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Exhibit No.:	SCE-1
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SOUTHERN CALIFORNIA EDISON®

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(U 338-E)

Testimony On SONGS 1 Decommissioning Work Completed And Remaining Work Scope

Before the

Public Utilities Commission of the State of California

Rosemead, California
December 21, 2012

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POLICY

Southern California Edison Company (SCE) and San Diego Gas & Electric Company (SDG&E) own 80% and 20% interests in San Onofre Nuclear Generating Station Unit 1 (SONGS 1), respectively. On November 30, 1992, SONGS 1 permanently ceased operations.

As holders of the Nuclear Regulatory Commission (NRC) license, SCE and SDG&E (hereinafter collectively referred to as "the Utilities"), on behalf of their customers, have an unavoidable obligation, under federal regulation, to decommission SONGS 1, 2, and 3.[1] The Utilities do not own the site upon which SONGS 1, 2, and 3 are located. Instead, they are authorized to use the site under grants of easement and leases from the U.S. Department of the Navy and the California State Lands Commission. These leases and easements also require the Utilities to decommission SONGS 1, 2, and 3.[2]

On July 29, 2010, the California Public Utilities Commission (Commission) issued Decision (D.) 10-07-047, which: (1) concluded that the $207.2 million (100% share, 2008$) of decommissioning work completed at SONGS 1 between July 1, 2005 and December 31, 2008 was reasonable,[3]

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[1] According to the 10 C.F.R. § 50.2, "Decommissioning means to remove a facility or site safely from service and reduce residual radioactivity to a level that permits -- (1) Release of the property for unrestricted use and termination of the license…." 10 C.F.R. § 50.82(a)(3) provides that, "Decommissioning will be completed within 60 years of permanent cessation of operations…."

[2] Paragraph 12 of the Grant of Easement with the U.S. Department of the Navy for the onshore site provides, "That upon termination of the easement granted herein, the Grantees at their expense may remove, and if desired by the government, shall remove any and all improvements installed or constructed hereunder and shall restore the Premises to a condition satisfactory to the Director, Southwest Division, Bureau of Yards and Docks; except that the Grantees shall not be obligated to restore any natural material cut or filled in the necessary excavation and grading of the Premises. Upon termination of the easement, the Grantees shall also, if required by the Government, decontaminate the Premises and such surrounding area within the Reservation as may have been contaminated by the operation of the Nuclear Station."

Paragraph 14 of the Easement Lease P.R.C. No. 3193.1 with the California State Lands Commission for the site of the offshore circulating water conduits was amended effective October 20, 2005 to no longer require the complete removal of the conduits. Under the amended agreement, SCE and SDG&E will be required to remove all vertical structures that protrude above the seafloor, and to install mammal barriers over each resulting opening. The remainder of the conduits located below the seafloor will remain in place. Upon termination of the Easement Lease, SCE and SDG&E will enter into a Lease Termination Agreement that will include a requirement to provide sufficient financial assurance to respond to remove all or part of the remaining conduits to the extent that they become a public safety hazard at any time in the future.

Copies of both of these documents are provided in the Workpapers for this Exhibit.

[3] D.10-07-047, Conclusion of Law No. 5, p. 55.

(2) adopted a $184.4 million (100% share, 2008$) estimate for SONGS 1 remaining decommissioning work,[4] and that (3) the SONGS 1 decommissioning trust was adequately funded for this triennial period and that no revenue contributions are required.[5]

In this application, the Utilities demonstrate that the $14.9 million (100% share, 2011$) cost of the SONGS 1 decommissioning work completed between January 1, 2009 and December 31, 2012 is reasonable. The Utilities also provide an updated SONGS 1 Decommissioning Cost Estimate of $182.3 million (100% share, 2011$) for the Remaining Work to be performed.[6] In this proceeding, Remaining Work includes Phase II decommissioning activities that are remaining as of January 1, 2013, and all Phase III decommissioning activities.[7] The SONGS 1 Decommissioning Cost Estimate was developed in 2012 by professional estimators in the SONGS Project Management Organization. The estimate is based on updated reviews of the known physical work remaining to be completed on-site and allowances for activities such as Reactor Pressure Vessel (RPV) Segmentation and RPV Shipping and Disposal for which detailed cost information is not yet available. The updated SONGS 1 decommissioning cost estimate also includes a 25% contingency amount for the Remaining Work, consistent with the SONGS 1 estimate that was adopted by the Commission in the 2009 NDCTP.[8] The Commission should find that the updated $182.3 million (100% share, 2011$) SONGS 1 decommissioning cost estimate for the Remaining Work is reasonable.

The Utilities forecast that the $195.1 million (2012$) available in the SCE SONGS 1 Decommissioning Trusts and the $96.3 million (2012$) available in the SDG&E SONGS 1

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4 *Id.*, Conclusion of Law No. 4, p. 54.

5 *Id.*, Conclusion of Law No. 10, p. 56.

6 The SONGS 1 Decommissioning Cost Study, dated December 2012, is included in the Workpapers for this Exhibit.

7 Phase I decommissioning activities were performed between July 1999 and December 2008, and included, (1) the decontamination, dismantling, and disposal of all contaminated and non-contaminated SONGS 1 equipment, components, and structures that were either installed above-ground or below-ground but above the water table, (2) the installation of low-density concrete within void spaces in structures below the water table to ensure stability of the site, and (3) the licensing and construction of a spent fuel dry storage facility on the SONGS 1 site, the fabrication of dry storage canisters, and the loading and placement of all SONGS 1 spent fuel stored at SONGS and one canister of Greater Than Class C (GTCC) waste from SONGS 1 into the spent fuel dry storage facility.

8 D.10-07-047, Conclusion of Law No. 4, pp. 54-55.

Decommissioning Trusts will be sufficient to meet the estimated $182.3 million (100% share, 2011$) future cost requirements.[9] The Utilities, therefore, request no contribution of customer funds for SONGS 1 decommissioning.

Phase II of the SONGS 1 decommissioning project will include the maintenance and monitoring of the SONGS 1 spent fuel stored at the SONGS site and the transfer of the fuel from the onsite spent fuel dry storage facility, known as the Independent Spent Fuel Storage Installation (ISFSI), to the U.S. Department of Energy (DOE) transporter for shipment to a permanent DOE disposal facility.[10] SCE currently projects that the DOE will remove the last SONGS 1 fuel from the site in 2036.[11] Phase II will also include the final disposition of the SONGS 1 offshore circulating water conduits; and the segmentation, shipment, and burial of the SONGS 1 RPV package at a licensed disposal facility.

Phase III of SONGS 1 decommissioning will include the termination of the NRC License for the SONGS 1 site, and final site restoration and termination of the grant of easement from the U.S. Department of the Navy. Phase III of SONGS 1 decommissioning will be performed concurrently with Phase III of SONGS 2 & 3 decommissioning. Under the base case, which assumes that SONGS 2 & 3 will be permanently retired after their NRC operating licenses expire in 2022, Phase III is assumed to commence in 2054 after the DOE removes the last SONGS 2 & 3 spent fuel from the SONGS site, and is assumed to be completed in 2055. Therefore, notwithstanding the fact that the funds currently available to the Utilities exceed the projected costs of the Remaining SONGS 1 Decommissioning Work, the Utilities request that all SONGS 1 decommissioning funds continue to remain in the Utilities' respective SONGS 1 decommissioning trusts due to ongoing economic uncertainties and due to the many uncertainties inherent in the cost to complete a project several decades in the future.

