2014	6/30/2016
44	LT-2-D-2.27	Spent Fuel Islanding	Install Spent Fuel Pool System Modifications - Unit 3	-	-	-	4.2	4.2	11/3/2014	6/30/2016
45	Spent Fuel Islanding Subtotal			\$ -	\$ -	\$ -	\$ 8.4	\$ 8.4		
46										
47	SNF-1-D-7.05	Cyber Security Modifications	Cyber Security Modifications	-	-	-	9.4	9.4	6/7/2013	4/27/2017
48	Cyber Security Modifications Subtotal			\$ -	\$ -	\$ -	\$ 9.4	\$ 9.4		
49										
50	LT-3-D-DCE	Phase 2 Regulatory Compliance	DCE Update	-	-	-	1.8	1.5	3/1/2017	3/8/2018
51	LT-2-D-2.07	Phase 2 Regulatory Compliance	Prepare Defueled Safety Analysis Report (DSAR)	-	-	-	2.0	2.0	1/2/2014	4/13/2016
52	Phase 2 Regulatory Compliance Subtotal			\$ -	\$ -	\$ -	\$ 3.7	\$ 3.5		
53										
54	LT-2-D-2.18	Initial D&D Activities	Planning & Design For Cold and Dark	-	-	-	20.2	20.2	2/3/2014	12/15/2016
55	LT-2-D-2.19	Initial D&D Activities	Implement Cold and Dark (Repower Site)	-	-	-	54.0	54.0	11/3/2014	1/11/2017
56	LT-2-D-2.20	Initial D&D Activities	Install 12 kV Service Line to Power Temp Power Ring	-	-	-	10.1	10.1	11/3/2014	9/30/2017
57	LT-2-D-2.21	Initial D&D Activities	Drain & De-Energize Non-Essential Systems (DEC Process)	-	-	-	6.1	6.1	1/2/2014	11/16/2016

**Detailed Comparison Of 2020 Forecasted Costs To The 2017 DCE
(2014 Dollars in Millions, 100% Level)**

				2020			[D] Forecasted Inception To Date Through 2020 ⁽⁴⁾	[E] Total 2017 DCE ^{(3) (5)}	[F] Current Start	[G] Current Finish
				[A]	[B]	[C=A-B]				
DCE No.	Major Project ⁽¹⁾	Description ⁽²⁾	2017 DCE ⁽³⁾	Forecasted	Variance					
58	LT-2-D-2.29	Initial D&D Activities	Implement Control Room Modifications (Command Center Relocation)	-	-	-	0.3	0.3	4/2/2015	7/18/2016
59	LT-3-D-3.10	Initial D&D Activities	Modify Containment Access- Unit 2		2.2		2.5		4/24/2018	12/31/2020
60	LT-3-D-3.12	Initial D&D Activities	Remove and Dispose of Missile Shields - Unit 2		4.1		8.2		6/25/2019	9/15/2020
61	LT-3-D-3.13	Initial D&D Activities	Remove and Dispose of Reactor Head - Unit 2		-		3.0		2/28/2018	12/3/2020
62	LT-3-D-3.11	Initial D&D Activities	Modify Containment Access- Unit 3		-		0.3		12/27/2018	12/8/2020
63	LT-3-D-3.14	Initial D&D Activities	Remove and Dispose of Missile Shields - Unit 3		4.9		9.7		8/7/2019	8/6/2020
64	LT-3-D-3.15	Initial D&D Activities	Remove and Dispose of Reactor Head - Unit 3		-		3.0		2/28/2018	10/1/2020
65	LT-3-D-3.01	Initial D&D Activities	Prepare Integrated Work Sequence and Schedule for Decommissioning		-		7.5		1/8/2017	1/11/2018
66	LT-4-D-4.02	Initial D&D Activities	Install GARDIAN System		-		1.3		8/14/2017	9/28/2017
67	LT-3-D-3.17	Initial D&D Activities	Prepare Activity Specifications - U2		-		-		1/8/2017	12/31/2018
68	LT-3-D-3.02	Initial D&D Activities	Prepare Detailed Work Procedures and Activity Specifications for Decommissioning		-		-		1/8/2017	1/11/2018
69	LT-4-D-4.14	Initial D&D Activities	Remove and Dispose of Legacy Class B and C Waste - Unit 2		-		1.9		6/4/2018	9/17/2018
70	LT-4-D-4.15	Initial D&D Activities	Remove and Dispose of Legacy Class B and C Waste - Unit 3		-		1.9		6/4/2018	9/17/2018
71	LT-3-D-DGC_BUR	Initial D&D Activities	Waste Contracts		-		33.2		2/22/2017	2/27/2018
72	LT-D-FRASB	Initial D&D Activities	Removal of Friable Asbestos		8.3		8.3		12/3/2019	5/20/2020
73	Initial D&D Activities Subtotal			\$	\$ 19.5	\$	\$ 171.5	\$		
74										
75	LT-3-D-3.23	Internals and Vessel Segmentation	Finalize Internals and Vessel Segmenting Details - Unit 2		-		0.9		12/18/2017	1/25/2019
76	LT-3-D-3.26	Internals and Vessel Segmentation	Finalize Internals and Vessel Segmenting Details - Unit 3		-		2.0		10/30/2017	12/20/2017
77	LT-3-D-3.24	Internals and Vessel Segmentation	Segment, Package and Dispose of Reactor Internals - Unit 2		4.8		18.1		5/25/2017	8/22/2022
78	LT-3-D-3.27	Internals and Vessel Segmentation	Segment, Package and Dispose of Reactor Internals - Unit 3		4.8		17.0		5/25/2017	9/6/2022
79	LT-3-D-3.19	Internals and Vessel Segmentation	Design, Specify, and Procure Special Items and Materials		6.1		6.1		10/24/2020	12/19/2020
80	LT-3-D-3.22	Internals and Vessel Segmentation	Test Special Cutting and Handling Equipment and Train Operators		6.0		6.0		1/28/2019	10/23/2020
81	Internals and Vessel Segmentation Subtotal			\$	\$ 21.8	\$	\$ 50.1	\$		
82										
83	LT-4-D-4.33	Steam Generator Removal	Remove and Dispose of Steam Generators - Unit 2		25.5		46.1		7/23/2018	2/12/2024
84	LT-4-D-4.35	Steam Generator Removal	Remove and Dispose of Steam Generators - Unit 3		20.6		41.0		7/23/2018	6/28/2023
85	Steam Generator Removal Subtotal			\$	\$ 46.1	\$	\$ 87.1	\$		
86										
87	LT-4-D-4.06	Non-Essential System Removal	Remove, Package and Dispose of Non-Essential Systems - Unit 2		7.3		14.2		5/21/2018	10/18/2023
88	LT-4-D-4.09	Non-Essential System Removal	Remove, Package and Dispose of Non-Essential Systems - Unit 3		10.5		14.5		5/11/2018	6/5/2024
89	Non-Essential System Removal Subtotal			\$	\$ 17.8	\$	\$ 28.7	\$		
90										
91	SR-4-D-17.05	Removal of Spent Fuel Systems/ Equipment	Remove Protected Area Security Fencing		0.3		0.3		10/1/2020	3/23/2021
92	Removal of Spent Fuel Systems/ Equipment Subtotal			\$	\$ 0.3	\$	\$ 0.3	\$		
93										
94	SR-4-D-17.07	Containment Building Demo	Detension and Remove Unit 3 Containment Building Tendons		7.1		7.1		4/20/2020	7/14/2020
95	SR-4-D-17.15	Containment Building Demo	Detension and Remove Unit 2 Containment Building Tendons		7.0		7.0		8/7/2019	7/14/2020
96	Containment Building Demo Subtotal			\$	\$ 14.1	\$	\$ 14.1	\$		
97										
98	SR-4-D-17.17	Initial Plant Building Demo	Demolish Condensate Building and Transformer Pads - Unit 2		-		-		3/19/2018	11/13/2023
99	SR-4-D-17.01	Initial Plant Building Demo	Procure Clean Building Demolition Equipment		9.6		19.1		2/3/2020	9/7/2023
100	SR-4-D-17.30	Initial Plant Building Demo	Demolish Auxiliary Radwaste Building - Common		-		-		5/17/2023	6/21/2024
101	SR-4-D-17.32	Initial Plant Building Demo	Remove Systems and Demolish Make-Up Demineralizer Structures		1.3		1.3		5/7/2018	3/3/2021
102	SR-4-D-17.33	Initial Plant Building Demo	Install Concrete Plugs in Intake and Discharge Structures		-		2.5		12/10/2018	8/26/2021
103	Initial Plant Building Demo Subtotal			\$	\$ 11.0	\$	\$ 23.0	\$		
104										
105	LT-5-D-5.05	Building Decontamination	Decon Turbine Building - Unit 3		-		0.3		5/29/2018	7/3/2023
106	LT-5-D-5.10	Building Decontamination	Decon Turbine Building - Unit 2		-		0.3		5/29/2018	7/3/2023
107	Building Decontamination Subtotal			\$	\$ -	\$	\$ 0.6	\$		
108										
109	LT-4-D-4.23	Final Plant Building Demo	Asbestos Abatement and Hazardous Waste Disposal for Essential Systems		-		0.4		8/1/2018	2/12/2019
110	Final Plant Building Demo Subtotal			\$	\$ -	\$	\$ 0.4	\$		
111										
112	LT-4-D-4.39	Final Survey/License Reduction	Prepare License Termination Plan		2.4		4.9		12/18/2017	8/14/2024
113	SR-3-D-16.02	Final Survey/License Reduction	Subsurface Structure Removal Engineering Planning and Design		-		0.8		10/1/2017	12/31/2017
114	Final Survey/License Reduction Subtotal			\$	\$ 2.4	\$	\$ 5.6	\$		

**Detailed Comparison Of 2020 Forecasted Costs To The 2017 DCE
(2014 Dollars in Millions, 100% Level)**

	DCE No.	Major Project ⁽¹⁾	Description ⁽²⁾	2020			[D] Forecasted Inception To Date Through 2020 ⁽⁴⁾	[E] Total 2017 DCE ^{(3) (5)}	[F] Current Start	[G] Current Finish
				[A] 2017 DCE ⁽³⁾	[B] Forecasted	[C=A-B] Variance				
115										
116	LT-D-WPTT	D&D Waste	Waste Taxes (Pass Through)		2.1		7.8		1/24/2017	12/31/2027
117	LT-D-BUR	D&D Waste	Waste Disposal		96.2		168.6		1/24/2017	12/31/2027
118	D&D Waste Subtotal			\$	\$ 98.3	\$	\$ 176.4	\$		
119										
120	Decontamination, Demolition, & Disposal Subtotal			\$	\$ 231.3	\$	\$ 557.8	\$		
121										
122	SNF-1-D-7.02	ISFSI	Holtec Long Lead Items and Areva Contract Closure		-		31.1		6/7/2013	6/28/2018
123	SNF-2-D-8.07	ISFSI	ISFSI Pad Study		-		0.2		2/4/2014	12/31/2014
124	SNF-2-D-8.08	ISFSI	Design ISFSI Expansion, Fuel Inspection, and Oversight		11.8		84.5		12/8/2014	9/14/2020
125	SNF-2-D-8.09	ISFSI	Construct ISFSI Expansion		6.8		46.8		1/1/2016	1/15/2020
126	SNF-2-D-8.10	ISFSI	Fabrication of Spent Fuel Canisters - Unit 2		-		43.2		12/5/2014	6/28/2018
127	SNF-2-D-8.11	ISFSI	Fabrication of Spent Fuel Canisters - Unit 3		-		34.6		12/5/2014	6/28/2018
128	SNF-2-D-8.12	ISFSI	Load Fuel Canisters and Fuel Transfer Operations - Unit 2		23.3		54.1		11/1/2015	6/10/2020
129	SNF-2-D-8.13	ISFSI	Load Fuel Canisters and Fuel Transfer Operations - Unit 3		23.5		54.3		11/1/2015	8/14/2020
130	ISFSI Subtotal			\$	\$ 65.4	\$	\$ 348.9	\$		
131										
132	ISFSI Subtotal			\$ -	\$ 65.4	\$ (65.4)	\$ 348.9	\$ 270.2		
133										
134	SNF-2-D-CDP	ISFSI CDP Settlement	ISFSI CDP Settlement	-	1.7	(1.7)	4.7	4.3	8/30/2017	8/30/2021
135	ISFSI Coastal Development Permit Settlement Subtotal			\$ -	\$ 1.7	\$ (1.7)	\$ 4.7	\$ 4.3		
136										
137	SNF-2-D-EP Areva	Coastal Development Permit Extensions	Environmental Permitting - Areva	0.4	0.3	0.1	0.3	1.9	1/1/2020	12/20/2022
138	Coastal Development Permit Extensions Subtotal			\$ 0.4	\$ 0.3	\$ 0.1	\$ 0.3	\$ 1.9		
139										
140	SNF-2-D-AM Areva	ISFSI Aging Management	Areva ISFSI Relicensing	2.4	2.8	(0.4)	8.1	14.1	9/1/2016	5/22/2022
141	SNF-2-D-AM Holtec1	ISFSI Aging Management	Holtec ISFSI I&M Program Development	4.1	2.1	2.0	8.5	16.7	2/15/2017	10/6/2020
142	ISFSI Aging Management Subtotal			\$ 6.5	\$ 4.9	\$ 1.6	\$ 16.7	\$ 30.8		
143										
144	SNF-2-D-GTCC	GTCC Waste Storage	GTCC Waste Storage	7.7	13.8	(6.1)	27.9	26.6	12/11/2019	8/1/2022
145	GTCC Waste Storage Subtotal			\$ 7.7	\$ 13.8	\$ (6.1)	\$ 27.9	\$ 26.6		
146										
147	SNF-D-SIREN	Siren Removals	Siren Removals	-	0.0	(0.0)	0.0	-	10/1/2018	2/28/2020
148	Siren Removal Subtotal			\$ -	\$ 0.0	\$ (0.0)	\$ 0.0	\$ -		
149										
150	SNF-D-NIA Sump	NIA Sump Modifications	NIA Sump Modifications	0.4	-	0.4	-	1.1	1/1/2020	12/31/2021
151	NIA Sump Modifications Subtotal			\$ 0.4	\$ -	\$ 0.4	\$ -	\$ 1.1		
152										
153	SR-3-D-16.05	CEQA	Obtain CEQA Permit & Approvals	-	-	-	8.0	7.9	7/1/2015	10/17/2019
154	CEQA Subtotal			\$ -	\$ -	\$ -	\$ 8.0	\$ 7.9		
155										
156	SR-3-D-16.03	NEPA	Initial Real Estate Authorization Renewal and Plant Easement	1.6	0.5	1.1	3.4	14.4	5/15/2015	5/23/2024
157	NEPA Subtotal			\$ 1.6	\$ 0.5	\$ 1.1	\$ 3.4	\$ 14.4		
158										
159	SR-1-D-14.02	Mesa Turnover	Disposition Hazardous Waste from Mesa Site	-	-	-	0.2	0.2	7/4/2014	9/6/2021
160	SR-2-D-15.09	Mesa Turnover	Mesa Buildings - Demo, Maintenance	1.0	3.1	(2.1)	10.7	9.5	9/1/2014	9/6/2021
161	SR-2-D-15.02	Mesa Turnover	Obtain Required Permits - Mesa	-	-	-	0.1	0.1	8/1/2015	5/26/2020
162	SR-1-D-14.01	Mesa Turnover	Mesa Site Phase I and II Site Assessment and Lease Surrender	1.3	2.4	(1.0)	8.7	8.5	4/11/2014	11/11/2021
163	SR-1-D-14.03	Mesa Turnover	Mesa Site Characterization Survey	-	-	-	0.1	0.1	6/2/2014	6/2/2021
164	Mesa Turnover Subtotal			\$ 2.3	\$ 5.4	\$ (3.1)	\$ 19.7	\$ 18.4		
165										
166	LT-D-DCE2	⁽⁶⁾ DCE Updates	DCE Update 2020	0.3	0.3	0.0	0.3	0.3	6/1/2020	12/21/2020
167	DCE Updates Subtotal			\$ 0.3	\$ 0.3	\$ 0.0	\$ 0.3	\$ 0.3		
168										
169	Other Major Projects Subtotal			\$ 19.2	\$ 26.9	\$ (7.7)	\$ 81.0	\$ 105.7		
170										
171	Major Projects (Distributed) Subtotal			\$ 88.1	\$ 323.6	\$ (235.5)	\$ 1,122.1	\$		

Detailed Comparison Of 2020 Forecasted Costs To The 2017 DCE
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	DCE No.	Major Project ⁽¹⁾	Description ⁽²⁾	2020			Forecasted Inception To Date Through 2020 ⁽⁴⁾	Total 2017 DCE ^{(3) (5)}	Current Start	Current Finish
				[A]	[B]	[C=A-B]				
				2017 DCE ⁽³⁾	Forecasted	Variance				
172										
173	LT-U-1.01	Undistributed - Labor-Staffing	Utility Staff	18.9	17.4	1.5	199.4	308.3		
174	SNF-U-2.01	Undistributed - Labor-Staffing	Utility Staff	5.2	13.1	(7.9)	153.1	295.4		
175	SR-U-3.01	Undistributed - Labor-Staffing	Utility Staff	0.3	0.8	(0.5)	4.2	109.4		
176	Utility Staff Subtotal			\$ 24.4	\$ 31.3	\$ (7.0)	\$ 356.6	\$ 713.1		
177										
178	LT-U-1.03	Undistributed - Labor-Staffing	Security Force	-	0.6	(0.6)	7.6	6.7		
179	SNF-U-2.04	Undistributed - Labor-Staffing	Security Force	2.7	14.3	(11.6)	140.0	212.0		
180	SR-U-3.02	Undistributed - Labor-Staffing	Security Force	-	-	-	-	-		
181	Security Force Subtotal			\$ 2.7	\$ 15.0	\$ (12.3)	\$ 147.7	\$ 218.7		
182										
183	LT-U-1.11	Undistributed - Labor-Staffing	Decommissioning General Contractor Staffing		23.0		154.0			
184	SNF-U-2.14	Undistributed - Labor-Staffing	Decommissioning General Contractor Staffing		9.9		9.9			
185	SR-U-3.08	Undistributed - Labor-Staffing	Decommissioning General Contractor Staffing		-		3.7			
186	Decommissioning General Contractor Subtotal			\$	\$ 32.9	\$	\$ 167.7	\$		
187										
188	LT-U-RS	Undistributed - Labor-Staffing	Short-Term Incentive Compensation		2.6		14.0			
189	SNF-U-RS	Undistributed - Labor-Staffing	Short-Term Incentive Compensation		(0.0)		9.1			
190	SR-U-RS	Undistributed - Labor-Staffing	Short-Term Incentive Compensation		0.0		0.5			
191	Short-Term Incentive Compensation Subtotal			\$	\$ 2.7	\$	\$ 23.6	\$		
192										
193	Undistributed - Labor-Staffing Subtotal			\$ 47.3	\$ 81.8	\$ (34.5)	\$ 695.5	\$ 1,244.7		
194										
195	LT-U-1.02	Undistributed - Non-Labor	Utility Staff Health Physics Supplies	-	-	-	1.0	1.1		
196	SNF-U-2.02	Undistributed - Non-Labor	Utility Staff Health Physics Supplies	0.0	-	0.0	1.7	2.5		
197	Utility Staff Health Physics Supplies Subtotal			\$ 0.0	\$ -	\$ 0.0	\$ 2.7	\$ 3.7		
198										
199	LT-U-1.04	Undistributed - Non-Labor	Security Related Expenses	-	0.0	(0.0)	0.4	0.7		
200	SNF-U-2.05	Undistributed - Non-Labor	Security Related Expenses	0.1	0.7	(0.6)	2.9	10.6		
201	SR-U-3.03	Undistributed - Non-Labor	Security Related Expenses	-	-	-	0.4	0.6		
202	Security Related Expenses Subtotal			\$ 0.1	\$ 0.7	\$ (0.6)	\$ 3.8	\$ 11.8		
203										
204	LT-U-1.05	Undistributed - Non-Labor	Insurance	0.5	1.5	(1.0)	8.3	19.7		
205	LT-U-1.14	Undistributed - Non-Labor	Workers Compensation Insurance	-	-	-	1.3	0.4		
206	SNF-U-2.06	Undistributed - Non-Labor	Insurance	1.1	2.5	(1.4)	3.0	38.5		
207	SR-U-3.04	Undistributed - Non-Labor	Insurance	0.0	0.2	(0.2)	0.3	5.0		
208	Insurance Subtotal			\$ 1.6	\$ 4.2	\$ (2.6)	\$ 12.9	\$ 63.7		
209										
210	LT-U-1.06	Undistributed - Non-Labor	Site Lease and Easement Expenses	-	-	-	4.3	4.4		
211	SR-U-3.05	Undistributed - Non-Labor	Site Lease and Easement Expenses	2.3	2.9	(0.6)	13.0	47.1		
212	Site Lease and Easement Expenses Subtotal			\$ 2.3	\$ 2.9	\$ (0.6)	\$ 17.4	\$ 51.5		
213										
214	LT-U-1.07	Undistributed - Non-Labor	NRC Fees	0.3	0.3	(0.0)	5.9	11.5		
215	SNF-U-2.08	Undistributed - Non-Labor	NRC Fees	0.3	0.3	(0.0)	1.9	19.7		
216	NRC Fees Subtotal			\$ 0.6	\$ 0.6	\$ (0.0)	\$ 7.8	\$ 31.2		
217										
218	LT-U-1.08	Undistributed - Non-Labor	Contracted Services	4.7	5.5	(0.8)	77.0	100.2		
219	SNF-U-2.11	Undistributed - Non-Labor	Contracted Services	1.7	6.2	(4.6)	41.1	99.1		
220	SR-U-3.06	Undistributed - Non-Labor	Contracted Services	0.1	2.7	(2.6)	4.9	26.1		
221	SR-U-Bank	Undistributed - Non-Labor	Bank Fees And Interest	-	-	-	(0.1)	(0.1)		
222	SR-U-Inv Adj	Undistributed - Non-Labor	Vendor Invoice Adjustment	-	-	-	(0.3)	(0.2)		
223	Contracted Services Subtotal			\$ 6.4	\$ 14.4	\$ (7.9)	\$ 122.6	\$ 225.2		
224										
225	LT-U-1.09	Undistributed - Non-Labor	DAW Disposal	-	-	-	0.0	0.0		
226	SNF-U-2.12	Undistributed - Non-Labor	DAW Disposal	-	-	-	0.0	0.0		
227	DAW Disposal Subtotal			\$ -	\$ -	\$ -	\$ 0.0	\$ 0.0		
228										

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					2020			[D] Forecasted Inception To Date Through 2020 ⁽⁴⁾	[E] Total 2017 DCE ^{(3) (5)}	[F] Current Start	[G] Current Finish
					[A]	[B]	[C=A-B]				
	DCE No.	Major Project ⁽¹⁾	Description ⁽²⁾		2017 DCE ⁽³⁾	Forecasted	Variance				
229	LT-U-1.10	Undistributed - Non-Labor	Energy		3.8	2.9	0.9	23.4	49.9		
230	SNF-U-2.13	Undistributed - Non-Labor	Energy		0.8	1.3	(0.5)	7.0	18.4		
231	SR-U-3.07	Undistributed - Non-Labor	Energy		0.2	0.4	(0.2)	0.9	16.4		
232	Energy Subtotal				\$ 4.8	\$ 4.6	\$ 0.2	\$ 31.3	\$ 84.7		
233											
234	LT-U-1.15	Undistributed - Non-Labor	Community Engagement Panel		0.4	0.4	0.0	3.6	7.6		
235	SNF-U-2.25	Undistributed - Non-Labor	Community Engagement Panel		0.1	0.1	(0.0)	0.5	2.7		
236	SR-U-3.21	Undistributed - Non-Labor	Community Engagement Panel		0.0	0.0	0.0	0.2	2.1		
237	Community Engagement Panel Subtotal				\$ 0.5	\$ 0.5	\$ 0.0	\$ 4.3	\$ 12.5		
238											
239	LT-U-1.17	Undistributed - Non-Labor	Association Fees and Expenses		0.4	0.4	0.1	2.4	4.9		
240	SNF-U-2.26	Undistributed - Non-Labor	Association Fees and Expenses		0.1	0.2	(0.1)	0.4	2.3		
241	SR-U-3.17	Undistributed - Non-Labor	Association Fees and Expenses		0.0	0.1	(0.0)	0.1	1.4		
242	Association Fees and Expenses Subtotal				\$ 0.6	\$ 0.6	\$ 0.0	\$ 2.9	\$ 8.6		
243											
244	LT-U-1.18	Undistributed - Non-Labor	Water		0.3	0.1	0.2	1.4	4.2		
245	SNF-U-2.18	Undistributed - Non-Labor	Water		0.1	0.1	0.0	1.2	9.1		
246	SR-U-3.13	Undistributed - Non-Labor	Water		0.0	0.0	-	0.1	3.3		
247	Water Subtotal				\$ 0.4	\$ 0.2	\$ 0.2	\$ 2.7	\$ 16.5		
248											
249	LT-U-1.19	Undistributed - Non-Labor	Tools and Equipment		-	-	-	0.1	0.0		
250	Tools and Equipment Subtotal				\$ -	\$ -	\$ -	\$ 0.1	\$ 0.0		
251											
252	LT-U-1.20	Undistributed - Non-Labor	Information Technology		0.6	1.5	(0.9)	16.0	18.4		
253	LT-U-1.21	Undistributed - Non-Labor	Telecommunications		-	-	-	2.3	2.3		
254	LT-U-1.22	Undistributed - Non-Labor	Personal Computers		-	-	-	0.0	0.0		
255	SNF-U-2.20	Undistributed - Non-Labor	Information Technology		0.1	0.7	(0.6)	3.1	5.6		
256	SNF-U-2.22	Undistributed - Non-Labor	Personal Computers		-	-	-	0.0	0.0		
257	SR-U-3.15	Undistributed - Non-Labor	Information Technology		0.0	0.2	(0.2)	0.5	5.5		
258	Information Technology Subtotal				\$ 0.7	\$ 2.4	\$ (1.6)	\$ 22.0	\$ 31.9		
259											
260	LT-U-1.24	Undistributed - Non-Labor	Environmental Permits and Fees		0.0	0.0	(0.0)	3.7	3.8		
261	SNF-U-2.27	Undistributed - Non-Labor	Environmental Permits and Fees		0.0	0.0	(0.0)	0.0	1.1		
262	SR-U-3.23	Undistributed - Non-Labor	Environmental Permits and Fees		0.0	0.0	(0.0)	0.0	1.8		
263	Environmental Permits and Fees Subtotal				\$ 0.0	\$ 0.0	\$ (0.0)	\$ 3.7	\$ 6.7		
264											
265	LT-U-1.25	Undistributed - Non-Labor	Decommissioning Advisor		0.5	0.4	0.1	4.6	7.9		
266	SNF-U-2.28	Undistributed - Non-Labor	Decommissioning Advisor		0.1	0.2	(0.1)	0.4	0.3		
267	SR-U-3.22	Undistributed - Non-Labor	Decommissioning Advisor		0.0	0.1	(0.0)	0.1	1.7		
268	Decommissioning Advisor Subtotal				\$ 0.6	\$ 0.6	\$ 0.0	\$ 5.1	\$ 9.9		
269											
270	LT-U-Legal	Undistributed - Non-Labor	Third-Party Legal		0.8	0.9	(0.1)	5.0	9.4		
271	SNF-U-Legal	Undistributed - Non-Labor	Third-Party Legal		0.2	-	0.2	2.3	10.1		
272	SR-U-Legal	Undistributed - Non-Labor	Third-Party Legal		0.0	-	0.0	0.9	4.3		
273	Third-Party Legal Subtotal				\$ 1.1	\$ 0.9	\$ 0.2	\$ 8.2	\$ 23.8		
274											
275	LT-U-CO	Undistributed - Non-Labor	DGC Executive Oversight Committee		0.3	0.3	0.0	0.6	2.9		
276	DGC Executive Oversight Committee Subtotal				\$ 0.3	\$ 0.3	\$ 0.0	\$ 0.6	\$ 2.9		
277											
278	SNF-U-2.09	Undistributed - Non-Labor	Emergency Preparedness Fees		1.8	1.7	0.1	16.3	48.3		
279	Emergency Preparedness Fees Subtotal				\$ 1.8	\$ 1.7	\$ 0.1	\$ 16.3	\$ 48.3		
280											
281	SNF-U-AM Holtec	Undistributed - Non-Labor	Holtec ISFSI Aging Management		0.1	0.1	0.0	0.1	11.2		
282	Aging Management Subtotal				\$ 0.1	\$ 0.1	\$ 0.0	\$ 0.1	\$ 11.2		
283											
284	SR-U-CEQA-RPT	Undistributed - Non-Labor	CEQA Reporting		-	1.6	(1.6)	1.6	-		
285	CEQA Reporting Subtotal				\$ -	\$ 1.6	\$ (1.6)	\$ 1.6	\$ -		

General Notes:

(B) Amounts with \$0.0 or \$(0.0) indicate that costs are included in the category but round to \$0 when rounded to the nearest hundred thousand. \$ - indicates that no costs are included in the category.

Notes:

- (1) Not all line items associated with each major project are included. Only line items with costs in 2020 in the DCE or forecast, or line items with costs forecasted inception to date through 2020 are summarized.
- (2) All descriptions are consistent with the 2017 Decommissioning Cost Estimate.
- (3) 2017 DCE values are from Attachment 10, "2017 DCE Waste Disposal Adjustment."
- (4) The current year's forecast includes amounts for certain milestone payments that have slipped into 2020 from 2019 and had been included in the 2019 disbursement Advice Letter request. These amounts will be adjusted in the Spring recorded costs Advice Letter.
- (5) The "Total 2017 DCE" column contains the total DCE cost associated with each line item.
- (6) For convenience in the 2017 DCE, all DCE updates were included in line number LT-3-D-DCE. Each DCE is actually treated as its own distributed project, so a new line item (LT-D-DCE2) for the 2020 DCE update has been created and the portion of costs assumed in the 2017 DCE for the 2020 update have been moved to this new line.

Attachment 4

Comparison of 2017 DCE Estimated and Forecasted Cash Flow

Comparison Of Annual Cash Flow
(2014 Dollars In Thousands, 100% Level)

Year⁽¹⁾	[A] Total 2017 DCE	[B] Recorded / Forecasted
2013-A	\$ 243,504	\$ 243,504
2014-A	217,175	217,175
2015-A	277,491	277,491
2016-A	213,002	213,002
2017-A	339,744	283,878
2018-A	262,910	165,878
2019	173,493	399,800
2020	166,288	461,832 ⁽²⁾
2021	276,416	
2022	320,235	
2023	237,386	
2024	162,140	
2025	151,283	
2026	155,336	
2027	126,368	
2028	52,748	
2029	22,046	
2030	19,580	
2031	21,094	
2032	21,903	
2033	24,760	
2034	24,718	
2035	27,283	
2036	24,921	
2037	22,091	
2038	21,851	
2039	22,701	
2040	25,313	
2041	23,575	
2042	24,775	
2043	24,117	
2044	35,098	
2045	33,490	
2046	73,197	
2047	160,624	
2048	134,176	
2049	113,710	
2050	99,449	
2051	102,574	
Total	<u>\$ 4,478,566</u>	<u>\$ 2,262,560</u>

Notes:

(1) "-A" indicates the costs for the given year in Column [B] are actual recorded costs. All other years are forecasted amounts.

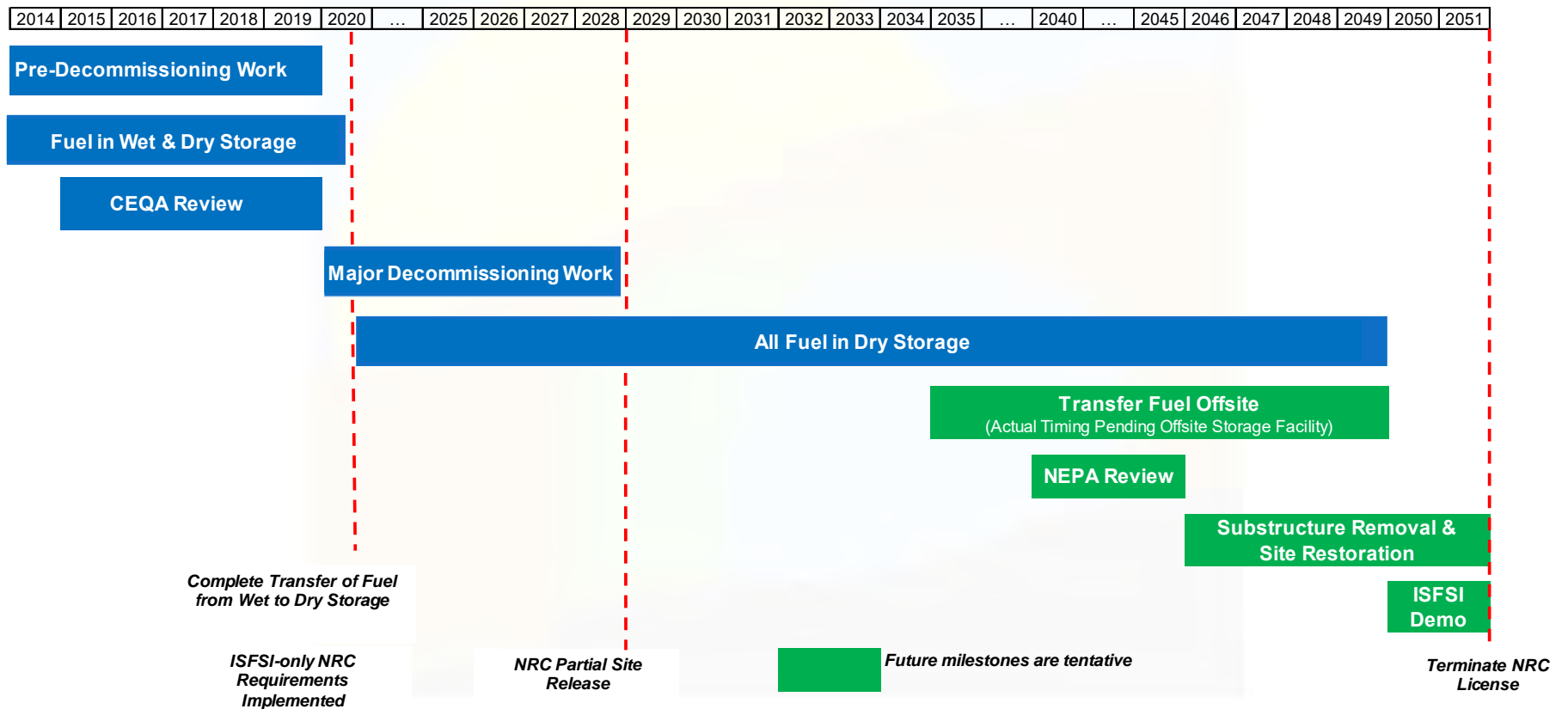
(2) The current year's forecast includes amounts for certain milestone payments that have slipped into 2020 from 2019 and had been included in the 2019 disbursement Advice Letter request. These amounts will be adjusted in the Spring recorded costs Advice Letter.

Attachment 5

Schedule

Decommissioning Plan

SONGS Decommissioning Plan



Attachment 6

Adjusted Total Amounts Requested to Date Including Previous Advice
Letters

Adjusted Total Amounts Requested To Date Including Previous Advice Letters
(Dollars In Millions)

2013 - 2020													
Major Project	100% Share (2014\$)					100% Share (Nominal)				SCE Share (Nominal)			
	Requested In Previous Advice Letters	2018 Underrun ⁽¹⁾	2018 Final Escalation Adjustment	2020 Forecast	Adjusted Total Requested To Date	Requested In Previous Advice Letters	2018 Underrun ⁽¹⁾	2020 Forecast	Adjusted Total Requested To Date	Requested In Previous Advice Letters	2018 Underrun ⁽¹⁾	2020 Forecast	Adjusted Total Requested To Date
1 Major Projects (Distributed)													
2 Historical Site Assessment /Characterization	\$ 6.2	\$ -	\$ -	\$ -	\$ 6.2	\$ 6.4	\$ -	\$ -	\$ 6.4	\$ 4.8	\$ -	\$ -	\$ 4.8
3 Legacy Radwaste Disposal	20.0	-	-	-	20.0	20.2	-	-	20.2	15.2	-	-	15.2
4 Project Governance and Admin	54.4	-	-	-	54.4	55.2	-	-	55.2	43.2	-	-	43.2
5 Regulatory Compliance	4.9	-	-	-	4.9	4.9	-	-	4.9	3.7	-	-	3.7
6 Transition Modifications - Phase 1	1.1	-	-	-	1.1	1.1	-	-	1.1	0.8	-	-	0.8
7 Security Programs	7.5	-	-	-	7.5	7.5	-	-	7.5	5.7	-	-	5.7
8 DGC RFP & Prep	13.8	-	-	-	13.8	14.3	-	-	14.3	10.8	-	-	10.8
9 Transition Modifications - Phase 2	5.0	-	-	-	5.0	5.2	-	-	5.2	3.9	-	-	3.9
10 Spent Fuel Islanding	8.4	-	-	-	8.4	8.5	-	-	8.5	6.5	-	-	6.5
11 Cyber Security Modifications	9.4	-	-	-	9.4	9.6	-	-	9.6	7.3	-	-	7.3
12 Phase 2 Regulatory Compliance	3.8	(0.1)	(0.0)	-	3.7	4.1	(0.1)	-	4.0	3.0	(0.1)	-	2.9
13 Completed Projects Subtotal	\$ 134.5	\$ (0.1)	\$ (0.0)	\$ -	\$ 134.4	\$ 137.0	\$ (0.1)	\$ -	\$ 136.9	\$ 104.9	\$ (0.1)	\$ -	\$ 104.8
14													
15 Initial D&D Activities	\$ [REDACTED]	(6.9)	(0.0)	19.5	\$ [REDACTED]	[REDACTED]	(7.5)	22.7	\$ [REDACTED]	[REDACTED]	(5.7)	17.1	\$ [REDACTED]
16 Internals and Vessel Segmentation	[REDACTED]	(9.8)	(0.0)	21.8	[REDACTED]	[REDACTED]	(10.7)	25.4	[REDACTED]	[REDACTED]	(8.1)	19.2	[REDACTED]
17 Steam Generator Removal	[REDACTED]	-	-	46.1	[REDACTED]	[REDACTED]	-	53.7	[REDACTED]	[REDACTED]	-	40.7	[REDACTED]
18 Non-Essential System Removal	[REDACTED]	-	-	17.8	[REDACTED]	[REDACTED]	-	20.7	[REDACTED]	[REDACTED]	-	15.7	[REDACTED]
19 Removal of Spent Fuel Systems/ Equipment	[REDACTED]	-	-	0.3	[REDACTED]	[REDACTED]	-	0.3	[REDACTED]	[REDACTED]	-	0.3	[REDACTED]
20 Containment Building Demo	[REDACTED]	-	-	14.1	[REDACTED]	[REDACTED]	-	16.4	[REDACTED]	[REDACTED]	-	12.4	[REDACTED]
21 Initial Plant Building Demo	[REDACTED]	-	-	11.0	[REDACTED]	[REDACTED]	-	12.7	[REDACTED]	[REDACTED]	-	9.6	[REDACTED]
22 Building Decontamination	[REDACTED]	-	-	-	[REDACTED]	[REDACTED]	-	-	[REDACTED]	[REDACTED]	-	-	[REDACTED]
23 Final Plant Building Demo	[REDACTED]	0.4	(0.0)	-	[REDACTED]	[REDACTED]	0.4	-	[REDACTED]	[REDACTED]	0.3	-	[REDACTED]
24 Final Survey/License Reduction	[REDACTED]	0.1	0.0	2.4	[REDACTED]	[REDACTED]	0.1	2.8	[REDACTED]	[REDACTED]	0.1	2.2	[REDACTED]
25 D&D Waste	[REDACTED]	-	-	98.3	[REDACTED]	[REDACTED]	-	114.3	[REDACTED]	[REDACTED]	-	86.6	[REDACTED]
26 Decontamination, Demolition, & Disposal Subtotal	\$ [REDACTED]	(16.2)	\$ 0.0	\$ 231.3	\$ [REDACTED]	[REDACTED]	(17.7)	\$ 269.0	\$ [REDACTED]	[REDACTED]	(13.4)	\$ 203.8	\$ [REDACTED]
27													
28 ISFSI	[REDACTED]	(24.8)	(0.1)	65.4	[REDACTED]	[REDACTED]	(26.5)	75.8	[REDACTED]	[REDACTED]	(20.1)	57.5	[REDACTED]
29 ISFSI Subtotal	\$ [REDACTED]	(24.8)	\$ (0.1)	\$ 65.4	\$ [REDACTED]	[REDACTED]	(26.5)	\$ 75.8	\$ [REDACTED]	[REDACTED]	(20.1)	\$ 57.5	\$ [REDACTED]
30													
31 ISFSI CDP Settlement	\$ 5.1	(2.1)	(0.0)	1.7	\$ 4.7	\$ 5.6	(2.3)	2.0	\$ 5.3	\$ 4.3	(1.8)	1.5	\$ 4.0
32 Coastal Development Permit Extensions	-	-	-	0.3	0.3	-	-	0.4	0.4	-	-	0.3	0.3
33 ISFSI Aging Management	13.2	(1.4)	0.0	4.9	16.7	14.6	(1.5)	5.7	18.8	11.1	(1.1)	4.3	14.3
34 GTCC Waste Storage	14.0	0.1	0.0	13.8	27.9	15.7	0.1	16.0	31.8	11.9	0.1	12.2	24.2
35 Siren Removals	-	-	-	0.0	0.0	-	-	0.1	0.1	-	-	0.0	0.0
36 NIA Sump Modifications	-	-	-	-	-	-	-	-	-	-	-	-	-
37 CEQA	10.2	(2.2)	0.0	-	8.0	10.8	(2.4)	-	8.4	8.2	(1.8)	-	6.4
38 NEPA	4.0	(1.1)	(0.0)	0.5	3.4	4.2	(1.2)	0.5	3.5	3.2	(0.9)	0.3	2.6
39 Mesa Turnover	14.7	(0.4)	0.0	5.4	19.7	15.6	(0.4)	6.3	21.5	11.7	(0.3)	4.8	16.2
40 DCE Updates	-	-	-	0.3	0.3	-	-	0.3	0.3	-	-	0.2	0.2
41 Other Major Projects Subtotal	\$ 61.2	\$ (7.1)	\$ (0.0)	\$ 26.9	\$ 81.0	\$ 66.5	\$ (7.7)	\$ 31.3	\$ 90.1	\$ 50.4	\$ (5.8)	\$ 23.6	\$ 68.2
42													
43 Total Major Projects (Distributed)	\$ 846.8	\$ (48.2)	\$ (0.1)	\$ 323.6	\$ 1,122.1	\$ 905.7	\$ (52.0)	\$ 376.1	\$ 1,229.8	\$ 686.1	\$ (39.4)	\$ 284.9	\$ 931.6
44													
45 Undistributed													
46 Labor-Staffing	\$ 643.2	(29.5)	0.0	81.8	\$ 695.5	\$ 675.8	(32.0)	95.1	\$ 738.9	\$ 513.1	(24.2)	72.1	\$ 561.0
47 Non-Labor	361.3	(14.0)	(0.0)	47.7	395.0	373.1	(14.7)	54.2	412.6	286.8	(11.0)	41.2	317.0
48 Service Level Agreements	44.6	(3.3)	0.0	8.7	50.0	47.8	(3.5)	9.6	53.9	37.0	(2.3)	7.3	42.0
49													
50 Total Undistributed	\$ 1,049.1	\$ (46.8)	\$ 0.0	\$ 138.2	\$ 1,140.5	\$ 1,096.7	\$ (50.2)	\$ 158.9	\$ 1,205.4	\$ 836.9	\$ (37.5)	\$ 120.6	\$ 920.0
51													
52 Grand Total	\$ 1,895.9	\$ (95.0)	\$ (0.1)	\$ 461.8	\$ 2,262.6	\$ 2,002.4	\$ (102.2)	\$ 535.0	\$ 2,435.2	\$ 1,523.0	\$ (76.9)	\$ 405.5	\$ 1,851.6