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[9] The $195.1 million (SCE) and $96.3 million (SDG&E) include qualified trust fund liquidation amounts of $195.1 million (SCE) and $87.5 million (SDG&E), and non-qualified trust fund liquidation amounts of $0 million (SCE) and $8.8 million (SDG&E), respectively, as of October 31, 2012 (2012$). Under current tax laws, SCE and SDG&E would also have tax benefits in the amounts of $0 million and $3.6 million (2012$), respectively, associated with the expenditure of their non-qualified trust funds.

[10] The costs to maintain the SONGS 1, 2, and 3 spent fuel in the ISFSI will be apportioned between the SONGS 1 Decommissioning Trusts and SONGS 2 & 3 Operating Funds on a pro-rata basis based on the projected number of canisters containing spent fuel from each unit each year.

[11] *Infra* at p. 7.

In D.10-07-047, the Commission ordered the Utilities to provide contribution estimates that assume successful completion of license renewal for SONGS 2 & 3.[12] The Utilities, therefore, are also providing an alternate SONGS 1 decommissioning estimate based on this assumption. The Utilities do not currently anticipate that any contribution of customer funds for SONGS 1 decommissioning would be required under this alternate scenario.

[12] D.10-07-047, Ordering Paragraph No. 8, p. 61.

II.

SONGS 1 DECOMMISSIONING PROJECT OVERVIEW

SCE, the decommissioning agent, is performing the SONGS 1 decommissioning project in three phases. In Phase I, from July 1999 through December 2008, SCE decontaminated, dismantled and disposed of all contaminated and non-contaminated SONGS 1 systems and structures excluding the SONGS 1 offshore conduits, the shipping and disposal of the SONGS 1 reactor pressure vessel, and the removal of some of the SONGS 1 below grade materials. SCE also constructed the ISFSI for SONGS 1 spent fuel on the eastern portion of the SONGS 1 site during Phase I. As of June 30, 2005, SCE had transferred all 395 SONGS 1 spent fuel assemblies from underwater storage in the spent fuel pools to dry storage in the ISFSI.[13] This fuel transfer was required to support the continued decommissioning activities because the SONGS 1 spent fuel pool was located in the center of SONGS 1.

Figure II-1
SONGS 1 Decommissioning Site in December 2008

[13] SCE transferred to the ISFSI 207 SONGS 1 fuel assemblies from the SONGS 1 spent fuel pool, 70 SONGS 1 fuel assemblies from the SONGS 2 spent fuel pool, and 118 SONGS 1 fuel assemblies from the SONGS 3 spent fuel pool.

Figure II-1, above, shows the SONGS 1 site, also known as the SONGS 1 Industrial Area, as it appeared in December 2008. Noticeable in this photo are: the first ISFSI pad (on the far left), which contained 17 canisters containing spent fuel from SONGS 1; one canister containing GTCC from SONGS 1; and 13 canisters containing spent fuel from SONGS 2 & 3. Figure II-1 also shows the second ISFSI pad, which was being prepared to house additional canisters of spent fuel from SONGS 2 & 3, but which was still empty at that time. This figure also shows the first of the two large enclosures (lower right corner) that were used for the SONGS 2 & 3 steam generator and reactor vessel head replacement projects, which are unrelated to the decommissioning of SONGS 1.

Figure II-2
SONGS 1 Decommissioning Site in December 2012

Figure II-2 depicts the SONGS 1 Industrial Area in December 2012. This photo shows that the southwest corner of the SONGS 1 Industrial Area (upper right corner) is now paved as part of the demobilization work that was completed during 2009. It also shows the first and second ISFSI pads, with the second pad now housing 20 canisters containing spent fuel from SONGS 2 & 3. Phase II commenced on January 1, 2009 at the end of Phase I. In Phase II, SCE completed the post-Phase I demobilization and documentation closeout. SCE has also continued to monitor and provide security for

the SONGS 1 spent fuel in the ISFSI. SCE also installed 14 wells as part of the Nuclear Energy Institute (NEI) Groundwater Protection Initiative to monitor the groundwater beneath the SONGS 1 site for the presence of tritium. During Phase II, SCE also plans to disposition the SONGS 1 Offshore Intake and Discharge Conduits consistent with an amendment to its grant of easement with the California State Lands Commission.[14] SCE plans to perform this work before the current term of the easement expires in 2013. In addition, since a new LLRW disposal facility in Texas has obtained the federal and state permits required to accept shipments of Class B & C waste from states outside the Texas Low Level Radioactive Waste Compact, SCE is investigating the possibility of shipping the SONGS 1 reactor pressure vessel package for permanent disposal as soon as practicable.

Phase II will end after the DOE removes all SONGS 1 spent fuel from the site. For purposes of the 2012 updates to the decommissioning cost estimates for SONGS 1, as well as for SONGS 2 & 3, SCE assumes that the DOE will begin accepting spent fuel at the federal repository in 2024.[15] Consistent with this assumption, and based on SCE's studies developed from the DOE Acceptance Priority Ranking & Annual Capacity Report (DOE/RW-0567), dated July 2004,[16] and with subsequent developments and public statements made by the Director of the Office of Civilian Radioactive Waste Management, SCE projects that the DOE will remove the last SONGS 1 fuel from the site in 2036.

Phase III of SONGS 1 decommissioning will occur concurrently with Phase III of SONGS 2 & 3 decommissioning. In Phase III, SCE will: (1) remove and dispose of all remaining above-ground structures, except any the U.S. Department of the Navy requests be left in place; (2) dismantle and dispose of the ISFSI; (3) excavate and dispose of all remaining SONGS 1 below-grade appurtenances

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[14] Amendment to Grant of Easement, California State Lands Commission to Southern California Edison Company and San Diego Gas & Electric Company, P.R.C. 3196.3, dated October 20, 2005.

[15] *Southern California Edison Company v. United States*, August 23, 2011 Decision re: Case No. 04-CV-109, U.S. Court of Appeals for the Federal Circuit, at 3 ("DOE has yet to accept spent fuel from SONGS. Despite the 1987 amendment, the question of where and how the Government will dispose of the wastes remains unanswered to this date. The Government's current estimate is that it will not begin accepting the waste until 2020, if at all."). In the 2009 NDCTP, the Utilities assumed that the DOE would commence accepting spent fuel at the federal repository in 2020. Given that four years have passed since the last estimate, the DOE Start Date is assumed to be delayed by an additional four years to 2024.