Note:

(1) The 2018 underrun per Advice Letter 3988-E has been re-organized to match the categorization of costs in this Advice Letter, which is consistent with the major project framework.

Attachment 7

Forecasted Escalation and De-Escalation Factors

Forecasted Escalation And De-Escalation Factors

	Escalation Factors							
Year ⁽¹⁾	Labor	Material	Other	Contract	Burial	Overheads	Contingency	IMM
2015-A	1.0210	1.0063	1.0063	1.0210	1.0012	1.0210	1.0063	1.0063
2016-A	1.0427	1.0154	1.0154	1.0427	1.0140	1.0427	1.0154	1.0154
2017-A	1.0683	1.0318	1.0318	1.0683	1.0357	1.0683	1.0318	1.0318
2018-A	1.0997	1.0521	1.0521	1.0997	1.0610	1.0997	1.0521	1.0521
2019-F	1.1298	1.0772	1.0772	1.1298	1.0818	1.1298	1.0772	1.0772
2020-F	1.1681	1.1045	1.1045	1.1681	1.1041	1.1681	1.1045	1.1045

	De-Escalation Factors							
Year ⁽¹⁾	Labor	Material	Other	Contract	Burial	Overhead	Contingency	IMM
2015-A	0.9794	0.9938	0.9938	0.9794	0.9988	0.9794	0.9938	0.9938
2016-A	0.9591	0.9848	0.9848	0.9591	0.9862	0.9591	0.9848	0.9848
2017-A	0.9361	0.9691	0.9691	0.9361	0.9655	0.9361	0.9691	0.9691
2018-A	0.9093	0.9505	0.9505	0.9093	0.9425	0.9093	0.9505	0.9505
2019-F	0.8851	0.9283	0.9283	0.8851	0.9244	0.8851	0.9283	0.9283
2020-F	0.8561	0.9054	0.9054	0.8561	0.9057	0.8561	0.9054	0.9054

Note:

(1) "-F" indicates the escalation factors are forecasted for the given year. "-A" denotes actual factors. The 2018 Escalation Factors have been updated since the last Advice Letter filing (Advice Letter 3988-E on April 15, 2019) to reflect the final 2018 escalation factors. The relevant US Bureau of Labor indices, which are the basis for the escalation factors, were not published when Advice Letter 3988-E was filed and therefore forecasted escalation factors were used. The US Bureau of Labor indices needed to determine the final 2018 escalation factors were made available in May of 2019. See Attachment 8 for the cost impact associated with the change from the forecasted to actual escalation factors.

Attachment 8

2018 Final Escalation Factor & SLA Adjustment – Updated Advice
Letter 3988-E 2018 Recorded Costs in 2014\$

2018 Final Escalation Factor & SLA Adjustment – Updated Advice Letter 3988-E 2018 Recorded Costs In 2014\$
(2014 Dollars in Millions, 100% Level)

				[A]	[B]	[C]	[D=A+B+C]
				AL 3988-E 2018 Recorded	2018 SLA Allocation ⁽¹⁾	Final Escalation Factor Adjustment ⁽²⁾	Final 2018 Recorded
DCE No.	Major Project	Description					
1	LT-2-D-2.17	Historical Site Assessment /Characterization	Perform Historic Site Assessment and Site Characterization	\$ -	\$ -	\$ -	\$ -
2	Historical Site Assessment/Characterization Subtotal			\$ -	\$ -	\$ -	\$ -
3							
4	LT-2-D-2.16	Legacy Radwaste Disposal	Disposition of Legacy Wastes	-	-	-	-
5	LT-1-D-1.05	Legacy Radwaste Disposal	Disposition of Legacy Waste	-	-	-	-
6	Legacy Radwaste Disposal Subtotal			\$ -	\$ -	\$ -	\$ -
7							
8	SR-1-D-14.04	Project Governance and Admin	Fuel Cancellation Expense	-	-	-	-
9	Project Governance and Admin Subtotal			\$ -	\$ -	\$ -	\$ -
10							
11	LT-2-D-2.02	Regulatory Compliance	Prepare Post-Shutdown QA Plan	-	-	-	-
12	LT-2-D-2.03	Regulatory Compliance	Prepare Post-Shutdown Security Plan	-	-	-	-
13	LT-2-D-2.04	Regulatory Compliance	Prepare Post-Shutdown Fire Protection Plan	-	-	-	-
14	LT-2-D-2.06	Regulatory Compliance	Prepare Preliminary Defueled Technical Specifications	-	-	-	-
15	LT-2-D-2.08	Regulatory Compliance	Implement Technical Specification Modifications	-	-	-	-
16	LT-2-D-2.09	Regulatory Compliance	Prepare Post-Shutdown Emergency Preparedness Plan	-	-	-	-
17	LT-2-D-2.11	Regulatory Compliance	Prepare Post-Shutdown Decommissioning Activities Report (PSDAR)	-	-	-	-
18	LT-2-D-2.12	Regulatory Compliance	Post-Shutdown Decommissioning Activities Report (PSDAR) - NRC Review	-	-	-	-
19	LT-2-D-2.14	Regulatory Compliance	Prepare Decommissioning Cost Estimate (DCE)	-	-	-	-
20	SNF-1-D-7.03	Regulatory Compliance	Post Fukushima Modifications - Unit 2	-	-	-	-
21	SNF-2-D-FLEX	Regulatory Compliance	Flex Initiative	-	-	-	-
22	SNF-2-D-8.02	Regulatory Compliance	Decay Heat Analysis	-	-	-	-
23	SNF-2-D-8.03	Regulatory Compliance	Zirconium Fire/ Shine Analysis	-	-	-	-
24	SNF-2-D-8.05	Regulatory Compliance	Prepare Irradiated Fuel Management Plan & NRC Review	-	-	-	-
25	Regulatory Compliance Subtotal			\$ -	\$ -	\$ -	\$ -
26							
27	LT-2-D-2.31	Transition Modifications - Phase 1	Transition Project Modifications	-	-	-	-
28	Transition Modifications - Phase 1 Subtotal			\$ -	\$ -	\$ -	\$ -
29							
30	SNF-1-D-7.01	Security Programs	Security Shutdown Strategy	-	-	-	-
31	SNF-2-D-8.01	Security Programs	Security Shutdown Strategy	-	-	-	-
32	Security Programs Subtotal			\$ -	\$ -	\$ -	\$ -
33							
34	LT-2-D-2.22	DGC RFP & Prep	Select Decommissioning General Contractor (DGC)	-	-	-	-
35	DGC RFP & Preps Subtotal			\$ -	\$ -	\$ -	\$ -
36							
37	LT-2-D-LOED	Transition Modifications - Phase 2	Large Organism Exclusion Device Modification	-	-	-	-
38	LT-3-D-RecB	Transition Modifications - Phase 2	Records Backlog	-	-	-	-
39	LT-3-D-S&S	Transition Modifications - Phase 2	Simplification & Streamlining Project	-	-	-	-
40	LT-D-SPV	Transition Modifications - Phase 2	Special Purpose Vehicle Support	-	-	-	-
41	Transition Modifications - Phase 2 Subtotal			\$ -	\$ -	\$ -	\$ -

2018 Final Escalation Factor & SLA Adjustment – Updated Advice Letter 3988-E 2018 Recorded Costs In 2014\$
(2014 Dollars in Millions, 100% Level)

				[A]	[B]	[C]	[D=A+B+C]
				AL 3988-E 2018 Recorded	2018 SLA Allocation ⁽¹⁾	Final Escalation Factor Adjustment ⁽²⁾	Final 2018 Recorded
DCE No.	Major Project	Description					
42							
43	LT-2-D-2.26	Spent Fuel Islanding	Install Spent Fuel Pool System Modifications - Unit 2	-	-	-	-
44	LT-2-D-2.27	Spent Fuel Islanding	Install Spent Fuel Pool System Modifications - Unit 3	-	-	-	-
45	Spent Fuel Islanding Subtotal			\$ -	\$ -	\$ -	\$ -
46							
47	SNF-1-D-7.05	Cyber Security Modifications	Cyber Security Modifications	-	-	-	-
48	Cyber Security Modifications Subtotal			\$ -	\$ -	\$ -	\$ -
49							
50	LT-3-D-DCE	Phase 2 Regulatory Compliance	DCE Update	0.2	-	(0.0)	0.2
51	LT-2-D-2.07	Phase 2 Regulatory Compliance	Prepare Defueled Safety Analysis Report (DSAR)	-	-	-	-
52	Phase 2 Regulatory Compliance Subtotal			\$ 0.2	\$ -	\$ (0.0)	\$ 0.2
53							
54	LT-2-D-2.18	Initial D&D Activities	Planning & Design For Cold and Dark	-	-	-	-
55	LT-2-D-2.19	Initial D&D Activities	Implement Cold and Dark (Repower Site)		-	-	
56	LT-2-D-2.20	Initial D&D Activities	Install 12 kV Service Line to Power Temp Power Ring		-	-	
57	LT-2-D-2.21	Initial D&D Activities	Drain & De-Energize Non-Essential Systems (DEC Process)		-	-	
58	LT-2-D-2.29	Initial D&D Activities	Implement Control Room Modifications (Command Center Relocation)		-	-	
59	LT-3-D-3.10	Initial D&D Activities	Modify Containment Access- Unit 2		-	-	
60	LT-3-D-3.12	Initial D&D Activities	Remove and Dispose of Missile Shields - Unit 2		-	-	
61	LT-3-D-3.13	Initial D&D Activities	Remove and Dispose of Reactor Head - Unit 2		-	-	
62	LT-3-D-3.11	Initial D&D Activities	Modify Containment Access- Unit 3		-	-	
63	LT-3-D-3.14	Initial D&D Activities	Remove and Dispose of Missile Shields - Unit 3		-	-	
64	LT-3-D-3.15	Initial D&D Activities	Remove and Dispose of Reactor Head - Unit 3		-	-	
65	LT-3-D-3.01	Initial D&D Activities	Prepare Integrated Work Sequence and Schedule for Decommissioning		(0.1)	(0.0)	
66	LT-4-D-4.02	Initial D&D Activities	Install GARDIAN System		-	-	
67	LT-3-D-3.17	Initial D&D Activities	Prepare Activity Specifications - U2		-	-	
68	LT-3-D-3.02	Initial D&D Activities	Prepare Detailed Work Procedures and Activity Specifications for Decommissioning		-	-	
69	LT-3-D-DGC_BUR	Initial D&D Activities	Waste Contracts		(0.4)	(0.0)	
70	LT-4-D-4.14	Initial D&D Activities	Remove and Dispose of Legacy Class B and C Waste - Unit 2		(0.1)	(0.0)	
71	LT-4-D-4.15	Initial D&D Activities	Remove and Dispose of Legacy Class B and C Waste - Unit 3		(0.1)	(0.0)	
72	Initial D&D Activities Subtotal			\$	\$ (0.8)	\$ (0.0)	\$
73							
74	LT-3-D-3.23	Internals and Vessel Segmentation	Finalize Internals and Vessel Segmenting Details - Unit 2		0.1	0.0	
75	LT-3-D-3.26	Internals and Vessel Segmentation	Finalize Internals and Vessel Segmenting Details - Unit 3		(0.1)	(0.0)	
76	LT-3-D-3.24	Internals and Vessel Segmentation	Segment, Package and Dispose of Reactor Internals - Unit 2		(0.1)	(0.0)	
77	LT-3-D-3.27	Internals and Vessel Segmentation	Segment, Package and Dispose of Reactor Internals - Unit 3		-	-	
78	LT-3-D-3.22	Internals and Vessel Segmentation	Test Special Cutting and Handling Equipment and Train Operators		-	-	
79	Internals and Vessel Segmentation Subtotal			\$	\$ (0.1)	\$ (0.0)	\$
80							

2018 Final Escalation Factor & SLA Adjustment – Updated Advice Letter 3988-E 2018 Recorded Costs In 2014\$
(2014 Dollars in Millions, 100% Level)

				[A]	[B]	[C]	[D=A+B+C]
	DCE No.	Major Project	Description	AL 3988-E 2018 Recorded	2018 SLA Allocation ⁽¹⁾	Final Escalation Factor Adjustment ⁽²⁾	Final 2018 Recorded
81	LT-4-D-4.33	Steam Generator Removal	Remove and Dispose of Steam Generators - Unit 2		-	-	
82	LT-4-D-4.35	Steam Generator Removal	Remove and Dispose of Steam Generators - Unit 3		-	-	
83	Steam Generator Removal Subtotal			\$	\$ -	\$ -	\$
84							
85	SR-4-D-17.17	Initial Plant Building Demo	Demolish Condensate Building and Transformer Pads - Unit 2		-	-	
86	SR-4-D-17.01	Initial Plant Building Demo	Procure Clean Building Demolition Equipment		-	-	
87	SR-4-D-17.30	Initial Plant Building Demo	Demolish Auxiliary Radwaste Building - Common		-	-	
88	SR-4-D-17.32	Initial Plant Building Demo	Remove Systems and Demolish Make-Up Demineralizer Structures		-	-	
89	SR-4-D-17.33	Initial Plant Building Demo	Install Concrete Plugs in Intake and Discharge Structures		-	-	
90	Initial Plant Building Demo Subtotal			\$	\$ -	\$ -	\$
91							
92	LT-5-D-5.05	Building Decontamination	Decon Turbine Building - Unit 3		-	-	
93	LT-5-D-5.10	Building Decontamination	Decon Turbine Building - Unit 2		-	-	
94	Building Decontamination Subtotal			\$	\$ -	\$ -	\$
95							
96	LT-4-D-4.23	Final Plant Building Demo	Asbestos Abatement and Hazardous Waste Disposal for Essential Systems		-	(0.0)	
97	Final Plant Building Demo Subtotal			\$	\$ -	\$ (0.0)	\$
98							
99	LT-4-D-4.39	Final Survey/License Reduction	Prepare License Termination Plan		-	-	
100	SR-3-D-16.02	Final Survey/License Reduction	Subsurface Structure Removal Engineering Planning and Design		(0.0)	0.0	
101	Final Survey/License Reduction Subtotal			\$	\$ (0.0)	\$ 0.0	\$
102							
103	LT-D-WPTT	D&D Waste	Waste Taxes (Pass Through)		-	-	
104	LT-D-BUR	D&D Waste	Waste Disposal		-	-	
105	D&D Waste Subtotal			\$	\$ -	\$ -	\$
106							
107	Decontamination, Demolition, & Disposal Subtotal			\$	\$ (0.8)	\$ 0.0	\$
108							
109	SNF-1-D-7.02	ISFSI	Holtec Long Lead Items and Areva Contract Closure		(0.1)	(0.0)	
110	SNF-2-D-8.07	ISFSI	ISFSI Pad Study		-	-	
111	SNF-2-D-8.08	ISFSI	Design ISFSI Expansion, Fuel Inspection, and Oversight		(0.2)	(0.0)	
112	SNF-2-D-8.09	ISFSI	Construct ISFSI Expansion		(0.3)	(0.0)	
113	SNF-2-D-8.10	ISFSI	Fabrication of Spent Fuel Canisters - Unit 2		(0.4)	(0.0)	
114	SNF-2-D-8.11	ISFSI	Fabrication of Spent Fuel Canisters - Unit 3		(0.4)	(0.0)	
115	SNF-2-D-8.12	ISFSI	Load Fuel Canisters and Fuel Transfer Operations - Unit 2		(0.5)	(0.0)	
116	SNF-2-D-8.13	ISFSI	Load Fuel Canisters and Fuel Transfer Operations - Unit 3		(0.5)	(0.0)	
117	ISFSI Subtotal			\$	\$ (2.5)	\$ (0.1)	\$
118							
119	ISFSI Subtotal			\$	\$ (2.5)	\$ (0.1)	\$
120							

2018 Final Escalation Factor & SLA Adjustment – Updated Advice Letter 3988-E 2018 Recorded Costs In 2014\$
(2014 Dollars in Millions, 100% Level)

				[A]	[B]	[C]	[D=A+B+C]
	DCE No.	Major Project	Description	AL 3988-E 2018 Recorded	2018 SLA Allocation ⁽¹⁾	Final Escalation Factor Adjustment ⁽²⁾	Final 2018 Recorded
121	SNF-2-D-CDP	ISFSI CDP Settlement	ISFSI CDP Settlement	0.4	-	(0.0)	0.3
122	ISFSI Coastal Development Permit Settlement Subtotal			\$ 0.4	\$ -	\$ (0.0)	\$ 0.3
123							
124	SNF-2-D-AM Areva	ISFSI Aging Management	Areva ISFSI Relicensing	1.8	(0.1)	0.0	1.7
125	SNF-2-D-AM Holtec1	ISFSI Aging Management	Holtec ISFSI I&M Program Development	0.8	(0.0)	(0.0)	0.8
126	ISFSI Aging Management Subtotal			\$ 2.6	\$ (0.1)	\$ 0.0	\$ 2.5
127							
128	SNF-2-D-GTCC	GTCC Waste Storage	GTCC Waste Storage	0.1	(0.0)	0.0	0.1
129	GTCC Waste Storage Subtotal			\$ 0.1	\$ (0.0)	\$ 0.0	\$ 0.1
130							
131	SNF-D-NIA Sump	NIA Sump Modifications	NIA Sump Modifications	-	-	-	-
132	NIA Sump Modifications Subtotal			\$ -	\$ -	\$ -	\$ -
133							
134	SR-3-D-16.05	CEQA	Obtain CEQA Permit & Approvals	1.3	(0.1)	0.0	1.2
135	CEQA Subtotal			\$ 1.3	\$ (0.1)	\$ 0.0	\$ 1.2
136							
137	SR-3-D-16.03	NEPA	Initial Real Estate Authorization Renewal and Plant Easement	0.3	-	(0.0)	0.3
138	NEPA Subtotal			\$ 0.3	\$ -	\$ (0.0)	\$ 0.3
139							
140	SR-1-D-14.02	Mesa Turnover	Disposition Hazardous Waste from Mesa Site	-	-	-	-
141	SR-2-D-15.09	Mesa Turnover	Mesa Buildings - Demo, Maintenance	0.4	(0.0)	0.0	0.4
142	SR-2-D-15.02	Mesa Turnover	Obtain Required Permits - Mesa	-	-	-	-
143	SR-1-D-14.01	Mesa Turnover	Mesa Site Phase I and II Site Assessment and Lease Surrender	1.9	(0.1)	0.0	1.8
144	SR-1-D-14.03	Mesa Turnover	Mesa Site Characterization Survey	-	-	-	-
145	Mesa Turnover Subtotal			\$ 2.3	\$ (0.1)	\$ 0.0	\$ 2.2
146							
147	Other Major Projects Subtotal			\$ 7.0	\$ (0.3)	\$ (0.0)	\$ 6.7
148							
149	Major Projects (Distributed) Subtotal			\$ 67.3	\$ (3.6)	\$ (0.1)	\$ 63.6
150							
151	LT-U-1.01	Undistributed - Labor-Staffing	Utility Staff	15.5	(1.1)	(0.0)	14.4
152	SNF-U-2.01	Undistributed - Labor-Staffing	Utility Staff	12.9	(0.9)	(0.0)	11.9
153	SR-U-3.01	Undistributed - Labor-Staffing	Utility Staff	-	-	-	-
154	Utility Staff Subtotal			\$ 28.4	\$ (2.0)	\$ (0.0)	\$ 26.4
155							
156	LT-U-1.03	Undistributed - Labor-Staffing	Security Force	1.2	(0.1)	(0.0)	1.1
157	SNF-U-2.04	Undistributed - Labor-Staffing	Security Force	17.9	(1.0)	0.0	17.0
158	SR-U-3.02	Undistributed - Labor-Staffing	Security Force	-	-	-	-
159	Security Force Subtotal			\$ 19.2	\$ (1.0)	\$ 0.0	\$ 18.1
160							

2018 Final Escalation Factor & SLA Adjustment – Updated Advice Letter 3988-E 2018 Recorded Costs In 2014\$
(2014 Dollars in Millions, 100% Level)

				[A]	[B]	[C]	[D=A+B+C]
	DCE No.	Major Project	Description	AL 3988-E 2018 Recorded	2018 SLA Allocation ⁽¹⁾	Final Escalation Factor Adjustment ⁽²⁾	Final 2018 Recorded
161	LT-U-1.11	Undistributed - Labor-Staffing	Decommissioning General Contractor Staffing		(0.8)	(0.0)	
162	SR-U-3.08	Undistributed - Labor-Staffing	Decommissioning General Contractor Staffing		-	-	
163	Decommissioning General Contractor Subtotal			\$	\$ (0.8)	\$ (0.0)	\$
164							
165	LT-U-RS	Undistributed - Labor-Staffing	Short-Term Incentive Compensation		(0.1)	(0.0)	
166	SNF-U-RS	Undistributed - Labor-Staffing	Short-Term Incentive Compensation		(0.1)	(0.0)	
167	SR-U-RS	Undistributed - Labor-Staffing	Short-Term Incentive Compensation		(0.0)	(0.0)	
168	Short-Term Incentive Compensation Subtotal			\$	\$ (0.2)	\$ (0.0)	\$
169							
170	Undistributed - Labor-Staffing Subtotal			\$ 65.3	\$ (4.0)	\$ 0.0	\$ 61.3
171							
172	LT-U-1.02	Undistributed - Non-Labor	Utility Staff Health Physics Supplies	-	-	-	-
173	SNF-U-2.02	Undistributed - Non-Labor	Utility Staff Health Physics Supplies	0.0	(0.0)	(0.0)	0.0
174	Utility Staff Health Physics Supplies Subtotal			\$ 0.0	\$ (0.0)	\$ (0.0)	\$ 0.0
175							
176	LT-U-1.04	Undistributed - Non-Labor	Security Related Expenses	0.1	(0.0)	0.0	0.1
177	SNF-U-2.05	Undistributed - Non-Labor	Security Related Expenses	0.4	(0.0)	0.0	0.3
178	SR-U-3.03	Undistributed - Non-Labor	Security Related Expenses	-	-	-	-
179	Security Related Expenses Subtotal			\$ 0.5	\$ (0.0)	\$ 0.0	\$ 0.5
180							
181	LT-U-1.05	Undistributed - Non-Labor	Insurance	(5.9)	0.3	(0.0)	(5.6)
182	LT-U-1.14	Undistributed - Non-Labor	Workers Compensation Insurance	0.9	(0.0)	0.0	0.8
183	SNF-U-2.06	Undistributed - Non-Labor	Insurance	(2.4)	0.1	(0.0)	(2.2)
184	SR-U-3.04	Undistributed - Non-Labor	Insurance	-	-	-	-
185	Insurance Subtotal			\$ (7.4)	\$ 0.4	\$ (0.0)	\$ (7.0)
186							
187	LT-U-1.06	Undistributed - Non-Labor	Site Lease and Easement Expenses	2.1	(0.1)	0.0	2.0
188	SR-U-3.05	Undistributed - Non-Labor	Site Lease and Easement Expenses	(0.0)	0.0	(0.0)	(0.0)
189	Site Lease and Easement Expenses Subtotal			\$ 2.1	\$ (0.1)	\$ 0.0	\$ 2.0
190							
191	LT-U-1.07	Undistributed - Non-Labor	NRC Fees	0.8	(0.0)	0.0	0.7
192	SNF-U-2.08	Undistributed - Non-Labor	NRC Fees	0.2	(0.0)	0.0	0.2
193	NRC Fees Subtotal			\$ 1.0	\$ (0.1)	\$ 0.0	\$ 0.9
194							
195	LT-U-1.08	Undistributed - Non-Labor	Contracted Services	6.0	(0.4)	(0.0)	5.6
196	SNF-U-2.11	Undistributed - Non-Labor	Contracted Services	7.4	(0.5)	(0.0)	7.0
197	SR-U-3.06	Undistributed - Non-Labor	Contracted Services	0.3	(0.0)	(0.0)	0.3
198	SR-U-Bank	Undistributed - Non-Labor	Bank Fees And Interest	(0.1)	0.0	(0.0)	(0.1)
199	SR-U-Inv Adj	Undistributed - Non-Labor	Vendor Invoice Adjustment	(0.0)	0.0	(0.0)	(0.0)
200	Contracted Services Subtotal			\$ 13.7	\$ (0.9)	\$ (0.0)	\$ 12.8

2018 Final Escalation Factor & SLA Adjustment – Updated Advice Letter 3988-E 2018 Recorded Costs In 2014\$
(2014 Dollars in Millions, 100% Level)

				[A]	[B]	[C]	[D=A+B+C]
				AL 3988-E 2018 Recorded	2018 SLA Allocation ⁽¹⁾	Final Escalation Factor Adjustment ⁽²⁾	Final 2018 Recorded
DCE No.	Major Project	Description					
201							
202	LT-U-1.09	Undistributed - Non-Labor	DAW Disposal	-	-	-	-
203	SNF-U-2.12	Undistributed - Non-Labor	DAW Disposal	-	-	-	-
204	DAW Disposal Subtotal			\$ -	\$ -	\$ -	\$ -
205							
206	LT-U-1.10	Undistributed - Non-Labor	Energy	2.6	(0.1)	0.0	2.5
207	SNF-U-2.13	Undistributed - Non-Labor	Energy	0.7	(0.0)	0.0	0.7
208	SR-U-3.07	Undistributed - Non-Labor	Energy	-	-	-	-
209	Energy Subtotal			\$ 3.4	\$ (0.2)	\$ -	\$ 3.2
210							
211	LT-U-1.15	Undistributed - Non-Labor	Community Engagement Panel	0.6	(0.0)	(0.0)	0.5
212	SNF-U-2.25	Undistributed - Non-Labor	Community Engagement Panel	-	-	-	-
213	SR-U-3.21	Undistributed - Non-Labor	Community Engagement Panel	-	-	-	-
214	Community Engagement Panel Subtotal			\$ 0.6	\$ (0.0)	\$ (0.0)	\$ 0.5
215							
216	LT-U-1.17	Undistributed - Non-Labor	Association Fees and Expenses	0.4	(0.0)	(0.0)	0.3
217	SNF-U-2.26	Undistributed - Non-Labor	Association Fees and Expenses	-	-	-	-
218	SR-U-3.17	Undistributed - Non-Labor	Association Fees and Expenses	-	-	-	-
219	Association Fees and Expenses Subtotal			\$ 0.4	\$ (0.0)	\$ (0.0)	\$ 0.3
220							
221	LT-U-1.18	Undistributed - Non-Labor	Water	0.1	(0.0)	0.0	0.1
222	SNF-U-2.18	Undistributed - Non-Labor	Water	0.2	(0.0)	0.0	0.2
223	SR-U-3.13	Undistributed - Non-Labor	Water	-	-	-	-
224	Water Subtotal			\$ 0.2	\$ (0.0)	\$ 0.0	\$ 0.2
225							
226	LT-U-1.19	Undistributed - Non-Labor	Tools and Equipment	0.0	(0.0)	(0.0)	0.0
227	Tools and Equipment Subtotal			\$ 0.0	\$ (0.0)	\$ (0.0)	\$ 0.0
228							
229	LT-U-1.20	Undistributed - Non-Labor	Information Technology	1.9	(0.1)	0.0	1.8
230	LT-U-1.21	Undistributed - Non-Labor	Telecommunications	-	-	-	-
231	LT-U-1.22	Undistributed - Non-Labor	Personal Computers	(0.0)	0.0	(0.0)	(0.0)
232	SNF-U-2.20	Undistributed - Non-Labor	Information Technology	1.8	(0.1)	0.0	1.7
233	SNF-U-2.22	Undistributed - Non-Labor	Personal Computers	(0.0)	0.0	(0.0)	(0.0)
234	SR-U-3.15	Undistributed - Non-Labor	Information Technology	-	-	-	-
235	Information Technology Subtotal			\$ 3.7	\$ (0.2)	\$ 0.0	\$ 3.5
236							
237	LT-U-1.24	Undistributed - Non-Labor	Environmental Permits and Fees	0.3	(0.0)	0.0	0.3
238	SNF-U-2.27	Undistributed - Non-Labor	Environmental Permits and Fees	-	-	-	-
239	SR-U-3.23	Undistributed - Non-Labor	Environmental Permits and Fees	-	-	-	-
240	Environmental Permits and Fees Subtotal			\$ 0.3	\$ (0.0)	\$ 0.0	\$ 0.3

2018 Final Escalation Factor & SLA Adjustment – Updated Advice Letter 3988-E 2018 Recorded Costs In 2014\$
(2014 Dollars in Millions, 100% Level)

				[A]	[B]	[C]	[D=A+B+C]
	DCE No.	Major Project	Description	AL 3988-E 2018 Recorded	2018 SLA Allocation ⁽¹⁾	Final Escalation Factor Adjustment ⁽²⁾	Final 2018 Recorded
241							
242	LT-U-1.25	Undistributed - Non-Labor	Decommissioning Advisor	0.9	(0.0)	0.0	0.8
243	SNF-U-2.28	Undistributed - Non-Labor	Decommissioning Advisor	-	-	-	-
244	SR-U-3.22	Undistributed - Non-Labor	Decommissioning Advisor	-	-	-	-
245	Decommissioning Advisor Subtotal			\$ 0.9	\$ (0.0)	\$ 0.0	\$ 0.8
246							
247	LT-U-Legal	Undistributed - Non-Labor	Third-Party Legal	0.9	(0.1)	0.0	0.9
248	SNF-U-Legal	Undistributed - Non-Labor	Third-Party Legal	0.2	(0.0)	(0.0)	0.2
249	SR-U-Legal	Undistributed - Non-Labor	Third-Party Legal	0.1	(0.0)	0.0	0.1
250	Third-Party Legal Subtotal			\$ 1.2	\$ (0.1)	\$ 0.0	\$ 1.1
251							
252	LT-U-CO	Undistributed - Non-Labor	DGC Executive Oversight Committee	-	-	-	-
253	DGC Executive Oversight Committee Subtotal			\$ -	\$ -	\$ -	\$ -
254							
255	SNF-U-2.09	Undistributed - Non-Labor	Emergency Preparedness Fees	1.8	(0.1)	0.0	1.7
256	Emergency Preparedness Fees Subtotal			\$ 1.8	\$ (0.1)	\$ 0.0	\$ 1.7
257							
258	SNF-U-AM Holtec	Undistributed - Non-Labor	Holtec ISFSI Aging Management	-	-	-	-
259	Aging Management Subtotal			\$ -	\$ -	\$ -	\$ -
260							
261	SR-U-3.11	Undistributed - Non-Labor	Severance	11.2	(0.6)	(0.0)	10.6
262	Severance Subtotal			\$ 11.2	\$ (0.6)	\$ (0.0)	\$ 10.6
263							
264	Undistributed - Non-Labor Subtotal			\$ 33.4	\$ (1.9)	\$ (0.0)	\$ 31.5
265							
266	LT-U-SLA	Service Level Agreement	Service Level Agreements	-	5.2	0.0	5.2
267	SNF-U-SLA	Service Level Agreement	Service Level Agreements	-	4.5	0.0	4.5
268	SR-U-SLA	Service Level Agreement	Service Level Agreements	-	-	-	-
269	Undistributed - Service Level Agreement Subtotal			\$ -	\$ 9.6	\$ 0.0	\$ 9.6
270							
271	Undistributed Subtotal			\$ 98.7	\$ 3.7	\$ 0.0	\$ 102.4
272							
273	Total			\$ 166.0	\$ -	\$ (0.1)	\$ 165.9

General Notes:

(A) Totals may not reconcile due to rounding.

(B) Amounts with \$0.0 or \$(0.0) indicate that costs are included in the category but are \$0 when rounded to the nearest hundred thousand. \$ - indicates that no costs are included in the category.

Notes:

(1) In Advice Letter AL 3988-E, Service Level Agreement (SLA) costs were allocated proportionately to each line item. In the 2017 DCE, a separate line item for Service Level Agreements was created; therefore, the SLA costs that were previously allocated have been moved to the SLA line items.

(2) The 2018 Escalation Factors have been updated since the last Advice Letter (Advice Letter 3988-E on April 15, 2019) to reflect final 2018 escalation factors. The relevant US Bureau of Labor indices, which are the basis of escalation factors, were not published when Advice Letter 3988-E was filed and therefore forecasted escalation factors were used. The US Bureau of Labor indices needed to determine the final 2018 escalation factors were made available in May of 2019.

Attachment 9

SCE Trust Fund Disbursement Amounts Requested, Approved, and
Withdrawn

SCE Trust Fund Disbursement Amounts Requested, Approved, And Withdrawn As Of September 30, 2019 (Nominal Dollars In Millions, SCE Share)						
Year	Advice Letter Number	Requested Amount	Adjusted Requested Amount	Approved Amount	Prior Year Adjustments Approved in 2015	Trust Withdrawn Amount
2013	3193-E	\$ 180.3	\$ 180.3	\$ 180.3	\$ 4.5	\$ 184.8
2014	3193-E	159.7	159.7	159.7	5.2	164.9
2015	3285-E	236.7	236.7	236.7	-	215.3
Prior Year Adj.	3285-E	9.7	9.7	9.7	Above	-
2016	3307-E	228.8	228.8	228.8	-	151.0
2017	3535-E	302.7	302.7	302.7	-	233.3
2018	3697-E	215.8	215.8	215.8	-	134.4
2019	3903-E	341.3	341.3	341.3	-	126.3
2020		405.5	405.5		-	-
Total		\$ 2,080.5	\$ 2,080.5	\$ 1,675.0		\$ 1,210.0

Liquidation Value As Of September 30, 2019			
Unit	Qualified Trust	Non-Qualified Trust	Total Trust
Unit 2	\$ 1,123.2	\$ 7.0	\$ 1,130.2
Unit 3	1,333.7	6.9	1,340.6
Total	\$ 2,456.9	\$ 13.9	\$ 2,470.8

Note:

2015 Request includes \$9.7 for 2013-2014 Adjustments

2013 Adjustment is \$4.5

2014 Adjustment is \$5.2

Total Adjustment \$9.7

Attachment 10

2017 DCE Waste Disposal Adjustment

**2017 DCE Waste Disposal Adjustment
(2014 Dollars In Millions, 100% Level)**

			2020 Cash Flow			Total 2017 DCE			
			[A]	[B]	[C=A+B]	[D]	[E]	[F=D+E]	
	DCE No.	Major Project	Description	2017 DCE	Waste Disposal Adjustment	Adjusted 2017 DCE	2017 DCE	Waste Disposal Adjustment	Adjusted 2017 DCE
1	LT-2-D-2.17	Historical Site Assessment /Characterization	Perform Historic Site Assessment and Site Characterization	\$ -	\$ -	\$ -	\$ 6.2	\$ -	\$ 6.2
2	Historical Site Assessment/Characterization Subtotal			\$ -	\$ -	\$ -	\$ 6.2	\$ -	\$ 6.2
3									
4	LT-2-D-2.16	Legacy Radwaste Disposal	Disposition of Legacy Wastes	-	-	-	11.6	-	11.6
5	LT-1-D-1.05	Legacy Radwaste Disposal	Disposition of Legacy Waste	-	-	-	8.4	-	8.4
6	Legacy Radwaste Disposal Subtotal			\$ -	\$ -	\$ -	\$ 20.0	\$ -	\$ 20.0
7									
8	SR-1-D-14.04	Project Governance and Admin	Fuel Cancellation Expense	-	-	-	54.4	-	54.4
9	Project Governance and Admin Subtotal			\$ -	\$ -	\$ -	\$ 54.4	\$ -	\$ 54.4
10									
11	LT-2-D-2.02	Regulatory Compliance	Prepare Post-Shutdown QA Plan	-	-	-	0.4	-	0.4
12	LT-2-D-2.03	Regulatory Compliance	Prepare Post-Shutdown Security Plan	-	-	-	0.1	-	0.1
13	LT-2-D-2.04	Regulatory Compliance	Prepare Post-Shutdown Fire Protection Plan	-	-	-	0.0	-	0.0
14	LT-2-D-2.06	Regulatory Compliance	Prepare Preliminary Defueled Technical Specifications	-	-	-	0.3	-	0.3
15	LT-2-D-2.08	Regulatory Compliance	Implement Technical Specification Modifications	-	-	-	0.1	-	0.1
16	LT-2-D-2.09	Regulatory Compliance	Prepare Post-Shutdown Emergency Preparedness Plan	-	-	-	1.7	-	1.7
17	LT-2-D-2.11	Regulatory Compliance	Prepare Post-Shutdown Decommissioning Activities Report (PSDAR)	-	-	-	0.2	-	0.2
18	LT-2-D-2.12	Regulatory Compliance	Post-Shutdown Decommissioning Activities Report (PSDAR) - NRC Review	-	-	-	0.2	-	0.2
19	LT-2-D-2.14	Regulatory Compliance	Prepare Decommissioning Cost Estimate (DCE)	-	-	-	1.2	-	1.2
20	SNF-1-D-7.03	Regulatory Compliance	Post Fukushima Modifications - Unit 2	-	-	-	0.1	-	0.1
21	SNF-2-D-FLEX	Regulatory Compliance	Flex Initiative	-	-	-	0.2	-	0.2
22	SNF-2-D-8.02	Regulatory Compliance	Decay Heat Analysis	-	-	-	0.2	-	0.2
23	SNF-2-D-8.03	Regulatory Compliance	Zirconium Fire/ Shine Analysis	-	-	-	0.1	-	0.1
24	SNF-2-D-8.05	Regulatory Compliance	Prepare Irradiated Fuel Management Plan & NRC Review	-	-	-	0.0	-	0.0
25	Regulatory Compliance Subtotal			\$ -	\$ -	\$ -	\$ 4.9	\$ -	\$ 4.9
26									
27	LT-2-D-2.31	Transition Modifications - Phase 1	Transition Project Modifications	-	-	-	1.1	-	1.1
28	Transition Modifications - Phase 1 Subtotal			\$ -	\$ -	\$ -	\$ 1.1	\$ -	\$ 1.1
29									
30	SNF-1-D-7.01	Security Programs	Security Shutdown Strategy	-	-	-	2.9	-	2.9
31	SNF-2-D-8.01	Security Programs	Security Shutdown Strategy	-	-	-	4.5	-	4.5
32	Security Programs Subtotal			\$ -	\$ -	\$ -	\$ 7.5	\$ -	\$ 7.5
33									
34	LT-2-D-2.22	DGC RFP & Prep	Select Decommissioning General Contractor (DGC)	-	-	-	13.8	-	13.8
35	DGC RFP & Preps Subtotal			\$ -	\$ -	\$ -	\$ 13.8	\$ -	\$ 13.8
36									
37	LT-2-D-LOED	Transition Modifications - Phase 2	Large Organism Exclusion Device Modification	-	-	-	1.3	-	1.3
38	LT-3-D-RecB	Transition Modifications - Phase 2	Records Backlog	-	-	-	1.9	-	1.9
39	LT-3-D-S&S	Transition Modifications - Phase 2	Simplification & Streamlining Project	-	-	-	1.3	-	1.3
40	LT-D-SPV	Transition Modifications - Phase 2	Special Purpose Vehicle Support	-	-	-	0.4	-	0.4
41	Transition Modifications - Phase 2 Subtotal			\$ -	\$ -	\$ -	\$ 5.0	\$ -	\$ 5.0
42									
43	LT-2-D-2.26	Spent Fuel Islanding	Install Spent Fuel Pool System Modifications - Unit 2	-	-	-	4.2	-	4.2
44	LT-2-D-2.27	Spent Fuel Islanding	Install Spent Fuel Pool System Modifications - Unit 3	-	-	-	4.2	-	4.2
45	Spent Fuel Islanding Subtotal			\$ -	\$ -	\$ -	\$ 8.4	\$ -	\$ 8.4
46									
47	SNF-1-D-7.05	Cyber Security Modifications	Cyber Security Modifications	-	-	-	9.4	-	9.4
48	Cyber Security Modifications Subtotal			\$ -	\$ -	\$ -	\$ 9.4	\$ -	\$ 9.4
49									
50	LT-3-D-DCE	Phase 2 Regulatory Compliance	DCE Update	-	-	-	1.5	-	1.5
51	LT-2-D-2.07	Phase 2 Regulatory Compliance	Prepare Defueled Safety Analysis Report (DSAR)	-	-	-	2.0	-	2.0
52	Phase 2 Regulatory Compliance Subtotal			\$ -	\$ -	\$ -	\$ 3.5	\$ -	\$ 3.5
53									
54	LT-2-D-2.18	Initial D&D Activities	Planning & Design For Cold and Dark						
55	LT-2-D-2.19	Initial D&D Activities	Implement Cold and Dark (Repower Site)						

**2017 DCE Waste Disposal Adjustment
(2014 Dollars In Millions, 100% Level)**

			2020 Cash Flow			Total 2017 DCE		
			[A]	[B]	[C=A+B]	[D]	[E]	[F=D+E]
DCE No.	Major Project	Description	2017 DCE	Waste Disposal Adjustment	Adjusted 20	2017 DCE	Waste Disposal Adjustment	Adjusted 20
56	LT-2-D-2.20	Initial D&D Activities						
57	LT-2-D-2.21	Initial D&D Activities						
58	LT-2-D-2.29	Initial D&D Activities						
59	LT-3-D-3.10	Initial D&D Activities						
60	LT-3-D-3.12	Initial D&D Activities						
61	LT-3-D-3.13	Initial D&D Activities						
62	LT-3-D-3.11	Initial D&D Activities						
63	LT-3-D-3.14	Initial D&D Activities						
64	LT-3-D-3.15	Initial D&D Activities						
65	LT-3-D-3.01	Initial D&D Activities						
66	LT-4-D-4.02	Initial D&D Activities						
67	LT-3-D-3.17	Initial D&D Activities						
68	LT-3-D-3.02	Initial D&D Activities						
69	LT-3-D-DGC_BUR	Initial D&D Activities						
70	LT-D-FRASB	Initial D&D Activities						
71	Initial D&D Activities Subtotal		\$	\$	\$	\$	\$	\$
72								
73	LT-3-D-3.23	Internals and Vessel Segmentation						
74	LT-3-D-3.24	Internals and Vessel Segmentation						
75	LT-3-D-3.27	Internals and Vessel Segmentation						
76	LT-3-D-3.22	Internals and Vessel Segmentation						
77	Internals and Vessel Segmentation Subtotal		\$	\$	\$	\$	\$	\$
78								
79	LT-4-D-4.33	Steam Generator Removal						
80	LT-4-D-4.35	Steam Generator Removal						
81	Steam Generator Removal Subtotal		\$	\$	\$	\$	\$	\$
82								
83	LT-4-D-4.06	Non-Essential System Removal						
84	LT-4-D-4.09	Non-Essential System Removal						
85	Non-Essential System Removal Subtotal		\$	\$	\$	\$	\$	\$
86								
87	LT-4-D-4.27	Large Component Removal						
88	LT-4-D-4.31	Large Component Removal						
89	LT-4-D-4.36	Large Component Removal						
90	Large Component Removal Subtotal		\$	\$	\$	\$	\$	\$
91								
92	SR-4-D-17.05	Removal of Spent Fuel Systems/ Equipment						
93	Removal of Spent Fuel Systems/ Equipment Subtotal		\$	\$	\$	\$	\$	\$
94								
95	SR-4-D-17.07	Containment Building Demo						
96	SR-4-D-17.15	Containment Building Demo						
97	Containment Building Demo Subtotal		\$	\$	\$	\$	\$	\$
98								
99	SR-4-D-17.17	Initial Plant Building Demo						
100	SR-4-D-17.01	Initial Plant Building Demo						
101	SR-4-D-17.30	Initial Plant Building Demo						
102	SR-4-D-17.32	Initial Plant Building Demo						
103	SR-4-D-17.33	Initial Plant Building Demo						
104	Initial Plant Building Demo Subtotal		\$	\$	\$	\$	\$	\$
105								
106	LT-5-D-5.05	Building Decontamination						
107	LT-5-D-5.10	Building Decontamination						
108	Building Decontamination Subtotal		\$	\$	\$	\$	\$	\$
109								
110	LT-4-D-4.23	Final Plant Building Demo						
111	Final Plant Building Demo Subtotal		\$	\$	\$	\$	\$	\$

**2017 DCE Waste Disposal Adjustment
(2014 Dollars In Millions, 100% Level)**

			2020 Cash Flow			Total 2017 DCE		
			[A]	[B]	[C=A+B]	[D]	[E]	[F=D+E]
DCE No.	Major Project	Description	20	Waste Disposal Adjustment	Adjusted 20	2017 DCE	Waste Disposal Adjustment	Adjusted 2017 DCE
112								
113	LT-4-D-4.39	Final Survey/License Reduction						
114	SR-3-D-16.02	Final Survey/License Reduction						
115	Final Survey/License Reduction Subtotal		\$	\$	\$	\$	\$	
116								
117	LT-D-WPTT	D&D Waste						
118	LT-D-BUR	D&D Waste						
119	D&D Waste Subtotal		\$	\$	\$	\$	\$	
120								
121	Decontamination, Demolition, & Disposal Subtotal		\$	\$	\$	\$	\$	
122								
123	SNF-1-D-7.02	ISFSI						
124	SNF-2-D-8.07	ISFSI						
125	SNF-2-D-8.08	ISFSI						
126	SNF-2-D-8.09	ISFSI						
127	SNF-2-D-8.10	ISFSI						
128	SNF-2-D-8.11	ISFSI						
129	SNF-2-D-8.12	ISFSI						
130	SNF-2-D-8.13	ISFSI						
131	ISFSI Subtotal		\$	\$	\$	\$	\$	
132								
133	ISFSI Subtotal		\$	\$	\$	\$	\$	
134								
135	SNF-2-D-CDP	ISFSI CDP Settlement	-	-	-	4.3	-	4.3
136	ISFSI Coastal Development Permit Settlement Subtotal		\$ -	\$ -	\$ -	\$ 4.3	\$ -	\$ 4.3
137								
138	SNF-2-D-EP Areva	Coastal Development Permit Extensions	0.4	-	0.4	1.9	-	1.9
139	Coastal Development Permit Extensions Subtotal		\$ 0.4	\$ -	\$ 0.4	\$ 1.9	\$ -	\$ 1.9
140								
141	SNF-2-D-AM Areva	ISFSI Aging Management	2.4	-	2.4	14.1	-	14.1
142	SNF-2-D-AM Holtec	ISFSI Aging Management	4.1	-	4.1	16.7	-	16.7
143	ISFSI Aging Management Subtotal		\$ 6.5	\$ -	\$ 6.5	\$ 30.8	\$ -	\$ 30.8
144								
145	SNF-2-D-GTCC	GTCC Waste Storage	7.7	-	7.7	26.6	-	26.6
146	GTCC Waste Storage Subtotal		\$ 7.7	\$ -	\$ 7.7	\$ 26.6	\$ -	\$ 26.6
147								
148	SNF-D-SIREN	Siren Removals	-	-	-	-	-	-
149	Siren Removal Subtotal		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
150								
151	SNF-D-NIA Sump	NIA Sump Modifications	0.4	-	0.4	1.1	-	1.1
152	NIA Sump Modifications Subtotal		\$ 0.4	\$ -	\$ 0.4	\$ 1.1	\$ -	\$ 1.1
153								
154	SR-3-D-16.05	CEQA	-	-	-	7.9	-	7.9
155	CEQA Subtotal		\$ -	\$ -	\$ -	\$ 7.9	\$ -	\$ 7.9
156								
157	SR-3-D-16.03	NEPA	1.6	-	1.6	14.4	-	14.4
158	NEPA Subtotal		\$ 1.6	\$ -	\$ 1.6	\$ 14.4	\$ -	\$ 14.4
159								
160	SR-1-D-14.02	Mesa Turnover	-	-	-	0.2	-	0.2
161	SR-2-D-15.09	Mesa Turnover	1.0	-	1.0	9.5	-	9.5
162	SR-2-D-15.02	Mesa Turnover	-	-	-	0.1	-	0.1
163	SR-1-D-14.01	Mesa Turnover	1.3	-	1.3	8.5	-	8.5
164	SR-1-D-14.03	Mesa Turnover	-	-	-	0.1	-	0.1
165	Mesa Turnover Subtotal		\$ 2.3	\$ -	\$ 2.3	\$ 18.4	\$ -	\$ 18.4
166								

2017 DCE Waste Disposal Adjustment
(2014 Dollars In Millions, 100% Level)

				2020 Cash Flow			Total 2017 DCE		
				[A]	[B]	[C=A+B]	[D]	[E]	[F=D+E]
DCE No.	Major Project	Description		2017 DCE	Waste Disposal Adjustment	Adjusted 2017 DCE	2017 DCE	Waste Disposal Adjustment	Adjusted 2017 DCE
167	LT-D-DCE2	DCE Updates	DCE Update 2020	0.3	-	0.3	0.3	-	0.3
168	DCE Updates Subtotal			\$ 0.3	\$ -	\$ 0.3	\$ 0.3	\$ -	\$ 0.3
169									
170	Other Major Projects Subtotal			\$ 19.2	\$ -	\$ 19.2	\$ 105.7	\$ -	\$ 105.7
171									
172	Major Projects (Distributed) Subtotal			\$ 88.1	\$ -	\$ 88.1			
173									
174	LT-U-1.01	Undistributed - Labor-Staffing	Utility Staff	18.9	-	18.9	308.3	-	308.3
175	SNF-U-2.01	Undistributed - Labor-Staffing	Utility Staff	5.2	-	5.2	295.4	-	295.4
176	SR-U-3.01	Undistributed - Labor-Staffing	Utility Staff	0.3	-	0.3	109.4	-	109.4
177	Utility Staff Subtotal			\$ 24.4	\$ -	\$ 24.4	\$ 713.1	\$ -	\$ 713.1
178									
179	LT-U-1.03	Undistributed - Labor-Staffing	Security Force	-	-	-	6.7	-	6.7
180	SNF-U-2.04	Undistributed - Labor-Staffing	Security Force	2.7	-	2.7	212.0	-	212.0
181	SR-U-3.02	Undistributed - Labor-Staffing	Security Force	-	-	-	-	-	-
182	Security Force Subtotal			\$ 2.7	\$ -	\$ 2.7	\$ 218.7	\$ -	\$ 218.7
183									
184	LT-U-1.11	Undistributed - Labor-Staffing	Decommissioning General Contractor Staffing						
185	SNF-U-2.14	Undistributed - Labor-Staffing	Decommissioning General Contractor Staffing						
186	SR-U-3.08	Undistributed - Labor-Staffing	Decommissioning General Contractor Staffing						
187	Decommissioning General Contractor Subtotal								
188									
189	LT-U-RS	Undistributed - Labor-Staffing	Short-Term Incentive Compensation						
190	SNF-U-RS	Undistributed - Labor-Staffing	Short-Term Incentive Compensation						
191	SR-U-RS	Undistributed - Labor-Staffing	Short-Term Incentive Compensation						
192	Short-Term Incentive Compensation Subtotal								
193									
194	Undistributed - Labor-Staffing Subtotal			\$ 47.3	\$ -	\$ 47.3	\$ 1,244.7	\$ -	\$ 1,244.7
195									
196	LT-U-1.02	Undistributed - Non-Labor	Utility Staff Health Physics Supplies	-	-	-	1.1	-	1.1
197	SNF-U-2.02	Undistributed - Non-Labor	Utility Staff Health Physics Supplies	0.0	-	0.0	2.5	-	2.5
198	Utility Staff Health Physics Supplies Subtotal			\$ 0.0	\$ -	\$ 0.0	\$ 3.7	\$ -	\$ 3.7
199									
200	LT-U-1.04	Undistributed - Non-Labor	Security Related Expenses	-	-	-	0.7	-	0.7
201	SNF-U-2.05	Undistributed - Non-Labor	Security Related Expenses	0.1	-	0.1	10.6	-	10.6
202	SR-U-3.03	Undistributed - Non-Labor	Security Related Expenses	-	-	-	0.6	-	0.6
203	Security Related Expenses Subtotal			\$ 0.1	\$ -	\$ 0.1	\$ 11.8	\$ -	\$ 11.8
204									
205	LT-U-1.05	Undistributed - Non-Labor	Insurance	0.5	-	0.5	19.7	-	19.7
206	LT-U-1.14	Undistributed - Non-Labor	Workers Compensation Insurance	-	-	-	0.4	-	0.4
207	SNF-U-2.06	Undistributed - Non-Labor	Insurance	1.1	-	1.1	38.5	-	38.5
208	SR-U-3.04	Undistributed - Non-Labor	Insurance	0.0	-	0.0	5.0	-	5.0
209	Insurance Subtotal			\$ 1.6	\$ -	\$ 1.6	\$ 63.7	\$ -	\$ 63.7
210									
211	LT-U-1.06	Undistributed - Non-Labor	Site Lease and Easement Expenses	-	-	-	4.4	-	4.4
212	SR-U-3.05	Undistributed - Non-Labor	Site Lease and Easement Expenses	2.3	-	2.3	47.1	-	47.1
213	Site Lease and Easement Expenses Subtotal			\$ 2.3	\$ -	\$ 2.3	\$ 51.5	\$ -	\$ 51.5
214									
215	LT-U-1.07	Undistributed - Non-Labor	NRC Fees	0.3	-	0.3	11.5	-	11.5
216	SNF-U-2.08	Undistributed - Non-Labor	NRC Fees	0.3	-	0.3	19.7	-	19.7
217	NRC Fees Subtotal			\$ 0.6	\$ -	\$ 0.6	\$ 31.2	\$ -	\$ 31.2
218									
219	LT-U-1.08	Undistributed - Non-Labor	Contracted Services	4.7	-	4.7	100.2	-	100.2
220	SNF-U-2.11	Undistributed - Non-Labor	Contracted Services	1.7	-	1.7	99.1	-	99.1
221	SR-U-3.06	Undistributed - Non-Labor	Contracted Services	0.1	-	0.1	26.1	-	26.1

2017 DCE Waste Disposal Adjustment
(2014 Dollars In Millions, 100% Level)

				2020 Cash Flow			Total 2017 DCE		
				[A]	[B]	[C=A+B]	[D]	[E]	[F=D+E]
DCE No.	Major Project	Description		2017 DCE	Waste Disposal Adjustment	Adjusted 2017 DCE	2017 DCE	Waste Disposal Adjustment	Adjusted 2017 DCE
222	SR-U-Bank	Undistributed - Non-Labor	Bank Fees And Interest	-	-	-	(0.1)	-	(0.1)
223	SR-U-Inv Adj	Undistributed - Non-Labor	Vendor Invoice Adjustment	-	-	-	(0.2)	-	(0.2)
224	Contracted Services Subtotal			\$ 6.4	\$ -	\$ 6.4	\$ 225.2	\$ -	\$ 225.2
225									
226	LT-U-1.09	Undistributed - Non-Labor	DAW Disposal	-	-	-	0.0	-	0.0
227	SNF-U-2.12	Undistributed - Non-Labor	DAW Disposal	-	-	-	0.0	-	0.0
228	DAW Disposal Subtotal			\$ -	\$ -	\$ -	\$ 0.0	\$ -	\$ 0.0
229									
230	LT-U-1.10	Undistributed - Non-Labor	Energy	3.8	-	3.8	49.9	-	49.9
231	SNF-U-2.13	Undistributed - Non-Labor	Energy	0.8	-	0.8	18.4	-	18.4
232	SR-U-3.07	Undistributed - Non-Labor	Energy	0.2	-	0.2	16.4	-	16.4
233	Energy Subtotal			\$ 4.8	\$ -	\$ 4.8	\$ 84.7	\$ -	\$ 84.7
234									
235	LT-U-1.15	Undistributed - Non-Labor	Community Engagement Panel	0.4	-	0.4	7.6	-	7.6
236	SNF-U-2.25	Undistributed - Non-Labor	Community Engagement Panel	0.1	-	0.1	2.7	-	2.7
237	SR-U-3.21	Undistributed - Non-Labor	Community Engagement Panel	0.0	-	0.0	2.1	-	2.1
238	Community Engagement Panel Subtotal			\$ 0.5	\$ -	\$ 0.5	\$ 12.5	\$ -	\$ 12.5
239									
240	LT-U-1.17	Undistributed - Non-Labor	Association Fees and Expenses	0.4	-	0.4	4.9	-	4.9
241	SNF-U-2.26	Undistributed - Non-Labor	Association Fees and Expenses	0.1	-	0.1	2.3	-	2.3
242	SR-U-3.17	Undistributed - Non-Labor	Association Fees and Expenses	0.0	-	0.0	1.4	-	1.4
243	Association Fees and Expenses Subtotal			\$ 0.6	\$ -	\$ 0.6	\$ 8.6	\$ -	\$ 8.6
244									
245	LT-U-1.18	Undistributed - Non-Labor	Water	0.3	-	0.3	4.2	-	4.2
246	SNF-U-2.18	Undistributed - Non-Labor	Water	0.1	-	0.1	9.1	-	9.1
247	SR-U-3.13	Undistributed - Non-Labor	Water	0.0	-	0.0	3.3	-	3.3
248	Water Subtotal			\$ 0.4	\$ -	\$ 0.4	\$ 16.5	\$ -	\$ 16.5
249									
250	LT-U-1.19	Undistributed - Non-Labor	Tools and Equipment	-	-	-	0.0	-	0.0
251	Tools and Equipment Subtotal			\$ -	\$ -	\$ -	\$ 0.0	\$ -	\$ 0.0
252									
253	LT-U-1.20	Undistributed - Non-Labor	Information Technology	0.6	-	0.6	18.4	-	18.4
254	LT-U-1.21	Undistributed - Non-Labor	Telecommunications	-	-	-	2.3	-	2.3
255	LT-U-1.22	Undistributed - Non-Labor	Personal Computers	-	-	-	0.0	-	0.0
256	SNF-U-2.20	Undistributed - Non-Labor	Information Technology	0.1	-	0.1	5.6	-	5.6
257	SNF-U-2.22	Undistributed - Non-Labor	Personal Computers	-	-	-	0.0	-	0.0
258	SR-U-3.15	Undistributed - Non-Labor	Information Technology	0.0	-	0.0	5.5	-	5.5
259	Information Technology Subtotal			\$ 0.7	\$ -	\$ 0.7	\$ 31.9	\$ -	\$ 31.9
260									
261	LT-U-1.24	Undistributed - Non-Labor	Environmental Permits and Fees	0.0	-	0.0	3.8	-	3.8
262	SNF-U-2.27	Undistributed - Non-Labor	Environmental Permits and Fees	0.0	-	0.0	1.1	-	1.1
263	SR-U-3.23	Undistributed - Non-Labor	Environmental Permits and Fees	0.0	-	0.0	1.8	-	1.8
264	Environmental Permits and Fees Subtotal			\$ 0.0	\$ -	\$ 0.0	\$ 6.7	\$ -	\$ 6.7
265									
266	LT-U-1.25	Undistributed - Non-Labor	Decommissioning Advisor	0.5	-	0.5	7.9	-	7.9
267	SNF-U-2.28	Undistributed - Non-Labor	Decommissioning Advisor	0.1	-	0.1	0.3	-	0.3
268	SR-U-3.22	Undistributed - Non-Labor	Decommissioning Advisor	0.0	-	0.0	1.7	-	1.7
269	Decommissioning Advisor Subtotal			\$ 0.6	\$ -	\$ 0.6	\$ 9.9	\$ -	\$ 9.9
270									
271	LT-U-Legal	Undistributed - Non-Labor	Third-Party Legal	0.8	-	0.8	9.4	-	9.4
272	SNF-U-Legal	Undistributed - Non-Labor	Third-Party Legal	0.2	-	0.2	10.1	-	10.1
273	SR-U-Legal	Undistributed - Non-Labor	Third-Party Legal	0.0	-	0.0	4.3	-	4.3
274	Third-Party Legal Subtotal			\$ 1.1	\$ -	\$ 1.1	\$ 23.8	\$ -	\$ 23.8