[16] The July 2004 DOE Acceptance Priority Ranking & Annual Capacity Report, and SCE's studies based on that DOE Report, are provided as Workpapers to this exhibit.

and structural foundations, including any remaining radioactively contaminated materials that exceed the then-current standard for NRC license termination; (4) backfill and compact the void spaces left after removal of all below-grade structures and foundations; (5) submit a license termination plan to the NRC and terminate the NRC license; (6) complete the final site restoration work; and (7) terminate the grant of easement from the U.S. Department of the Navy for the plant site. The updated SONGS 1 decommissioning cost estimate assumes that Phase III will commence after the DOE has removed all SONGS 2 & 3 spent fuel from the site, which is currently assumed to occur in 2053.[17] The estimate also assumes SCE will complete Phase III in 2055, approximately two years after the removal of all SONGS spent fuel from the SONGS site.

[17] *See* Footnote 13.

III.

REASONABLENESS OF SONGS 1 DECOMMISSIONING COSTS INCURRED BETWEEN JANUARY 1, 2009 AND DECEMBER 31, 2012

Section 4.2.2.2.c of the Settlement Agreement adopted in D.99-06-007 stated that during the Phase I period of SONGS 1 Decommissioning work, the Utilities' triennial NDCTP applications shall include,

> "A comparison of completed SONGS 1 Decommissioning Work to date, and the costs incurred, to the previously submitted SONGS 1 Decommissioning Cost Estimate. If the scope of SONGS 1 Decommissioning Work completed and costs incurred to date are bounded by the most recently approved SONGS 1 Decommissioning Cost Estimate, the Utilities' conduct will be presumed reasonable. Any entity claiming the Utilities acted unreasonably would, therefore, bear the burden of proving the Utilities acted unreasonably. The Utilities will be responsible for proving that material variances from the most recently approved SONGS 1 Decommissioning Cost Estimate are reasonable."[18]

Phase I of the SONGS 1 Decommissioning work ended in 2008. In the 2009 NDCTP, in D.10-07-047, the CPUC set forth the reasonableness standard for SONGS 1 decommissioning expenses in Phases II and III as follows:

> [W]e define reasonableness for decommissioning expenditures consistent with prior Commission findings; i.e., that the reasonableness of a particular management action depends on what the utility knew or should have known at the time that the managerial decision was made.[19]

In the following section, SCE demonstrates that the $14.9 million (100% share, 2011$) incurred for SONGS 1 Decommissioning Work between January 1, 2009 and December 31, 2012 was reasonable.

Table III-1, below, presents a summary of the costs incurred for SONGS 1 Decommissioning Work completed between January 1, 2009 and December 31, 2012:

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[18] The Commission confirmed the reasonableness standard in its most recent Final Order in the 2005 NDCTP Proceeding: "with respect to Phase 1 SONGS 1 decommissioning work, the Commission in D.99-06-007 adopted a ratemaking settlement that included a presumption that the Utilities' conduct is reasonable in performing Phase 1 SONGS 1 decommissioning work if the scope of the work completed and the most recently approved SONGS 1 decommissioning cost estimate bound the costs incurred." D. 07-01-003, Standards of Review, (*mimeo*) pp. 7-8, *citing* Settlement § 4.2.2.2.c. at 86 C.P.U.C. 2d 604, 620 (1999).

[19] D.10-07-047, p. 45.

Table III-1
Reconciliation Of Costs For Work Complete
Between January 1, 2009 And December 31, 2012
To The 2009 Decommissioning Cost Estimate
(100% Share, Thousands of 2011$)

Line No.	Activity Cost Category	Actual Costs for Work Completed between January 1, 2009 and December 31, 2012
1.	Phase I Close-out Activities (2009)	$11,187
2.	Ongoing Decommissioning Activities (2009-2012)	$3,717
3.	TOTAL	$14,904

A. Description Of SONGS 1 Decommissioning Work Completed Between July 1, 2009 And December 31, 2012

1. Phase I Close-out Activities

Upon completion of Phase I activities on December 31, 2008, SCE was required to demobilize the equipment and temporary structures that remained in use at the end of the project. SCE was required to perform radiological surveys of all equipment, tools and other assets before they could be released from the SONGS 1 site. Non-contaminated rental equipment was returned to the vendors. Non-contaminated equipment or tools were salvaged. Remaining lumber was surveyed. Contaminated pieces were cut to fit into shipping containers and transported to a licensed disposal facility. Contaminated rental equipment was purchased from vendors at its remaining book value, and then dismantled, packaged and shipped to a licensed disposal facility. Other contaminated equipment was salvaged or sold to NRC-licensed facilities. This equipment was packaged according to corresponding NRC and DOT standards, and shipped by licensed transporters. Temporary structures used to support the SONGS 1 decommissioning project were surveyed, and then disposed of appropriately or cleaned out and salvaged.

The completion of Phase I activities also necessitated returning the SONGS 1 site to a condition that would be sustainable for the ongoing operations of SONGS 2 & 3, the safe storage of spent nuclear fuel in the ISFSI, the future decommissioning of SONGS 2 & 3, and the completion of the remaining

decommissioning work for SONGS 1. The excavation and removal of many of the SONGS 1 structures and subsequent soil remediation required SCE to install temporary utilities such as temporary electrical panels, temporary site perimeter lighting, a temporary connection to the site-wide paging system, temporary service water piping, temporary service air lines, and a temporary fire water main. Many of these temporary utilities were either attached directly to the SONGS 1 seawall or buried immediately adjacent to it. SCE, therefore, constructed a utility trench along the west side of the SONGS 1 site in which to restore each of these utilities to a permanent configuration that would support long-term plant operations, and not interfere with access to or maintenance of the SONGS 1 seawall. In addition, SCE refurbished the SONGS 1 seawall to prolong its useful life.

SCE also performed a substantial document closeout effort after Phase I decommissioning activities were completed. Project cost and schedule documents were finalized. A Phase II and III Plan was developed to provide guidance for future maintenance and decommissioning activities based on current knowledge of the SONGS 1 site. Radiological survey records were compiled into volumes that will be available to support future termination of the NRC License. Engineering drawings were developed: to detail the "as-left condition" of the SONGS 1 site, including three-dimensional CAD drawings of the deep foundations and other remaining site features; to be used as references for future reuse of the site; and to assist with eventual final site restoration activities.

The cost to complete these final Phase I close-out activities was $11.2 million (100% share, 2011$).

2. <u>Ongoing Decommissioning Activities</u>

In addition to the Phase I close-out activities that were completed in early 2009, SCE incurred additional costs for ongoing SONGS 1 decommissioning activities during 2009-2012. These ongoing expenses included items such as ISFSI monitoring and maintenance, annual NRC fees, insurance and maintenance of the SONGS 1 RPV package. SCE was also required to install 14 wells on the SONGS 1 site to monitor the groundwater for tritium, as required under the Nuclear Energy Institute (NEI) Groundwater Protection Initiative. SCE performed these activities during the 2009-2012 period at a cost of $3.7 million (100% share, 2011$).

IV.

SONGS 1 DECOMMISSIONING REMAINING WORK SCOPE

A. SONGS 1 Decommissioning Cost Estimating Methodology

1. Identification of SONGS 1 "As-Left" Condition and Remaining Work Scope

The remaining work scope for SONGS 1 decommissioning consists of Phase II and Phase III. Phase II commenced on January 1, 2009, upon the completion of Phase I. In Phase II, SCE will continue to monitor and provide security for the SONGS 1 spent fuel in the ISFSI. Phase II will end after the DOE removes all SONGS 1 spent fuel from the site. SCE currently assumes this will occur by 2036 based on studies developed from the DOE Acceptance Priority Ranking & Annual Capacity Report (DOE/RW-0567), dated July 2004.[20] SCE's studies are based on an assumption that the DOE will open its permanent repository in 2024. SCE is also investigating the possibility that it may be able to complete disposal of the SONGS 1 reactor pressure vessel as soon as practicable.

Phase III of SONGS 1 decommissioning will occur concurrently with Phase III of SONGS 2 & 3 decommissioning. In Phase III, SCE will: (1) dismantle and dispose of the ISFSI; (2) dispose of the remaining SONGS 1 below-grade materials and structural foundations; (3) submit a license termination plan to the NRC and terminate the NRC license; and (4) complete the final site restoration work. The updated SONGS 1 Decommissioning Cost Estimate assumes that Phase III will commence after the DOE has removed all SONGS 2 & 3 spent fuel from the site, which is currently estimated to occur in 2053.[21] The estimate also assumes SCE will complete Phase III within two years of the removal of all SONGS spent fuel from the SONGS site.

2. Forecast of Low-Level Radioactive Waste (LLRW) Disposal Costs

In D.07-01-003, Ordering Paragraph No. 7, the Commission ordered that "Edison, SDG&E, and PG&E shall serve testimony in their next triennial review of nuclear decommissioning trusts and related

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[20] *See* Footnote 18.

[21] As explained on page 3 of Exhibit No. SCE-2 in this filing, SCE projects, based on the DOE Acceptance Priority Ranking & Annual Capacity Report (DOE/RW-0567), dated July 2004, that the DOE would remove the SONGS 2 & 3 spent fuel by 2053.

decommissioning activities that demonstrates that they have made all reasonable efforts to conservatively forecast the cost of low level radioactive waste storage."

In 2008, SCE -- acting for itself and as agent for SDG&E -- and PG&E, jointly retained a consultant to perform an objective analysis of representative LLRW disposal rates available throughout the industry, and to develop a projected rate for use in this proceeding.

Consistent with knowledge already possessed by the Utilities, the consultant confirmed that the disposal facilities have complex rate structures for different types of LLRW based on an array of factors, such as the types and densities of waste materials, the differences in packaging configurations, and the radioactivity content. In addition, the disposal facilities have varied pricing levels for similar types of LLRW based on specific contractual arrangements with different customers. Through the use of non-disclosure agreements, the consultant was able to review the rate schedules and terms of numerous different contracts with LLRW disposal facilities, and identify representative LLRW disposal rates for each facility. The consultant then evaluated the probability that each of the disposal facilities, and their corresponding rates, would be accessible to LLRW generators from California when their decommissioning projects are scheduled to begin. On the basis of this analysis, the consultant proposed a composite LLRW disposal rate.

When the Utilities reviewed the composite LLRW disposal rate initially proposed by the consultant, it became apparent that it is no longer appropriate to use a single composite LLRW disposal rate. This is because each decommissioning project has different ratios of waste in the various LLRW disposal cost categories. To mitigate this situation, the consultant developed distinct disposal rates for two general categories of Class A LLRW, as well as distinct rates for Class B LLRW and Class C LLRW based on the published rates at the Chem-Nuclear disposal facility at Barnwell, South Carolina (Barnwell). This allowed the cost estimators to apply the appropriate disposal rates to the corresponding quantities of materials in each LLRW cost category.

Each LLRW disposal rate contained in the consultant's study consists of a base disposal rate and a Southwestern LLRW Disposal Compact Export Fee. The two Class A LLRW disposal rates also include a Utah State tax.

On July 1, 2008, access to the Barnwell facility for LLRW generators from non-Atlantic Compact states was terminated. Subsequent to the development of the Utilities' joint LLRW disposal cost study for the 2009 NDCTP, however, a new LLRW disposal facility in Andrews County, Texas -- operated by Waste Control Specialists, LLC, (WCS Texas) -- obtained permits from the Texas Commission on Environmental Quality (TCEQ) to accept Class A, B, and C LLRW from states both within and outside the Texas Compact. Because the Class A LLRW disposal rates in the joint LLRW disposal cost study are lower than the WCS Texas rates, the Utilities have continued to use them, escalated to 2011 dollars, for their 2012 decommissioning cost estimates. Because the Utilities now have access to the WCS Texas facility for their Class B and C LLRW, however, they have replaced the Barnwell rates with the WCS Texas rates, as shown in Table IV-2 below:

Table IV-2
Low Level Radioactive Waste Disposal Costs
(per cubic foot, 2011$)

	Base Rate	SW Compact Export Fee	Utah Tax	Disposal Rate
Class A Bulk (e.g., Crushed Concrete Rubble, Scrap Metal)	$70.00	$1.50	5%	$75.00
Class A General (e.g., Containerized Waste, High Density/Oversized Packages, Large Components)	$270.00	$1.50	12%	$304.00
Class B (WCS Texas)	$6,998.50	$1.50	N/A	$7,000.00
Class C (WCS Texas)	$6,998.50	$1.50	N/A	$7,000.00

3. Appropriateness and Conservatism of Contingency Factor

In D.07-01-003, Ordering Paragraph No. 8, the Commission ordered that "Edison, SDG&E, and PG&E shall serve testimony in their next triennial review of nuclear decommissioning trusts and related decommissioning activities that demonstrates that they have made all reasonable efforts to conservatively establish an appropriate contingency factor for inclusion in the decommissioning revenue requirements."

"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 to estimates and actual costs has shown that unforeseeable events which will increase costs are likely to occur."

SCE researched cost engineering industry literature to identify accepted practices for applying contingency to construction projects in varying stages of planning. The consensus among all sources is that the contingency factor applied to any cost estimate should reflect several factors, including but not limited to the then-current planning status of the estimate, the complexity of the project, and the extent to which environmental restoration is included in the work scope.[22] The contingency factor should also reflect the nearness or remoteness of the project start date.

SCE has applied many lessons learned from Phase I of the SONGS 1 Decommissioning Project to its 2012 SONGS 1 Decommissioning Cost Study, 2012 SONGS 2 & 3 Decommissioning Cost Estimate, and 2012 Palo Verde Decommissioning Cost Estimate. Nevertheless, these estimates remain conceptual estimates. No detailed engineering studies for these work scopes have been performed. No procurement activities have commenced and no contracts have been signed. Moreover, whereas SCE has gained first-hand experience in many decommissioning activities, some activities in the future work scopes -- such as reactor vessel segmentation, packaging, shipping, and disposal -- have not yet been performed anywhere in the industry. Therefore, SCE has only been able to include allowances for those work scopes in their cost estimates. In addition, no nuclear facility has been required to perform environmental restoration work to the extent that SCE may be required to cleanup the SONGS site in order to terminate its easement-lease with the U.S. Department of the Navy. And, none of these decommissioning activities will commence until more than a decade into the future. The planning for these estimates, therefore, currently does not meet the threshold of a "Detailed Estimate" as defined in the industry literature.