**2017 DCE Waste Disposal Adjustment
(2014 Dollars In Millions, 100% Level)**

			2020 Cash Flow			Total 2017 DCE		
			[A]	[B]	[C=A+B]	[D]	[E]	[F=D+E]
DCE No.	Major Project	Description	2017 DCE	Waste Disposal Adjustment	Adjusted 2017 DCE	2017 DCE	Waste Disposal Adjustment	Adjusted 2017 DCE
276	LT-U-CO	Undistributed - Non-Labor	0.3	-	0.3	2.9	-	2.9
277	DGC Executive Oversight Committee Subtotal		\$ 0.3	\$ -	\$ 0.3	\$ 2.9	\$ -	\$ 2.9
278								
279	SNF-U-2.09	Undistributed - Non-Labor	1.8	-	1.8	48.3	-	48.3
280	Emergency Preparedness Fees Subtotal		\$ 1.8	\$ -	\$ 1.8	\$ 48.3	\$ -	\$ 48.3
281								
282	SNF-U-AM Holtec	Undistributed - Non-Labor	0.1	-	0.1	11.2	-	11.2
283	Aging Management Subtotal		\$ 0.1	\$ -	\$ 0.1	\$ 11.2	\$ -	\$ 11.2
284								
285	SR-U-CEQA-RPT	Undistributed - Non-Labor	-	-	-	-	-	-
286	CEQA Reporting Subtotal		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
287								
288	SR-U-3.11	Undistributed - Non-Labor	-	-	-	121.0	-	121.0
289	Severance Subtotal		\$ -	\$ -	\$ -	\$ 121.0	\$ -	\$ 121.0
290								
291	Undistributed - Non-Labor Subtotal		\$ 22.1	\$ -	\$ 22.1	\$ 765.2	\$ -	\$ 765.2
292								
293	LT-U-SLA	Service Level Agreement	6.9	-	6.9	76.1	-	76.1
294	SNF-U-SLA	Service Level Agreement	1.5	-	1.5	45.9	-	45.9
295	SR-U-SLA	Service Level Agreement	0.4	-	0.4	46.2	-	46.2
296	Undistributed - Service Level Agreement Subtotal		\$ 8.8	\$ -	\$ 8.8	\$ 168.2	\$ -	\$ 168.2
297								
298	Undistributed Subtotal		\$ 78.2	\$ -	\$ 78.2	\$ 2,178.2	\$ -	\$ 2,178.2
299								
300	Total		\$ 166.3	\$ -	\$ 166.3			
301								
302	Other DCE Costs							
303								
304	Total DCE					\$ 4,478.6	\$ -	\$ 4,478.6

General Notes:

(A) Totals may not reconcile due to rounding.

(B) Amounts with \$0.0 or \$(0.0) indicate that costs are included in the category but are \$0 when rounded to the nearest hundred thousand. \$ - indicates that no costs are included in the category.

(C) The 2017 DCE allocated waste disposal milestones associated with the Decommissioning General Contract to various line items in the DCE. After the DCE was submitted, it was determined that waste disposal costs should be tracked as a separate line item within its own Major Project. Therefore, the waste disposal costs that were previously allocated have been moved to the Waste Disposal line item (LT-D-BUR).

Attachment 11

Status Report for Projected 2021 NDCTP Completed Projects

Status Report for Projected 2021 NDCTP Completed Projects

Major Project	DCE Line Item	Description	Overall Major Project Status
ISFSI - 2021 NDCTP (2018-2020)			
ISFSI	SNF-1-D-7.02	Holtec Long Lead Items and Areva Contract Closure	<ul style="list-style-type: none"> The 2017 DCE forecasted the ISFSI project would be completed by June 2019. Fuel Transfer operations restarted on July 15, 2019, following August 2018 loading event. FTO is now expected to be completed in 2020. By the end of 2019, SCE estimates that 45 of 73 canisters will have been loaded in the ISFSI. Fabrication of all spent fuel canisters is completed.
ISFSI	SNF-2-D-8.07	ISFSI Pad Study	
ISFSI	SNF-2-D-8.08	Design ISFSI Expansion, Fuel Inspection, and Oversight	
ISFSI	SNF-2-D-8.09	Construct ISFSI Expansion	
ISFSI	SNF-2-D-8.10	Fabrication of Spent Fuel Canisters - Unit 2	
ISFSI	SNF-2-D-8.11	Fabrication of Spent Fuel Canisters - Unit 3	
ISFSI	SNF-2-D-8.12	Load Fuel Canisters and Fuel Transfer Operations - Unit 2	
ISFSI	SNF-2-D-8.13	Load Fuel Canisters and Fuel Transfer Operations - Unit 3	
Initial D&D Activities - 2021 NDCTP (2018-2020)			
Initial D&D Activities	LT-2-D-2.18	Planning & Design For Cold and Dark	<ul style="list-style-type: none"> The 2017 DCE estimated Initial D&D Activities would be completed in July 2019. It is now expected to be completed by the end of 2020. The change in the forecast completion date is due to the environmental permitting delay and the receipt of a Coastal Development Permit and is not expected to impact the decommissioning project completion date. Activities related to Cold and Dark have been completed, which includes all "LT-2-D" DCE line numbers. DCE line items LT-3-D-3.01 (Prepare Integrated Work Sequence and Schedule for Decommissioning) and LT-3-D-DGC_BUR (Waste Contracts) are completed. SDS is working on planning and engineering activities related to the Units 2 and 3 containment access modifications, missile shield and reactor head removal.
Initial D&D Activities	LT-2-D-2.19	Implement Cold and Dark (Repower Site)	
Initial D&D Activities	LT-2-D-2.20	Install 12 kV Service Line to Power Temp Power Ring	
Initial D&D Activities	LT-2-D-2.21	Drain & De-Energize Non-Essential Systems (DEC Process)	
Initial D&D Activities	LT-2-D-2.29	Implement Control Room Modifications (Command Center Relocation)	
Initial D&D Activities	LT-3-D-3.10	Modify Containment Access- Unit 2	
Initial D&D Activities	LT-3-D-3.12	Remove and Dispose of Missile Shields - Unit 2	
Initial D&D Activities	LT-3-D-3.13	Remove and Dispose of Reactor Head - Unit 2	
Initial D&D Activities	LT-3-D-3.11	Modify Containment Access- Unit 3	
Initial D&D Activities	LT-3-D-3.14	Remove and Dispose of Missile Shields - Unit 3	
Initial D&D Activities	LT-3-D-3.15	Remove and Dispose of Reactor Head - Unit 3	
Initial D&D Activities	LT-3-D-3.01	Prepare Integrated Work Sequence and Schedule for Decommissioning	
Initial D&D Activities	LT-4-D-4.02	Install GARDIAN System	
Initial D&D Activities	LT-3-D-3.17	Prepare Activity Specifications - U2	
Initial D&D Activities	LT-3-D-DGC_BUR	Waste Contracts	
Phase 2 Regulatory Compliance - 2021 NDCTP (2018-2020)			
Phase 2 Regulatory Compliance	LT-3-D-DCE	2017 DCE Update	<ul style="list-style-type: none"> 2017 DCE was completed in March 2018 and submitted to the California Public Utility Commission for review. The DSAR was completed and provided to the NRC in late 2016.
Phase 2 Regulatory Compliance	LT-2-D-2.07	Prepare Defueled Safety Analysis Report (DSAR)	
CEQA - 2021 NDCTP (2018-2020)			
CEQA	SR-3-D-16.05	Obtain CEQA Permit & Approvals	<ul style="list-style-type: none"> Environmental Impact Report was certified by the California State Lands Commission (CSLC) in March 2019. California Coastal Commission (CCC) issued SCE a Coastal Development Permit (CDP) on October 21, 2019. SCE and SDS are preparing required mitigation plans to meet the CSLC and CCC conditions. Expected approval in December 2019. Receipt of the CDP is a critical activity, as it allows the DGC to commence with physical D&D of SONGS.
Cyber Security Modifications - 2021 NDCTP (2018-2020)			
Cyber Security Modifications	SNF-1-D-7.05	Cyber Security Modifications	<ul style="list-style-type: none"> Requirements based on 10 C.F.R. § 73.54 Project is completed and will be reviewed in 2021 NDCTP.
ISFSI Coastal Development Permit Settlement - 2021 NDCTP (2018-2020)			
ISFSI CDP Settlement	SNF-2-D-CDP	ISFSI CDP Settlement	<ul style="list-style-type: none"> Expert Team was identified and retained. Engagement of outside experts to develop SONGS Strategic Plan for Relocation of Spent Fuel to Offsite Storage Facility is underway.
DCE Updates - 2021 NDCTP (2018-2020)			
DCE Updates	LT-D-DCE2	DCE Update	<ul style="list-style-type: none"> SCE's next SONGS DCE has not started, and will likely not begin until 2020.

Note: The Unit 1 RV Disposal is also scheduled to be completed in 2020

EXHIBIT 5

No. 19-72670

UNITED STATES COURT OF APPEALS
FOR THE NINTH CIRCUIT

IN RE PUBLIC WATCHDOGS,
Petitioners,

v.

UNITED STATES
NUCLEAR REGULATORY
COMMISSION,
Respondent.

SOUTHERN CALIFORNIA EDISON COMPANY,

Proposed Intervenor

On Petition for Writ of Mandamus to the United States Nuclear Regulatory
Commission

**SOUTHERN CALIFORNIA EDISON COMPANY'S ANSWER TO
EMERGENCY PETITION FOR WRIT OF MANDAMUS
(AGENCY ACTION UNREASONABLY DELAYED)**

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Glossary of Terms

Term	Abbreviation
2015 amendments to SONGS Unit 2 Facility Operating License (Amendment No. 230) and SONGS Unit 3 Facility Operating License (Amendment No. 223)	2015 License Amendment
10 CFR 2.206 Petition submitted by Public Watchdogs	2.206 Petition or NRC Petition
Declaration of Douglas R. Bauder	Bauder Decl.
California Coastal Commission	CCC
Coastal Development Permit	CDP
Certificate of Compliance	CoC
Storing spent nuclear fuel in sealed, cylindrical, stainless-steel canisters	Dry Storage
Public Watchdogs' Emergency Petition for Writ of Mandamus	Emergency Petition
Holtec International	Holtec
Holtec International's HI-STORM UMAX Canister Storage System	Holtec System
Independent Spent Fuel Storage Installation	ISFSI
Multi-Purpose Canister	MPC
Nuclear Regulatory Commission	NRC
Facility Operating Licenses for SONGS	Part 50 Licenses
Public Watchdogs v. United States, et al., Case No. 17-cv-2323-JLS (BGS) filed November 15, 2017	Public Watchdogs I
Public Watchdogs v. Southern California Edison Company et al., 19-cv-1635-JLS (MSB) filed August 29, 2019	Public Watchdogs II
Public Watchdogs	Petitioner
Southern California Edison	SCE
Nuclear Waste Technical Review Board Report entitled "Preparing for	September 2019 Report

Term	Abbreviation
Nuclear Waste Transportation: Technical Issues that Need to Be Addressed in Preparing for a Nationwide Effort to Transport Spent Nuclear Fuel and High-Level Radioactive Waste”	
San Onofre Nuclear Generating Station	SONGS
Storing spent nuclear fuel in pools of water	Wet Storage

INTRODUCTION

Petitioner Public Watchdogs requests an “emergency” writ of mandamus from this Court directing the NRC to issue an order requiring SCE to “immediately suspend decommissioning operations” at SONGS. Petitioner suggests that a “recalcitrant” NRC has somehow “filibustered” by failing to act on an administrative petition filed by Petitioner on September 24, 2019. With ongoing oversight by the NRC, SCE has been utilizing an onsite dry storage facility for spent nuclear fuel at SONGS since 2004, and it is currently transferring spent nuclear fuel from wet storage into an NRC-approved dry storage system. An injunction will cause SCE (and its ratepayers) to incur millions of dollars per month in costs certain to be suffered if the decommissioning of the nuclear plant is delayed.¹ Moreover, as the federal agency specially mandated for reviewing and approving nuclear-related issues, the NRC is uniquely and appropriately situated to determine the proper means and methods for storing spent nuclear fuel at commercial nuclear reactors within its jurisdiction, and Petitioner has offered no proof that the NRC’s administrative actions have been (or will be) arbitrary or capricious. In short, Petitioner has offered no legal or factual justification for the mandamus petition it seeks.

The petition at bar is a thinly disguised request *for an injunction* to enjoin the transfer of spent fuel and the demolition of SONGS notwithstanding the NRC’s highly

¹ Because it will suffer material financial harm if an injunction is issued, SCE has a significant stake in the outcome of the petition at bar.

specialized review and oversight of nuclear related activities at SONGS. Because injunctive relief is an extraordinary remedy, Petitioner must show: (a) it is “indisputably clear” that it is entitled to the relief it seeks (an order compelling the NRC to immediately enjoin the transfer of nuclear fuel at SONGS and to adopt a different plan for storing nuclear fuel other than that approved by the NRC), and (b) that an injunction is “necessary or appropriate in aid” of this Court's jurisdiction. For a number of reasons, the petition fails this standard and should be denied.

First, Petitioner cannot show that the NRC has “delayed unreasonably” in acting on the administrative petition presently before the NRC. As such, Petitioner is not entitled to the relief it seeks.²

Second, Petitioner has failed to show that it is entitled to the relief it seeks from the NRC—much less that it is “indisputably clear.” Petitioner has made no showing of a right to challenge the NRC’s decisions in enforcement actions pertaining to the transfer of spent nuclear fuel. Because enforcement action by the NRC is discretionary, the NRC’s enforcement decisions are generally unreviewable.

Third, even if the NRC’s enforcement decisions regarding SONGS’ spent fuel transfer operations were reviewable at this time (which they are not), Petitioner’s right

² The 36-page Petition violates Circuit Rule 21-1(c) (30-page limit on mandamus petitions). Petitioner’s failure to articulate and address the appropriate standard for the relief it seeks in the Petition, as well as its refusal to conform to formatting rules, warrants dismissal of this Petition. *N/S Corp. v. Liberty Mut. Ins. Co.*, 127 F.3d 1145, 1146 (9th Cir. 1997).

to relief is not “indisputably clear” because the NRC Petition is untimely. Petitioner filed its NRC petition challenging the 2015 License Amendment and the Holtec System on September 24, 2019—four years after the NRC granted a 2015 License Amendment that relates (in part) to the storage of spent fuel at SONGS, and more than two years after the NRC certified the Holtec System in January of 2017 (codified by NRC regulations after publication in the Federal Register). Under 28 U.S.C § 2344, Petitioner had 60 days from the date of issuance of the 2015 License Amendment and the Holtec System CoCs, respectively, to bring a challenge before this Court. It did not. As discussed below at pages 8-22, the NRC has, with due diligence, been exercising its regulatory authority over the dry storage of spent fuel at SONGS for more than a decade. The NRC’s regular, active, and extensive oversight of the storage of spent fuel at SONGS, and its lengthy review and approval of the storage systems used at SONGS, demonstrates that the NRC has been neither arbitrary nor capricious. Content to sit on its hands for years without a whisper of complaint to the NRC, Petitioner now rushes into this Court seeking emergency relief because the NRC has not yet issued a decision on the administrative petition filed on *September 24, 2019*.

Finally, Petitioner cannot demonstrate its “indisputable” right to relief because the NRC’s determination of nuclear safety issues is owed unique and substantial deference. The NRC has reviewed and evaluated all the issues raised here by Petitioner. The NRC has: 1) investigated the safety of the geographic location of

SONGS (*infra* 8-9); 2) evaluated and certified the Holtec System for dry storage of spent fuel at nuclear plant sites in the United States (such as SONGS) (*infra* 12-18); 3) investigated and evaluated the August 2018 incident and SCE's corrective actions (*infra* 20-21); 4) evaluated the safety of the canisters with the shim pin design Petitioner challenges (*infra* 21-22); and 5) evaluated the safety of purportedly scratched canisters (*infra* 22). There is no basis for the extraordinary relief.³

JURISDICTION AND VENUE

Although SCE contends that Petitioner is not entitled to the relief it seeks, SCE does not contest that this Court has jurisdiction to consider whether the NRC has unreasonably delayed in acting on the September 24, 2019 administrative petition, and jurisdiction to determine whether an injunction should be issued to preserve the status quo in aid of the Court's jurisdiction.⁴ SCE also does not contest that venue is proper.

STANDING

Although SCE contends that Petitioner lacks standing to seek any relief against SCE because Petitioner has suffered no particularized injury or harm, SCE does not contest Petitioner's standing to bring its Emergency Petition.

ISSUE PRESENTED

Whether it is "indisputably clear" that Petitioner is entitled to an order from the

³ Finally, an immediate injunction is not necessary; the wet pools in Units 2 and 3 will remain operative at least through Summer 2020.

⁴ *FTC v. Dean Foods Co.*, 384 U.S. 597, 604 (1966); *Confederated Tribes v. Bonneville Power Admin.*, 342 F.3d 924, 930 (9th Cir. 2003).

NRC halting all decommissioning activities at SONGS such that this Court should issue an injunction notwithstanding that (1) the NRC has and continues to exercise timely and effective oversight of the storage of spent nuclear fuel at SONGS, and (2) SCE and its ratepayers will incur millions of dollars in expenses each month that its transfer of spent fuel from wet storage into dry storage is delayed?

LEGAL STANDARD

“The writ of mandamus is a drastic and extraordinary remedy reserved for really extraordinary causes.” *United States v. United States Dist. Court*, 884 F.3d 830, 834 (9th Cir. 2018) (citation omitted). “[O]nly exceptional circumstances...will justify the invocation of this extraordinary remedy.” *Id.* (citations omitted). Injunctive relief under the All Writs Act is to be issued “sparingly and only in the most critical and exigent circumstances.” *Brown v. Gilmore*, 533 U.S. 1301, 1303 (2001) (Rehnquist, W., in chambers) (citation omitted). “Under the All Writs Act, a court may issue an injunction only where it is ‘necessary or appropriate in aid’ of the court’s jurisdiction, 28 U.S.C. § 1651(a), and ‘the legal rights at issue are indisputably clear.’” *Makekau v. Hawaii*, 2019 U.S. App. LEXIS 35363, at *9 (___ F.3d ___) (9th Cir. Nov. 26, 2019) (citation omitted).