The planning status in the literature that precedes a "Detailed Estimate" is "Budget, Authorization, or Control," or a "Preliminary Estimate."[23] The consensus in the industry literature -- including sources from the U.S. Department of Energy (DOE),[24] the Association for the Advancement

[22] *See* Chapter 11 of U.S. Department of Energy (DOE) Decommissioning Implementation Guide DOE, G 430.1-1, March 28, 1997.

[23] Stanford Institute of Economic Policy Research, SIEPR Discussion Paper No. 04-05, "Cost Contingency as a Standard Deviation of the Cost Estimate for Cost Engineering," dated February 9, 2004. *See* Table 1, at p. 1.

[24] *Id.*, p. 11-3.

of Cost Engineering International (AACEI),[25] and the Electric Power Research Institute[26] -- is that an appropriate contingency factor for cost estimates in this stage of development should fall within a range of 15% to 30%. When the work scope requires environmental restoration activities, the contingency factor is generally increased.[27]

In addition, PG&E identified several other documents, including several documents originating from the U.S. Nuclear Regulatory Commission (NRC), that specifically identify 25% as an appropriate contingency factor for nuclear plant decommissioning cost estimates. PG&E compiled and summarized these documents in a document titled *Technical Position Paper for Establishing an Appropriate Contingency Factor for Inclusion in the Decommissioning Revenue Requirements*, dated February 2008. In summary, each of the industry and regulatory documents cited in this technical position paper concluded that it is appropriate to add a contingency factor of 25% to the sum of all estimated decommissioning costs because the 25% contingency factor provides reasonable assurance for unforeseen circumstances that could increase decommissioning costs, and should not be reduced or eliminated simply because foreseeable costs are low.[28]

For all of these reasons, SCE believes that a contingency factor of 25%, applied to all estimated decommissioning costs including LLRW disposal costs, is both conservative and appropriate for use in each of its decommissioning cost estimates in this proceeding.

B. Cost Estimate For Remaining SONGS 1 Decommissioning Work

Table IV-3 provides a summary of the estimated costs for the SONGS 1 Decommissioning Remaining Work as of January 1, 2013.

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[25] *See* Association for the Advancement of Cost Engineering International (AACE) Recommended Practice No. 18R-97, at p. 2 of 9.

[26] *See* Footnote 26.

[27] *See* Footnote 27, pp. 11-7 through 11-9.

[28] *Id.*, at p. 5 of 12.

Table IV-3
Cost Estimate for Remaining SONGS 1 Decommissioning
(100% Share, 2011$)

Line No.	San Onofre Nuclear Generating Station Unit 1	2012 Estimate (100% Share, 2011$ x 1,000)
1.	Phase II Costs	
A.	Spent Nuclear Fuel Security and Maintenance	$2.9
B.	Offshore Conduits Disposition	$12.0
C.	Reactor Pressure Vessel Segmentation	$39.1
D.	Reactor Pressure Vessel Maintenance, Shipment, and Disposal	$49.8
E.	Move SONGS 1 Spent Fuel from ISFSI to DOE Transporter	$2.9
2.	Phase III Costs	
A.	ISFSI Demolition and Disposal	$4.5
B.	Miscellaneous Structures Removal and Disposal	$5.0
C.	Foundation Removal and Waste Disposal, Backfill, and Compaction	$12.1
D.	NRC License Termination and Final Site Restoration	$54.0
3.	TOTAL	$182.3

A brief discussion of these major cost categories is provided below.

1. Phase II Costs

a) Spent Nuclear Fuel Security and Maintenance

SCE currently projects that the DOE will remove the last SONGS 1 spent fuel and GTCC waste from the ISFSI in 2036. Federal regulations require SCE to provide physical protection for the spent fuel.[29] This includes maintaining the physical security barriers around the spent fuel, continually monitoring the ISFSI from centralized control room, and performing periodic physical inspections of the AHSMs and security systems.

Since the ISFSI also contains spent fuel from SONGS 2 & 3, and fuel from those units will continue to be placed in the ISFSI each year, SONGS 1 will be responsible only for its pro rata share of ISFSI security and maintenance costs.

b) Offshore Conduits Disposition

In October 2005, the California State Lands Commission approved an amendment to the Easement/Lease Agreement for the SONGS 1 offshore cooling water intake and discharge conduits.

[29] The NRC License for the SONGS ISFSI was issued under the General License provisions of 10 C.F.R. § 72.210. The 10 C.F.R. § 72.212(b)(5) physical protection requirements are applicable to the SONGS ISFSI.

This amendment superseded the requirement to excavate and remove the conduits with a requirement to remove only the vertical portions of the conduit structures that penetrate above the ocean floor. This revised requirement was deemed to be the environmentally preferred disposition alternative.

Shortly before commencing the SONGS 1 offshore conduits disposition work in 2006, the U.S. Navy Department requested SCE to delay the work to allow time for Camp Pendleton to evaluate the possible re-use of one or both conduits. The Navy recently notified SCE that its possible disposition of the SONGS 1 conduits would not interfere with the Navy's possible re-use of the conduits. SCE, therefore, is planning to proceed with the conduits disposition work in 2013. SCE will retain a specialty contractor to remove the vertical terminal structures located at the end of each conduit at the first joint below the sea floor, and to install "mammal barriers" over the remaining openings. This will allow the conduits to infill with sea floor material. In addition, the contractor will locate the nine manhole risers that are located at 500-foot intervals along the conduits (i.e., five on the intake conduit and four on the discharge conduit), temporarily excavate around the manholes down to the tops of the conduits, cut off the risers flush with the conduits and remove the manhole covers, and then install "mammal barriers" over the resulting openings to allow the conduits to infill.

c) Reactor Pressure Vessel Segmentation

The SONGS 1 RPV package, which contains both the RPV and many of the segmented pieces of the RPV's internal components, is grouted and sealed inside a large shipping container and is awaiting shipment to a disposal facility that is licensed to accept Class C LLRW. Due to the logistical challenges associated with shipping such a large, heavy package, SCE believes it will be necessary for SCE to cut or "segment" the RPV package into several smaller, lighter pieces to allow transportation to the disposal site. SCE currently projects that it would perform the segmentation of the SONGS 1 RPV package concurrently with the segmentation of the SONGS 2 & 3 RPVs.

Segmentation of a Class C RPV package similar to the SONGS 1 RPV package has never before been attempted in the nuclear industry. A detailed radiological characterization study of the SONGS 1 RPV package has not yet been performed, and a detailed segmentation plan has not been engineered. Although SCE anticipates that the radioactivity concentration in the RPV package will have decayed

sufficiently to allow segmentation with reduced radiological doses to the workers (than would have been experienced if this activity had been performed during Phase I of the Decommissioning Project), SCE has not yet confirmed that hypothesis. Because the costs to segment the SONGS 1 RPV Package remain uncertain, SCE has included an allowance for segmentation costs in the SONGS 1 decommissioning cost estimate.

As discussed above, a new LLRW disposal facility that is licensed to accept Class B and C LLRW has become available to SCE. SCE, therefore, is now exploring the possibility of shipping the SONGS 1 RPV to this facility, which is operated by WCS Texas. If possible, SCE will ship the SONGS 1 RPV package intact as soon as practicable. Until SCE successfully completes the shipment of the SONGS 1 RPV to the WCS Texas facility, SCE will continue to include the allowance for SONGS 1 RPV Segmentation in the SONGS 1 decommissioning cost estimate.

d) Reactor Pressure Vessel Maintenance, Shipment, and Disposal

The SONGS 1 RPV package will remain on the pad in the northeast corner of the SONGS 1 site until it is either shipped intact to a licensed disposal facility or segmented in anticipation of shipment. Until the RPV package is shipped offsite, the RPV will require occasional ongoing maintenance, including radiological surveys and painting. A small share of the security costs for the SONGS 1 site will also be attributed to the RPV.

If the RPV is segmented into pieces capable of being shipped within the existing transportation infrastructure constraints, the RPV segments will be packaged, loaded onto a transportation device, and shipped to a disposal site for LLRW Class C waste. SCE has not performed a detailed engineering study for packaging, loading, and shipping the RPV segments. SCE also has no authoritative disposal rate for the RPV segments. SCE received a fixed price bid from the WCS Texas facility for disposal of the SONGS 1 RPV package. SCE based the estimated disposal cost for the SONGS 1 RPV package upon that bid price. SCE also included estimated costs for RPV maintenance, and an allowance for RPV shipping costs based in part on SCE's experiences shipping the other SONGS 1 large components and the SONGS 2 & 3 original steam generators.

e) Move SONGS 1 Fuel from ISFSI to DOE Transporter

Under the Standard Contract with the DOE, the DOE will take title to the SONGS 1 spent fuel and Greater Than Class C (GTCC) waste after it is placed on their transportation device.[30] Therefore, SCE is required to incur the cost of transferring the canisters from the ISFSI to the DOE transporter. SCE is able to project the cost to move the 17 SONGS 1 spent fuel canisters and the one SONGS 1 GTCC canister based on the costs previously incurred to transfer the canisters from the SONGS spent fuel pools to the ISFSI.

2. Phase III Costs

a) ISFSI Demolition and Disposal

SCE currently projects that the DOE will remove the SONGS 1 spent fuel from the ISFSI in 2036. However, due to the DOE's fuel acceptance constraints and priority ranking schedule, SCE projects that spent fuel from SONGS 2 & 3 will remain in the ISFSI until 2053. After the DOE removes the last SONGS 2 & 3 spent fuel from the ISFSI, SCE will demolish and dispose of the ISFSI. The ISFSI demolition and disposal costs will be apportioned between SONGS 1 and SONGS 2 & 3 decommissioning funds, based on a weighted average of the quantity of spent fuel from each unit that was stored in the ISFSI throughout its useful life.

b) Miscellaneous Structure Removal and Disposal

After the ISFSI is demolished, SCE will excavate, remove, package, ship and dispose of all remaining storm drains within the SONGS 1 Industrial Area. Based on the removal of other SONGS 1 storm drains during Phase I, 100% of these storm drains are assumed to require disposal at a licensed facility. In addition, SCE will excavate and remove the electrical duct bank that is located beneath the ISFSI. This work scope also includes the removal and disposal of all other systems, structures and

[30] U.S. DOE Contract for Disposal of Spent Nuclear Fuel and/or High Level Radioactive Waste Between U.S. DOE and Southern California Edison Company (Standard Contract), dated June 10, 1983, at p. 3, paragraph 7 (defining "delivery" as "the transfer of custody, f.o.b. carrier, of spent nuclear fuel or high level radioactive waste from Purchaser to DOE at Purchaser's civilian nuclear power reactor or such other domestic site as may be designated by the Purchaser and approved by DOE."). Note that the Standard Contract does not explicitly identify its obligation to take title to GTCC, which is not, by definition, high level radioactive waste. However, the DOE has separately acknowledged that it is obligated to remove and dispose of the GTCC waste.

features installed above or below ground, including the SONGS 1 seawall and all asphalt installed on the SONGS 1 site. Ten percent (10%) of the below-grade improvements, excluding the storm drains, are also assumed to require disposal at a licensed facility. SCE will also perform comprehensive radiological surveys for the southeast quadrant of the SONGS 1 Industrial Area, which was not surveyed during Phase I due to ongoing use of that area. After excavation of below-grade improvements, Health Physics will survey and release all excavation areas, and then perform final status surveys as required for termination of the NRC License.

c) Deep Foundation Removal, Disposal, Backfill, and Compaction

After all near-surface below-grade improvements are removed, SCE will install dewatering pumps as required to prepare the site for excavation of the remaining deep foundations. These primarily include the Containment foundation below Elevation 8' 6", and the Intake Structure culverts and foundations below Elevation 8'6".

The Containment foundation includes the three-foot thick concrete saddle that the Containment sphere rested upon. During Phase I, SCE filled the saddle with low density grout up to Elevation 7', and then placed an 18-inch concrete cap between Elevation 7' and Elevation 8' 6". All of this material is assumed to be non-contaminated. During Phase I, SCE also filled the voids within the Intake Structure culverts and foundations below Elevation 8' 6" with low density grout. SCE will excavate and remove all of this material, which extends from beneath the former location of the Turbine Building as far west as the sea wall. Ten percent (10%) of this material is assumed to be contaminated. The structures west of the sea wall will be abandoned in place consistent with the amended CA State Lands Commission easement-lease agreement. All excavated areas will be surveyed and released by Health Physics, and then backfilled to grade and compacted.

d) NRC License Termination and Final Site Restoration

SCE will be required to demonstrate that the SONGS 1 site is free from residual radioactivity above the threshold specified in 10 C.F.R. § 20.1402 in order to terminate the NRC License. Therefore, SCE will perform a final status survey of the SONGS 1 site and remove of any remaining radioactive materials as required to terminate NRC License. Following termination of the NRC License, SCE will

remove any remaining site improvements and perform any other tasks required to meet specifications of the U.S. Department of the Navy in order to terminate the site easement-lease agreements.

C. Cost Estimate For Remaining SONGS 1 Decommissioning Work Under SONGS 2 & 3 License Renewal Scenario

In D.10-07-047 Ordering Paragraph No. 8, the Commission ordered the Utilities to provide contribution estimates that assume successful completion of license renewal for SONGS 2 & 3.[31] Accordingly, the Utilities developed an alternate SONGS 1 decommissioning cost estimate for this scenario. SCE projects that in the alternate case, the DOE will remove the last SONGS 1 spent fuel from the ISFSI in 2056. Due to the assumed additional 20 years of SONGS 2 & 3 operations and accumulation of spent fuel, as well as the DOE's fuel acceptance constraints and priority ranking schedule, SCE projects that spent fuel from SONGS 2 & 3 would remain in the ISFSI until 2068. In the alternate case, therefore, Phase III of SONGS 1 decommissioning would commence concurrently with Phase III of SONGS 2 & 3 decommissioning in 2069. The estimated cost to complete the remaining SONGS 1 decommissioning work scope under SONGS 2 & 3 License Renewal scenario is $185.3 million (100% share, 2011$).