RELEVANT PROCEDURAL BACKGROUND

Petitioner’s concocted “emergency” ignores the procedural history of this dispute. Petitioner failed to file an administrative petition with the NRC challenging

the NRC's actions until September 24, 2019. Petitioner filed its untimely NRC Petition approximately five years after SCE submitted the Post-Shutdown Decommissioning Activities Report ("PSDAR") to the NRC (Emergency Petition at 8); four years after the NRC granted a 2015 License Amendment that, according to Petitioner, permits SCE to store spent fuel at SONGS (*id.* at 17); two years after Petitioner initiated a lawsuit in the Southern District of California seeking to halt the transfer and storage of spent fuel at SONGS ("*Public Watchdogs I*"); and more than 18 months after the most recent spent fuel transfers began on February 2018.⁵ Petitioner also failed to exhaust its administrative remedies before the NRC in a timely manner, and waited to take any action whatsoever until dozens of canisters had already been safely secured in an onsite ISFSI⁶ under NRC oversight.

A. Petitioner Files Its First Unsuccessful Lawsuit in 2017.

Petitioner initiated *Public Watchdogs I* in November 2017 naming the NRC, SCE and others as defendants. *Public Watchdogs I* at Dkt. 1. In that case, Petitioner alleged that dry storage of spent fuel at SONGS threatens a nuclear disaster. *See e.g., id.* at 16. In its first lawsuit, Petitioner challenged the NRC's licensing, oversight and

⁵ SCE has safely stored spent fuel at SONGS since 2004 in accordance with NRC regulations. With the NRC's ongoing oversight, SCE continues to move spent nuclear fuel from wet storage pools into dry storage canisters certified by the NRC. Bauder Decl. at ¶67.

⁶ The NRC defines an ISFSI as "[a] complex designed and constructed for the interim storage of spent nuclear fuel; solid, reactor-related, greater than Class C waste; and other associated radioactive materials." <https://www.nrc.gov/reading-rm/basic-ref/glossary/independent-spent-fuel-storage-installation-isfsi.html>

enforcement of nuclear storage at SONGS, and the NRC's certification and safety of the Holtec System. *Public Watchdogs I* at Dkt. 25 at 6, 8. In response to motions to dismiss, the District Court dismissed Petitioner's complaint for lack of standing (with leave to amend). *Public Watchdogs I* at Dkt. 24. Petitioner filed an amended complaint on September 28, 2018, and defendants again moved to dismiss. *Public Watchdogs I* at Dkts. 25, 34, 35. Before the District Court ruled on the motions to dismiss, Petitioner dismissed its amended complaint. Dkt. 50.

B. Petitioner Files Its Second Unsuccessful Lawsuit In 2019.

On August 29, 2019, Petitioner filed a second lawsuit ("*Public Watchdogs II*"). In *Public Watchdogs II*, Petitioner again challenged the same SCE actions and NRC decisions complained of in the first lawsuit. *Public Watchdogs II* at Dkt. 38 (First Amended Complaint). In *Public Watchdogs II*, Petitioner moved for a preliminary injunction suspending the decommissioning of SONGS Units 2 and 3, and the transfer of the spent fuel from wet storage into dry storage. *Ibid.* The defendants (including SCE) opposed Petitioner's motion for injunctive relief, and also moved to dismiss Petitioner's amended complaint. *Public Watchdogs II* at Dkts. 36, 37, 41, 42, 47. On December 3, 2019, the Court dismissed the amended complaint (with prejudice) and denied Petitioner's motion for preliminary injunction. *Public Watchdogs II* at Dkt. 60.

C. Petitioner Files a 2.206 Petition with the NRC on September 24, 2019

On September 24, 2019 (the same day it filed its amended complaint in *Public*

Watchdogs II) Petitioner filed a 2.206 Petition with the NRC, again challenging the Holtec System and the 2015 License Amendment. Emergency Petition at Add. 6-8. On October 21, while the motions to dismiss in *Public Watchdogs II* were still pending, Petitioner filed the emergency petition at bar which challenges (again) the Holtec System and the 2015 License Amendment.

THE RELEVANT FACTS

A. The Decommissioning of SONGS Requires the Transfer of Spent Fuel Into Dry Storage.

SONGS is a nuclear power plant in the process of “decommissioning.” Bauder Decl. at ¶¶ 17-18.⁷ Originally, three nuclear power reactors (known as Units 1, 2 and 3) were constructed and operated at SONGS pursuant to Construction Permits and Operating Licenses issued by the NRC in accordance with 10 C.F.R. Part 50. *Id.* at ¶¶ 12-16. Each Unit had a Part 50 License granted by the NRC which authorized SCE to operate each Unit and to possess and store nuclear materials, including spent fuel, in accordance with NRC regulations. *Ibid.* The lengthy application process for the Part 50 Licenses (and amendments thereto) includes safety reviews and environmental

⁷ Because the Emergency Petition relates to an administrative proceeding pending before the NRC, and because the NRC has not ruled in that matter, Petitioner offers very little in the way of an administrative record. SCE submits Mr. Bauder’s declaration as an exhibit to fill in the gaps in the record. Federal Ninth Circuit Civil Appellate Practice ¶ 13:279 (Rutter Group 2019) (“[R]elevant evidence outside the district court record may be presented by means of declarations included as Exhibits.”); *id.* at ¶ 13:309 (“if other documents will help the court understand the case, real parties should include them as exhibits to the answer.”).

reviews by the NRC. *Id.* at ¶¶ 13, 19-21. In connection with the Part 50 License applications, the NRC evaluated (among other things) the characteristics of the SONGS site, including surrounding population, seismology, meteorology, geology, and hydrology. *Ibid.* The NRC concluded, after its review, that spent fuel can be safely transferred from the wet pools and safely dry-stored onsite. *Id.* at ¶ 13-15, 19-21, 31.

(1) **Spent Fuel Has Been Safely Dry Stored at SONGS for More than a Decade.**

SONGS Unit 1 was permanently shut down in 1992. Spent fuel⁸, once removed from the Unit 1 reactor after being used to generate electricity, was first stored in spent fuel pools (referred to as “wet storage”). *Id.* at ¶ 17. The pools provide radiation shielding and cooling.⁹ *Id.* at ¶ 32. Because the pools are a part of the Unit 1 buildings, the spent fuel stored in the Unit 1 pool had to be removed before Unit 1 could be demolished. *Id.* at ¶ 17. The Unit 1 fuel was transferred to an ISFSI beginning in 2004 where it is “dry stored” (“Dry storage” involves storing spent fuel in sealed, cylindrical,

⁸ By way of background, spent nuclear fuel in commercial reactors like those at SONGS is made up of solid, cylindrical pellets of uranium dioxide (slightly larger than the eraser on a No. 2 pencil). Bauder Decl. at ¶ 30. The nuclear fuel pellets are stacked inside of sealed hollow metal tubes, several feet long and the tubes are bound together, forming fuel assemblies. *Ibid.*

⁹ The original NRC evaluation of the SONGS site is significant because of the characteristics of the “wet storage” Petitioner apparently prefers (Emergency Petition at 36). Although wet storage is a safe means of storing spent fuel, the dry storage systems used at SONGS offer even more robust protection against extreme environmental events (such as earthquakes). Bauder Decl. at ¶¶ 45-46.

stainless-steel canisters that are stored in the concrete and steel ISFSI structure—where air, not water, provides the cooling, and the concrete and steel provide the radiation shielding.) *Id.* at ¶¶ 17, 26, 34.

As such, for more than a decade SCE has safely dry-stored spent fuel at SONGS in an NRC approved ISFSI. *Id.* at ¶ 26. The California Coastal Commission, which regulates the safety of the non-radiological aspects of the decommissioning project such as the physical construction of the ISFSI and the demolition of SONGS, first approved the physical construction of the SONGS ISFSI in February 2000. *Ibid.* Subject to NRC regulations, in 2004 SCE transferred Unit 1 spent fuel into the onsite ISFSI. *Ibid.* In 2007, SCE began dry storing in the ISFSI the spent fuel from Units 2 and 3. *Id.* at ¶ 27. As confirmed via regular monitoring, the radiation emitted from the ISFSI is very low and detectable only by very sensitive radiation-detection instruments. *Id.* at ¶ 29. There has never been a release of radioactive materials in excess of federal regulatory limits from the SONGS ISFSI or any other ISFSI at other plant sites. *Ibid.*

(2) Petitioner Unreasonably Delayed in Filing its NRC Petition.

Petitioner can offer no reasonable justification for its delays in challenging the NRC's approval of the 2015 License Amendments, or the Holtec System CoCs. Power generation at SONGS Units 2 and 3 ceased in 2012. *Id.* at ¶¶ 21-22, 38-40. On July 17, 2015, the NRC issued the 2015 License Amendment that included site specific

safety evaluations by the NRC. *Id.* at ¶¶19-22; Emergency Petition at Add. 277-357. After completing its review of SCE's 2015 license amendment application and its safety evaluation, the NRC concluded that all regulatory requirements had been met.¹⁰ *Ibid.* Petitioner's claim that there was no "meaningful public participation" in the 2015 License Amendments review (Emergency Petition at 17) is not accurate. The amendment review process that resulted in the 2015 License Amendments was open to public comment and intervention pursuant to 10 C.F.R. § 50.91 and 10 C.F.R. § 2.309. Petitioner did not comment, intervene or otherwise participate in the administrative amendment review process. *Id.* at ¶22.

(3) Unit 2 and 3 Wet Pools will be Operable through Summer 2020.

Petitioner claims that if this Court does not act instantly, SCE will immediately demolish the wet pools used to store spent fuel onsite thereby preventing SCE from moving the spent fuel from dry storage back into the wet pools. Emergency Petition at 3, 16. Petitioner is simply wrong. The pools will be retired only after they are emptied of spent fuel, which will not likely occur until summer 2020.¹¹ Only after

¹⁰ In October 2015, the Coastal Commission approved construction that expanded the ISFSI to provide space so that spent fuel from Units 2 and 3 could be stored in the Holtec System. Bauder Decl. at ¶¶ 28, 48. The Commission's evaluation considered the effects of groundwater and seawater. *Ibid.*

¹¹ On October 17, 2019 the California Coastal Commission issued a Coastal Development Permit (dated October 21) in response to SCE's application for the "demolition" Coastal Development Permit, filed in February 2019, supported by a Final Environmental Impact Report. *Id.* at 24 (Exhibits 6 and 7). The current projection is that Unit 2 and 3 spent fuel pools will have the last fuel assemblies

being retired can the pools then be demolished. Bauder Decl. at ¶¶ 33, 35, 42. Consequently, the NRC has several months to provide a reasoned response to the NRC Petition before the pools will be inoperable. If the petition at bar is granted, the decommissioning will be delayed without justification, and the spent fuel will be thrust in limbo (40-plus Unit 2 and 3 canisters will remain in the ISFSI and the remaining spent fuel will be left in the wet pools). The delay would also cost a minimum of \$3,000,000 per month, and this cost would be borne by SCE's ratepayers (customers). *Id.* at ¶¶ 76-78.

B. The NRC Comprehensively Regulates Storage Of Spent Nuclear Fuel at SONGS.

The NRC has comprehensive authority over all things nuclear, including the safe storage of spent nuclear fuel in spent fuel pools, and the transfer of that fuel into dry storage canisters that are held in an onsite ISFSI.¹² The NRC extensively reviews and regulates the storage of spent nuclear fuel. Bauder Decl. at ¶ 10; 10 C.F.R. Parts 50 and 72 *et seq.* The NRC has exclusive authority to license the spent fuel dry storage technology, and to regulate where and how that technology is used at reactor sites, including the loading, storage and maintenance of spent fuel storage systems. *Id.* at ¶¶ 11, 37, 43-47, 49. Specifically, the NRC regulates and licenses dry canister storage

removed in July or August 2020. *Ibid.*

¹² See, e.g. Bauder Decl. at ¶¶ 9-13, 19-22, 36-38, 43-47; see also Atomic Energy Act §§ 101-103, 161, 182, 186, 42 U.S.C. §§ 2131-2133, 2201, 2232, 2236.

systems, including the Holtec System used at SONGS, by issuing CoCs under 10 CFR Part 72. *Id.* at ¶¶ 37, 43. Pursuant to the NRC's Part 72 certification process, before it issues a CoC, the NRC conducts a detailed review and analysis of the safety and operational characteristics of the canister system, including design analysis for structural, thermal, radiation shielding, nuclear criticality, material content confinement, and accident conditions. *See Id.* at ¶ 36; 10 C.F.R. § 72.236 (listing licensing requirements for storage of spent fuel.). Before a dry canister technology can be used to store spent fuel, it must receive a CoC from the NRC, which is only granted to technology that meets NRC's requirements (or the site must obtain a site-specific license, also from the NRC).¹³ 10 C.F.R. § 72.214 (listing approved spent fuel storage systems); 10 C.F.R. § 72.236 (listing licensing requirements for storage of spent fuel.); Bauder Decl. at ¶ 37. Nuclear power reactor licensees are authorized by the NRC to

¹³ By NRC regulation, storage canisters must among other things: (1) shield people and the environment from radiation; (2) allow for the retrieval of the spent fuel, if necessary for later transfer to a different storage facility; and (3) resist natural threats such as earthquakes, tornadoes, floods, and temperature extremes. Safety of Spent Fuel Storage" NUREG/BR-052, dated April 2017, at 1-2, available at <https://www.nrc.gov/docs/ML1710/ML17108A306.pdf>. In reviewing applications for CoCs, the NRC conducts technical evaluations in several areas, including: (1) canister materials (for example, the materials must meet durability requirements regarding the rate of degradation over time); (2) the structural design in order to confirm the canisters will be durable and stable enough to perform safety functions under normal conditions and during accidents, natural events, and other abnormal conditions; (3) confinement (e.g., design must prevent release of radioactive material and keep fuel in a stable protected environment); and (4) radiation shielding (e.g., designs must meet regulatory limits on radiation doses at site boundaries under both normal and accident conditions). *See id.* at 4-11. The NRC will approve only those systems that meet its requirements and can perform safely. *Id.* at 3.

store spent fuel onsite in dry storage systems certified by the NRC via a CoC. *See* 10 C.F.R. § 72.210 and §72.212 (holding that Part 50 licensees must “[e]nsure that each cask used by the general licensee conforms to the terms, conditions, and specifications of a CoC or an amended CoC listed in § 72.214.”).

As part of this oversight and regulation, NRC inspectors conduct routine and responsive inspections at SONGS (often unannounced), including the oversight and inspection of the loading, transfer and storage of spent fuel. Bauder Decl. at ¶11. The NRC has the sole authority to take enforcement action to determine whether SCE personnel and contractors are complying with NRC regulations, including radiation-safety requirements, licensing requirements, and quality assurance programs. *Ibid.*

(1) **Advantages of the Multi-Purpose Canister Dry Storage Systems Licensed By The NRC.**

Despite Petitioner’s unsupported claims of the purported advantages of wet storage of spent fuel, dry storage has certain advantages over wet storage (indeed, there have been congressional efforts to require rapid transition of spent fuel from wet to dry storage). Bauder Decl. at ¶34. Wet storage pools require infrastructure support, connection to a power grid to provide electrical cooling and continued water pressure, and extensive operational and security personnel oversight. *Id.* at ¶¶ 33, 45. Dry storage is more passive, requires less oversight and does not need the same infrastructure support. *Id.* at ¶¶ 34, 45. Dry storage of spent fuel in ISFSIs offers additional protection such as being able to withstand higher seismic activity and

providing greater security against “hostile acts.” *Ibid.*

The U.S. Department of Energy has guided the nuclear industry toward MPC technology as the standard. *Id.* at ¶ 41. It found MPC technology to be “most suitable” amongst the design concepts that it considered. *Ibid.* The clear majority of the approximately 3,000 dry storage canisters used at ISFSIs in the United States are Transnuclear (“TN”) or Holtec designed MPCs, including the MPCs used at SONGS. *Ibid.*

Another key advantage of the MPC design is that it alleviates the need to re-handle spent fuel beyond the initial canister loading from the reactor’s spent fuel pool; spent fuel can be transported inside the sealed canister. *Id.* at ¶¶ 34, 41, 52-53. MPCs (such as the Holtec MPCs that Petitioner challenges in this case) can be removed from an ISFSI and placed directly into a transportation cask, for transportation to a different site. *Ibid.* During transport the sealed MPC is never opened; it is instead placed in another container, giving multiple levels of protection and minimizing potential for adverse impacts. *Id.* at ¶¶ 52-53.

(2) The NRC Licensed Holtec System.

a) The Holtec System has Features Which Make it More Robust than Wet Pools for Storing Spent Fuel at SONGS.

Petitioner’s assertion that SCE selected the Holtec System without “adequately considering the grave risks or reasonable alternatives” is inaccurate. Emergency Petition at 36. SCE specifically selected the Holtec System to store Unit 2 and 3 spent

fuel because it has advantages that are appropriate for the physical and environmental characteristics at SONGS.¹⁴ *Id.* at ¶¶ 34-36, 45-46. Although wet storage is safe, the Holtec System overall offers more robust protection. The Holtec System has capabilities that exceed minimum standards required by the NRC, and, in comparison to wet pools, has features that provide greater protection in the event of extreme events such as earthquakes--the “MSE” in the “HI-STORM UMAX Version MSE” system used at SONGS means “most severe earthquake.” *Ibid.*

In sum, the Holtec System used at SONGS was designed to maintain the long-term integrity of the multi-purpose canisters with consideration for the conditions present at SONGS—including the marine environment, tsunami risk, seismic risk, and other potential site-specific conditions. *Id.* at ¶ 46. The NRC diligently reviewed the Holtec System before licensing it for dry storage of spent fuel. Petitioner’s unsupported assertion that the Holtec system “is not properly intended to serve their intended purposes” (Emergency Petition at 2) is unsupported by any evidence, and is just flat wrong. The Holtec System received CoCs from the NRC that are codified and

¹⁴ Petitioner’s characterization of the Holtec System as “thin-walled” (Emergency Petition at 12) betrays a misunderstanding of the technical details of the System. The Holtec System provides multiple robust levels of protection. In the Holtec System, spent fuel is stored in a honeycomb array of sub-compartments that comprise a fuel basket, within the cylindrical multi-purpose canister, closed with a welded round top lid. Bauder Decl. at ¶44. The loaded Holtec canisters are then transported and stored in a vertical position, in underground metal vaults that are arranged in an engineered, reinforced-concrete monolith. *Ibid.* The vaults are sealed at the bottom to prevent ingress of any groundwater in the MPC storage cavity from the surrounding subgrade. *Ibid.*

is expressly authorized to be used for spent fuel storage at 10 C.F.R. § 72.214. *Id.* at ¶¶ 36, 37, 43. The CoCs were issued concurrently with a related Final Safety Analysis Report authored by the NRC which “certif[ied] that the [Holtec System’s] storage design...meets the applicable safety standards set forth in 10 C.F.R. Part 72.”) *Id.* at ¶ 46, Exhibit 15 at 1.

b) The Holtec Canisters Have a Minimum Design Life of 60 Years.

Contrary to Petitioner’s claims that the Holtec System is not suited for its intended purpose, the Holtec canisters have a minimum design life of 60 years. *Id.* at ¶ 49. Here, Holtec obtained a CoC for 20 years. *Ibid.* After 20 years, the CoC may be renewed by the NRC in increments of up to 40-years-per-renewal under 10 C.F.R. § 72.240. *Ibid.* Requests for renewal must include a description of an ISFSI aging management program, which must be implemented at SONGS. *Ibid.* The renewal process maintains the NRC’s regulatory control throughout the duration of the storage of the spent fuel in the Holtec System. The renewal process also makes sense from a safety perspective as in-the-field data gathered during the first 20-year period is required to be used to inform the application for renewal and the aging management program. *Ibid.*; 10 C.F.R. § 72.240(c).

c) The Spent Fuel Can Be Retrieved from the ISFSI.

Contrary to Petitioner’s assertion, the Holtec canisters are not “buried.” Emergency Petition at ¶ 2. The canisters rest in the vaults and may be removed using

a crane similar to that used to place the canisters in the vaults. Bauder Decl. at ¶¶ 48, 50-53. Demonstration of the ability to remove the canisters via this method was required as part of the CoC approval of the Holtec technology. *Id.* at ¶51. Consistent with the discussion of MPCs above, the canisters can be removed and placed into a transportation container which can then be moved offsite.¹⁵ *Id.* at ¶52.

d) Moving Spent Fuel into MPCs and into Dry Storage is the First Step in Moving the Spent Fuel Offsite.