D. Pro-rata Shares of the Utilities' Decommissioning Funds Accumulated to Meet NRC License Termination Requirements for SONGS 2 & 3

In D.10-07-047, Ordering Paragraph No. 9, the Commission issued the following order:

> In the next Nuclear Decommissioning Cost Triennial Proceeding, Southern California Edison Company, San Diego Gas & Electric Company, and Pacific Gas and Electric Company shall report the pro rata share of funds accumulated for Nuclear Regulatory Commission License termination (radiological decommissioning to meet the Nuclear Regulatory Commission standard for license termination) and provide copies of their most recent funding assurance letters (pursuant to 10 C.F.R. § 50.75) sent to the Nuclear Regulatory Commission.[32]

SCE submits decommissioning funding assurance letters to the NRC pursuant to 10 C.F.R. § 50.75(f)(1) on behalf of itself and SDG&E on an annual basis. SCE submitted its most recent

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[31] D.10-07-047, at 61.

[32] *Id.*, at 61-62.

decommissioning funding assurance letter for SONGS 1 on March 29, 2012. A copy of that letter is provided as Appendix C to this testimony.

It should be noted that as SCE's 2009 SONGS 1 decommissioning cost estimate was the last one to be adopted by the Commission. SCE's March 2013 decommissioning funding assurance letter will be based on that estimate, not on SCE's 2012 SONGS 1 decommissioning cost estimate that is being submitted in this proceeding because the updated 2012 estimate will still be pending before the Commission on the March 2013 filing date.

Appendix A

Witness Qualifications

SOUTHERN CALIFORNIA EDISON COMPANY

QUALIFICATIONS AND PREPARED TESTIMONY

QUALIFICATIONS OF THOMAS J. PALMISANO

Q. Please state your name and business address for the record.

A. My name is Thomas J. Palmisano, and my business address is 5000 South Pacific Coast Highway, San Clemente, California 92674-0128.

Q. Briefly describe your present responsibilities at the Southern California Edison Company.

A. I serve as the Vice President of Engineering, Projects, and Site Support at the San Onofre Nuclear Generating Station.

Q. Briefly describe your educational and professional background.

A. Prior to joining SCE, I served as vice president of Nuclear Oversight for Entergy Nuclear located in Mississippi. I have also held leadership roles as site vice president for Prairie Island Nuclear Generating Plant and Cooper Nuclear Station. I have also served as site vice president, general plant manager, operations manager, and systems engineering manager at Palisades Nuclear Plant. I began my career by serving as an officer in the U.S. Navy Nuclear Propulsion Program. I hold an MBA from Saginaw Valley State University, and a bachelor's degree in electrical engineering from Ohio Northern University.

Q. What is the purpose of your testimony in this proceeding?

A. The purpose of my testimony in this proceeding is to sponsor the Policy testimony in Exhibit SCE-1 "*Testimony On SONGS 1 Decommissioning Work Completed And Remaining Work Scope"* as identified in the Table of Contents above.

Q. Was this material prepared by you or under your supervision?

A. Yes, it was.

Q. Insofar as this material is factual in nature, do you believe it to be correct?

A. Yes, I do.

Q. Insofar as this material is in the nature of opinion or judgment, does it represent your best judgment?

A. Yes, it does.

Q. Does this conclude your qualifications and prepared testimony?

A. Yes, it does.

SOUTHERN CALIFORNIA EDISON COMPANY

QUALIFICATIONS AND PREPARED TESTIMONY

QUALIFICATIONS OF DAVID H. OPITZ

Q. Please state your name and business address for the record.

A. My name is David H. Opitz and my business address is 5000 South Pacific Coast Highway, San Clemente, California 92674-0128.

Q. Briefly describe your present responsibilities at the Southern California Edison Company.

A. I serve as the Manager of Capital Finance at the San Onofre Nuclear Generating Station.

Q. Briefly describe your educational and professional background.

A. During my 24 year tenure with SCE I have served as Project Management and Development Manager, Project Controls Manager for the Unit 1 Decommissioning, and Units 2 and 3 Steam Generator Replacement Projects, as well as an Outage Manager. I have also held leadership roles as Vice President of Development Operations for Spectrasite Communications. I began my career working for multiple Architectural Engineering and Construction Management firms specializing in utility and heavy industrial projects. I hold a MBA from Pepperdine University, and a bachelor's degree in civil engineering from the Pennsylvania State University.

Q. What is the purpose of your testimony in this proceeding?

A. The purpose of my testimony in this proceeding is to sponsor the non-Policy testimony in Exhibit SCE-1 "*Testimony On SONGS 1 Decommissioning Work Completed And Remaining Work Scope"* as identified in the Table of Contents above.

Q. Was this material prepared by you or under your supervision?

A. Yes, it was.

Q. Insofar as this material is factual in nature, do you believe it to be correct?

A. Yes, I do.

Q. Insofar as this material is in the nature of opinion or judgment, does it represent your best judgment?

A. Yes, it does.

Q. Does this conclude your qualifications and prepared testimony?

A. Yes, it does.

Appendix B

Definitions

DEFINITIONS

1. **Clean Material:** Material that is not classified as LLRW, GTCC Radioactive Waste, or Spent Fuel.
2. **Commercial Disposal Methods:** Demolition debris from the SONGS 1 Decommissioning Project may be salvaged, recycled, or shipped to a local landfill, or transferred to a demolition contractor that incurs the cost of removal from the SONGS site.
3. **Commission:** The California Public Utilities Commission
4. **CPUC:** The California Public Utilities Commission
5. **Decommissioning Trust Funds:** Those externally managed, segregated funds collected from customers to pay the costs of decontamination and decommissioning of the Utilities' nuclear generating units.
6. **Department of Energy (DOE):** A department of the United States federal government charged with regulating, among other things, the ultimate disposal of spent nuclear fuel and GTCC radioactive waste generated by the civilian nuclear industry.
7. **Greater Than Class C (GTCC) Waste:** Waste with greater radioactivity content than the 10 C.F.R. § 61.55 federal limits allow to be classified as Class C Low-Level Radioactive Waste.
8. **Independent Spent Fuel Storage Installation (ISFSI):** An on-site, seismically designed, federally licensed facility constructed to store spent nuclear fuel and associated radioactive materials until they are removed from the site by the U.S. Department of Energy. An ISFSI employs passive convective cooling in lieu of plant systems required for spent fuel pool operation.
9. **Interim Disbursements:** Withdrawals from the decommissioning trusts that are used to pay decommissioning costs prior to the Final Disbursements. Interim Disbursements are currently limited to 90% of the forecast decommissioning costs approved by the CPUC. Final Disbursements are withdrawals of funds exceeding 90% of the forecast

decommissioning costs approved by the CPUC. See Sections 2.01(5) and 2.01(6) of SCE's SONGS Decommissioning MTA's.