Because of SCE's efforts, and the approvals of the NRC, SCE is now in an excellent position to transport spent fuel from SONGS to an off-site storage facility once space becomes available. As the September 2019 Nuclear Waste Technical Review Board Report (Emergency Petition at 13)¹⁶ states:

For a small portion of the existing packaged waste (e.g., certain commercial SNF in NRC-approved, dual-purpose [storage and transportation] canisters), few technical issues remain unresolved. For example, barring unforeseen problems, certain types of commercial spent fuel likely could be shipped within a year or two of resolving institutional issues, such as determining a destination and obtaining funding. (September 2019 Report at Executive Summary xxvii.)

¹⁵ The transportation container is Holtec's HI-STAR 190 Transportation Cask, which is also licensed by the NRC per 10 C.F.R. Part 71. *Id.* at ¶47.

¹⁶ Petitioner mischaracterizes the September 19 Report when it argues that SONGS canisters will not be ready to be moved until 2100. The cited portion of the September 2019 Report addresses the removal of all SNF from all nuclear power plants in the U.S generally. The Report makes no specific reference to SONGS, the spent fuel stored there, or the Holtec System in issue in this action. September 2019 Report at 77.

Regarding the canisters at SONGS (and 14 other shutdown commercial nuclear sites), the Report notes that the canisters will be ready for transportation as soon as the DOE is ready for them:

[A]t the 15 commercial nuclear sites considered to be shutdown sites as of April 2019, all dry-storage canister types in use are welded canister types that are approved by the NRC for both storage and transportation...these canisters could be ready to be transported by DOE early when the national transportation campaign begins.

Id. at 73. Every canister at SONGS should qualify for offsite transport by the end of 2030. Bauder Decl. at ¶ 54.¹⁷

¹⁷ SCE has been working diligently at finding an offsite location to accept the spent fuel once it is ready to be shipped. SCE has retained an “Experts Team” of consultants, including a former Chairman of the NRC, a former director of the U.S. Department of Energy’s Office of Policy, participants in the President’s Blue Ribbon Commission on America’s Nuclear Future, and other experts including the consultants North Wind, Inc. and Dr. Ernest J. Moniz (former U.S. Secretary of Energy) to develop a strategic plan to explore alternatives to relocate SONGS spent fuel to a licensed off-site storage or disposal facility. Bauder Decl. at ¶ 56. Further, Petitioner’s contention that SCE has “engaged in a sustained campaign of obfuscation and secrecy” is wrong (*Mandamus* at 36). SCE has committed itself to full transparency to the public during. *Id.* at ¶ 57. This policy of full transparency includes community outreach, and regular meetings that are open to the public where the public’s issues and concerns are addressed by knowledgeable SCE representatives and expert third-party guest speakers. *Ibid.* This policy of full transparency includes SCE posting regular reports regarding 1) the status of the fuel transfer from wet to dry storage; and 2) the status of efforts to explore relocating SONGS spent fuel to a licensed off-site facility—both reports can be found at <https://www.songscommunity.com/used-nuclear-fuel/used-fuel-reports>. *Ibid.*

(3) **Continuing NRC Oversight at SONGS.**

a) **Extensive NRC Review of the August 2018 Event**

Petitioner grossly mischaracterizes an August 2018 event at SONGS (Emergency Petition at 24) despite the fact that the NRC fully reviewed that event. On August 3, 2018, a Holtec MPC became misaligned while being lowered into its storage position in the storage vault within the ISFSI, coming to rest on a shield ring. *Id.* at ¶ 58. Onsite personnel realigned the canister and safely lowered it to its intended position at the bottom of the storage vault in less than an hour of the initial misalignment. *Id.* at ¶ 59. The event did not result in a release of radioactive materials, did not result in a canister drop, and did not cause any damage to the MPC, the vault or the ISFSI. *Id.* at ¶ 60. NRC analysis concluded that even if the canister had dropped (it did not), there was no danger of radioactive materials escaping. *Id.* at ¶ 61. SCE discussed the event with the NRC the next business day, suspended the transfer of spent fuel until the NRC was satisfied that the causes of the event were addressed, and under the NRC's regulatory oversight, numerous corrective actions (new training, better equipment in the form of new cameras, monitors, safety shackles, sensors and alarms) were implemented. *Id.* at ¶¶ 62-65. Ultimately, the NRC found in its July 9, 2019 Report that **“licensee's evaluations and corrective actions taken in the areas of licensee oversight, procedures, training, equipment, corrective action program, and reportability were appropriate to prevent recurrence.”** *Id.* ¶ 65 Exhibit 24 at 3. (emphasis added). Transfers only resumed in the aftermath once the **“NRC [was]**

satisfied with the corrective actions taken in response to the August 3, 2018, event and ha[d] no objection to the resumption of fuel transfer operations.” *Id.* at ¶ 66 Exhibit 26. (emphasis added).

The NRC has made a number of announced and unannounced inspections since the resumption of spent fuel transfers. *Id.* at ¶68. On November 22, 2019, the NRC released a follow up report documenting its finding arising from “unannounced inspections of the dry cask storage activities” held from July to September 2019. *Id.* at Exhibit 27 at Executive Summary 1. The NRC “observed and confirmed that [SCE] completed all required corrective actions from [SCE’s] causal evaluations to return to fuel loading operations” and **“NRC inspectors verified that the corrective actions implemented were effective to ensure the safe transfer of spent fuel to the site’s ISFSI.”** *Ibid.* (emphasis added)

b) The Shim Pin “Issue” does not Support the Writ.

Petitioner’s writ is based in part, on an allegation that certain Holtec canisters use a defective “shim pin” design. Emergency Petition at 18. Petitioner conspicuously fails to mention that there are only four loaded MPCs in the SONGS ISFSI with shims supported by shim standoff pins (the first four canisters loaded into the ISFSI). Bauder Decl. at ¶ 69. No other canisters loaded or scheduled to be loaded into the ISFSI have this shim pin design. *Ibid.*

Further, the NRC is aware that four of the canisters in the ISFSI have this shim

pin design. Applying its expertise and discretion, the NRC decided that no further action by SCE was required and that the four canisters could safely remain in storage. The NRC reviewed the issue and concluded after a comprehensive analysis that for the four loaded canisters with that design “all predicted results would remain below the described limits in the final safety analysis report with acceptable margin” and concluded “loaded MPCs would continue to be in a safe condition during the entire licensed period of storage.” *Id.* at ¶72, Exhibit 28. at 2; *see also id.* at ¶¶ 70-71. The NRC’s independent assessment into these canisters found that “the previously loaded casks do not present a threat to public health and safety.” *Id.* at 73, Exhibit. 29 at 1.

c) Investigation of “Scratches.”

The NRC (and SCE, along with an independent expert that it hired) have investigated the “scratches” referenced by Petitioners on the exterior of some Holtec canisters. *Id.* at ¶¶ 74-75. The NRC concluded that the scratches do not adversely compromise or affect the structural integrity of the MPCs. *Ibid.* SCE’s investigation, which the NRC affirmed, concluded the deepest scratch that could be imparted on a canister if subject to scratching in the same location on the canister during both insertion and then a subsequent withdrawal of the canister and co-located with pre-existing manufacturing artifacts, with a 95 percent probability and 95 percent confidence, was 0.0584 inches, which is below the American Society of Mechanical Engineers (“ASME”) Code’s limit of 10 percent (0.0625 inches). *Id.* at ¶74.

LEGAL ARGUMENT

A. Petitioner Cannot Meet its Burden to Obtain Injunctive Relief.

Petitioner's writ of mandamus contains several mischaracterizations and constitutes a thinly-guised request for a writ of injunction under the All Writs Act 28 U.S.C. § 1651(a). Although styled as a writ for administrative mandamus, Petitioner's writ does not ask this Court to direct the NRC to issue a final order by a certain date.¹⁸ Instead, Petitioner requests that this Court “compel[] a recalcitrant...NRC to immediately suspend decommissioning operations at San Onofre Nuclear Generating Station” in order to preserve the status quo.¹⁹ *See, e.g.* Emergency Petition at 1, 3-4. Consequently, the “TRAC” factors discussed by Petitioner (Emergency Petition at 30-36) are irrelevant as the relief Petitioner seeks has nothing to do with compelling a final order from the NRC. *See e.g. Ry. Labor Executives' Assoc. v. U.S. R. Ret. Bd.*, 842 F.2d 466, 475 (1988) (Finding the TRAC factors “inapposite” because “the Association does not seek to compel agency action unreasonably withheld; rather, it is seeking to modify final action already taken by the Board[.]”) (Even if they were

¹⁸ *Telecomm. Research & Action Ctr. v. Fed. Communications Comm'n*, 750 F.2d 70 (D.C. Cir. 1984), *In re Pesticide Action Network*, 798 F.3d at 813 (9th Cir. 2015), *Pub. Citizen Health Research Grp. v. Auchter*, 702 F.2d 1150, 1154 (D.C. Cir. 1983), *Env'tl. Def. Fund, Inc. v. Hardin*, 428 F.2d 1093, 1099 (D.C. Cir. 1970), *Pub. Citizen Health Research Grp. v. Comm'r, Food & Drug Admin.*, 740 F.2d 21, 34 (D.C. Cir. 1984), *In re California Power Exch. Corp.*, 245 F.3d 1110 (9th Cir. 2001), *In re A Community Voice*, 878 F.3d 779 (9th Cir. 2017).

¹⁹ In effect, the petition seeks to nullify the California Coastal Commission's permit to demolish the wet storage pools (the demolition will be halted for as long as the fuel remains in the wet pools).

considered, Petitioner cannot show **any** unreasonable delay in the NRC not yet issuing a final order on Petitioner's flagrantly tardy (*supra* 5-8, 10-11)—and likely time-bared—(*infra* 27-28) petition; especially as the wet storage pools will remain operable until summer 2020 (*supra* 11). *California Power Exch. Corp.*, 245 F.3d 1110, 1125 (9th Cir. 2001) (“cases in which courts have afforded relief have involved **delays of years, not months.**”) (emphasis added))²⁰

Instead, the proper vehicle to preserve the status quo while the NRC considers Petitioner's 2.206 Petition is a request for a writ of injunction. *Simmons v. Ark. Power & Light Co.*, 655 F.2d 131, 134 n.5. (8th Cir. 1981) (“if appellants' rights are in jeopardy during the time which the case is under agency consideration, they may seek action directly by the Court of Appeals under the All Writs Act, 28 U.S.C. § 1651(a).”); *Susquehanna Valley All. v. Three Mile Island Nuclear Reactor*, 619 F.2d 231, 237 (3d Cir. 1980) (“the All Writs Act... section 1651(a) authorized courts of appeals to issue preliminary injunctions preserving the status quo, pending final agency action[.]”). Such an injunction is appropriate only if the legal rights at issue are “**indisputably clear**” and it is “necessary or appropriate in aid” of the court's jurisdiction. *Makekau*, 2019 U.S. App. LEXIS 35363, at *9.

²⁰ *SF Chptr. of A. Philip Randolph Inst. v. United States EPA*, 2008 U.S. Dist. LEXIS 27794, at *12-13 (N.D. Cal. Mar. 28, 2008) ([“the matter was remanded to the EPA in September of 2007, just ten days before Plaintiffs filed their complaint...The EPA's delay does not qualify, as a matter of law, as unreasonable.”])

(1) **Petitioner Has Not Attempted to Meet the Requirements for Obtaining an Injunction Under the All Writs Act.**

Petitioner makes no attempt to satisfy the requirements for a writ of injunction. This is reason enough to deny this petition. For example, in *Ohio Citizens for Responsible Energy, Inc. v. Nuclear Regulatory Com.*, Petitioner sought a stay of “the full-power operation of the Perry Nuclear Power Plant” while its challenge to the NRC was considered by the Sixth Circuit. *Ohio Citizens for Responsible Energy, Inc. v. Nuclear Regulatory Com.*, 479 U.S. 1312, 1312 (1986) (Scalia, A., in chambers). Justice Scalia rejected the request because of applicant’s failure to explicitly seek the relief under the All Writs Act:

What the applicant would require in order to achieve the substantive relief that it seeks is an original writ of injunction, pursuant to the All Writs Act, 28 U. S. C. § 1651(a)... I will not consider counsel to have asked for such extraordinary relief where, as here, he has neither specifically requested it nor addressed the peculiar requirements for its issuance.

Id. at 1313-14. In the case at bar, Petitioner has neither specifically requested a writ of injunction, nor addressed the peculiar requirements for its issuance.

(2) **Petitioner’s Right to Relief is hardly “Indisputably Clear.”**

Petitioner’s effort to side-step the “indisputably clear” standard required for injunctive relief is an apparent concession that Petitioner cannot meet that standard. “Indisputably” means just that, there can be **no dispute** that Petitioner is entitled to relief from this Court in connection with an NRC final decision on the administrative

petition filed in late September 2019. The “indisputably clear” standard is such that even a well-reasoned dissenting opinion in the appellate court, or divergent opinions among courts on a relevant issue, would be sufficient to defeat a claim for injunctive relief. *Brown*, 533 U.S. at 1303 (“Whatever else may be said about the issues and equities in this case, the rights of the applicants are not ‘indisputably clear.’ The pros and cons of the applicants claim on the merits are fully set forth in the majority and dissenting opinions in the Court of Appeals.”); *Hobby Lobby Stores, Inc. v. Sebelius*, 568 U.S. 1401, 1403-04, (2012) (Sotomayor, S., in chambers)(“[W]hatever the ultimate merits of the applicants' claims, their entitlement to relief is not ‘indisputably clear’... lower courts have diverged on whether to grant temporary injunctive relief to similarly situated plaintiffs raising similar claims.”); *see also Lux v. Rodrigues*, 561 U.S. 1306, 1307 (2010) (Roberts, C. J., in chambers (“[T]he courts of appeals appear to be reaching divergent results in this area...even if the reasoning in [Supreme Court authority] does support Lux's claim, it cannot be said that his right to relief is ‘indisputably clear.’”).

First, there is significant dispute about whether the NRC’s final order on the NRC Petition would even be *reviewable* (it likely is not). A petition brought pursuant to 10 C.F.R. § 2.206 provides a mechanism by which members of the public may request initiation of an *enforcement action* to modify, suspend, or revoke a license, or for such other action as may be appropriate. *Fla. Power & Light Co. v. Lorion*, 470

U.S. 729, 731 (1985); *Eddleman v. Nuclear Regulatory Com.*, 825 F.2d 46, 48 (4th Cir. 1987). In *Heckler v. Chaney*, the Supreme Court held that an agency's refusal to take enforcement action requested by third parties is "committed to agency discretion" and "not subject to judicial review under the [Administrative Procedures Act]." 470 U.S. 821, 838 (1985); *see also* 5 U.S.C. § 701(a)(2). This Court has held an agency "decision not to take enforcement measures, like a prosecutor's decision not to indict, is one that is typically committed to the agency's absolute discretion." *Sierra Club v. Whitman*, 268 F.3d 898, 903 (9th Cir. 2001).

Numerous circuit courts also have held that NRC decisions rejecting third party requests for enforcement actions are not reviewable because of the unique expertise of the NRC and the broad discretion granted to it by Congress. *See e.g. Arnow v. NRC*, 868 F.2d 223, 234-235 (7th Cir. 1989) (finding that the NRC's rejection of plaintiff's claims that that "leak-rate testing of nuclear containments at a company's nuclear power plants had created an unsafe situation" was not reviewable because "Congress has entrusted the NRC with wide, unreviewable discretion in the area of agency enforcement."); *Mass. Public Interest Research Group, Inc. v. NRC*, 852 F.2d 9, 19 (1st Cir. 1988) (NRC decision not to take enforcement action against nuclear facility (keeping the plant shut down), despite petitioner's concerns relating to public health and safety, was not subject to review.).

Second, the Petitioner's 2.206 Petition is a challenge to prior final orders of the

NRC (the 2015 License Amendment and the 2017 certification of the Holtec System.). *See, e.g.* Emergency Petition at Add. 6-8. Under 28 U.S.C § 2344, Petitioner had 60 days from the date of issuance of these final orders to challenge the NRC in this Court. It did not do so. Instead, it was only after defendants in *Public Watchdogs II* raised jurisdictional issues that Petitioner finally filed its (untimely) 2.206 Petition. Petitioner's request for relief is time barred.²¹

Third, even if this Court opted to review the NRC's actions in approving the 2015 License Amendment, certifying the Holtec System, or deciding not to take an enforcement action against SCE in connection with the "near misses" described by Petitioner, Petitioner is nevertheless unable to demonstrate "indisputability" that the NRC acted "capriciously" or "arbitrarily" in denying Petitioner's request for relief. *Pub. Citizen v. NRC*, 573 F.3d 916, 923 (9th Cir. 2009) ("Under the Administrative Procedure Act, agency decisions may be set aside only if 'arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law.'" (citation omitted)). Courts are most differential to the NRC's judgment in the complex area of nuclear safety:

²¹ *Confederated Tribes*, 342 F.3d at 930-31 (denying writ where "we had jurisdiction over the older decisions, but we lost this power when Petitioners failed to seek timely review."); *Sierra Club v. United States Nuclear Regulatory Com.*, 825 F.2d 1356, 1362-63 (9th Cir. 1987) ("petitioners could have sought appellate review from this court within sixty days pursuant to 28 U.S.C. § 2344 but did not.")

[A] reviewing court must remember that the Commission is making predictions, within its area of special expertise, at the frontiers of science. When examining this kind of scientific determination, as opposed to simple findings of fact, a reviewing court must generally be at its most deferential.

Balt. Gas & Elec. Co. v. NRDC, 462 U.S. 87, 103 (1983).²²

As discussed in detail above, the NRC has not acted arbitrarily or capriciously, as it has: 1) investigated and evaluated the safety of the geographic location of SONGS (*supra* 8-9); 2) evaluated the Holtec System specifically (and similar systems generally) for dry storage of spent fuel at all nuclear locations in the United States (including SONGS) (*supra* 12-18); 3) investigated and evaluated the August 2018 incident and SCE's remedial measures (*supra* 20-21); 4) evaluated the safety of the canisters with the shim pin design Petitioner challenges (*supra* 21-22); and 5) evaluated the safety of canisters that Petitioner alleged are scratched (*supra* 22). The NRC completed due diligence and applied its expertise, made technical determinations, and allowed the spent fuel transfer and storage to proceed because it determined it is safe to do so. Petitioner (relying here, and in the previous cases, on

²² See also *Silkwood v. Kerr-McGee Corp.*, 464 U.S. 238, 250 (1984) (“the [NRC] [is] more qualified to determine to determine what type of safety standard should be enacted in this complex area.”); *Kelley v. Selin*, 42 F.3d 1501, 1521 (6th Cir. 1995) (“Specifically, the NRC found the alternative technologies for spent fuel storage to have been neither sufficiently demonstrated nor practicable for use under a general license provision. As noted above, this type of technical decision by the NRC, operating at the frontiers of science, is entitled to great deference by the courts.”).

rhetoric and lawyer argument—not scientific, or any other kind of, evidence) disagrees with the NRC’s determination. An opinion offered by lawyers and non-experts that there are better ways to store spent fuel at SONGS does not make the NRC’s licensing and enforcement actions arbitrary or capricious, and it certainly does not make Petitioner’s right to relief “undisputed.”²³

CONCLUSION

For all the reasons stated above, SCE respectfully requests that this Court deny Petitioner’s Emergency Petition for Writ of Mandamus.

Dated: December 9, 2019

Respectfully submitted,

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²³ Petitioner has also put forward no viable argument that immediate injunctive relief is either necessary or appropriate to protect this Court’s jurisdiction. As discussed above, the wet pools will be operable until summer 2020. *Supra* at 11.

CERTIFICATE OF COMPLIANCE

I certify that this brief complies with the requirements of Ninth Circuit Rules 21-2(c), and the requirements of Federal Rules of Appellate Procedure 32(a)(5) and 32(a)(6), because it is proportionately spaced serif font, has a typeface of 14 points, and does not exceed 30 pages.

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CERTIFICATE OF SERVICE

I hereby certify that on December 9, 2019, I electronically filed the foregoing with the Clerk of the Court for the United States Court of Appeals for the Ninth Circuit by using the appellate CM/ECF system.

I certify that all participants in the case are registered CM/ECF users and that service will be accomplished by the appellate CM/ECF system.

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