10. **Large Components:** The SONGS 1 large components include the reactor pressure vessel, three steam generators, and pressurizer. They contain varying amounts of radioactive contamination. The SONGS 1 reactor pressure vessel is 31 feet in length, 15 feet in diameter, and weighs 321 tons. The reactor pressure vessel head is 15 feet in diameter, 8 feet in length, and weighs 66 tons. Each steam generator is 45 feet in length, 13 feet in diameter, and weighs 209 tons, and the pressurizer is 43 feet in length, 8 feet in diameter, and weighs 105 tons.

11. **Low-Level Radioactive Waste (LLRW):** Materials containing concentrations of radionuclides or potential doses within the federal limits for shallow land or near surface burial at federally licensed LLRW disposal facilities.

12. **MCBCP:** Marine Corps Base Camp Pendleton.

13. **NDCTP:** Nuclear Decommissioning Cost Triennial Proceeding

14. **NRC:** Nuclear Regulatory Commission.

15. **Reactor Vessel Internals:** Internal non-spent fuel components of a reactor pressure vessel.

16. **Remaining Work:** A decontamination and dismantling activity is Remaining Work if: (1) the activity has not commenced or been completed in its entirety, and (2) the activity has not eliminated a specifically identifiable decommissioning liability. Decommissioning liability is eliminated when material is removed from the SONGS 1 site. For the ISFSI, Remaining Work is monitoring the fuel until it is removed from the SONGS site by the DOE and decommissioning the ISFSI.

17. **Safety Analysis Report:** A report submitted by a nuclear facility licensee that provides information needed by the NRC staff to perform a safety review of a design or activity associated with the licensed nuclear facility.

18. **Safety Evaluation Report:** The report prepared by the NRC to present findings and recommendations relating to the acceptability of the applicant's Safety Analysis Report. The

Safety Evaluation Report identifies the bases for those recommendations and the recommended technical specifications.

19. **San Onofre Nuclear Generating Station (SONGS):** A nuclear generating station with two operating units and one shutdown unit located at Camp Pendleton in Southern California.

20. **SCE:** Southern California Edison Company.

21. **SDG&E:** San Diego Gas & Electric Company.

22. **SONGS 1:** A Pressurized Water Reactor (PWR) nuclear generating unit with a gross maximum capacity of 410 Megawatts electric (MWe) that began commercial operation on January 1, 1968. SONGS 1 was permanently shut down on November 30, 1992. SONGS 1 is located at the site in southern California that is common to SONGS 2 & 3.

23. **Spent Fuel:** Nuclear fuel that has been irradiated in a reactor vessel.

Appendix C

2012 U1 Decommissioning Funding Report

SOUTHERN CALIFORNIA
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Richard J. St. Onge
Director, Nuclear Regulatory Affairs and
Emergency Planning

10 CFR 50.75

March 29, 2012

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

Subject: **Docket No. 50-206**
10 CFR 50.75(f)(1) Decommissioning Funding Report
San Onofre Nuclear Generating Station Unit 1

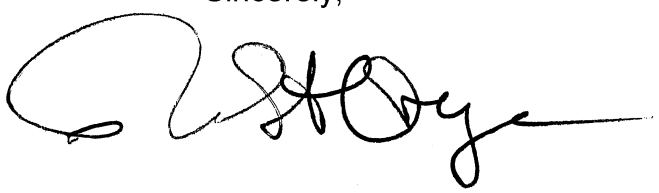
Dear Sir or Madam:

As required by 10 CFR 50.75(f)(1), this letter provides the status of the decommissioning funding for San Onofre Nuclear Generating Station (SONGS) Unit 1 as of December 31, 2011. The required information is provided in the enclosure for Southern California Edison and San Diego Gas & Electric. Based on the requirements in 10 CFR 50.75(f)(1), this information is reported on an annual basis for SONGS Unit 1 since the plant was permanently shut down before the end of its licensed life and is currently being decommissioned.

There are no commitments contained in this letter or its enclosure.

If you have any questions regarding this matter, please contact Ms. Linda T. Conklin at 949-368-9443.

Sincerely,



P.O. Box 128
San Clemente, CA 92672

Enclosure: SONGS Unit 1 2011Decommissioning Funding Status Report

cc: E. E. Collins, Regional Administrator, NRC Region IV
J. E. Whitten, NRC Region IV, San Onofre Unit 1
J. C. Shepherd, NRC Project Manager, San Onofre Unit 1
G. G. Warnick, NRC Senior Resident Inspector, San Onofre Units 2 & 3

Enclosure
San Onofre Nuclear Generating Station
Unit 1
Decommissioning Funding Status
Report - 2011

Enclosure
San Onofre Nuclear Generating Station Unit 1
Decommissioning Funding Status Report - 2011

San Onofre Unit 1 was a pressurized water reactor (PWR) rated at 1347 MWt. Provided below is the information required by 10 CFR 50.75(f)(1) for San Onofre Unit 1. This information is reported every year for San Onofre Unit 1 because it closed before the end of its licensed life and is currently being decommissioned.

The San Onofre Unit 1 owners are reported as follows:

Southern California Edison (SCE)	80 %
San Diego Gas & Electric (SDG&E)	20 %
	100 %

All dollar amounts are reported in 100% share, 2011 dollars.

1) The decommissioning fund estimated to be required pursuant to 10 CFR 50.75(b) and (c) is the following:

   a) The minimum amount calculated by the method prescribed by 10 CFR 50.75(c) is $397.7 million[(1)].

   b) The San Onofre Unit 1 site-specific estimate for decommissioning includes the following radiological decommissioning costs associated with terminating the site license, non-radiological site restoration costs, and spent fuel storage costs:[(2)]

	San Onofre Unit 1
Estimate of Radiological Costs	$ 672.4 million
Less: Actual Radiological Costs through 12/31/2011	$ 496.1 million
"To Go" Radiological Costs	$ 176.3 million
Estimate of Site Restoration Costs	$ 168.3 million
Less: Actual Site Restoration Costs through 12/31/2011	$ 158.0 million
"To Go" Site Restoration Costs	$ 10.3 million
Estimate of Fuel Storage Costs	$ 91.4 million
Less: Actual Fuel Storage Costs through 12/31/2011	$ 80.6 million
"To Go" Fuel Storage Costs	$ 10.8 million
Total "To Go" Costs as of 1/1/2012	$ 197.4 million

2) The Decommissioning Trust Fund amount remaining at the end of calendar year 2011 (net of estimated capital gains taxes) is:

Owner	San Onofre Unit 1
SCE	$ 177.9 million
SDG&E (3)	$ 89.3 million
TOTAL	$ 267.2 million

3) The decommissioning fund for San Onofre Unit 1 is sufficient to provide for the estimated decommissioning costs, and as of June 1999, decommissioning funds are no longer collected.

4) The composite escalation rate for San Onofre Unit 1 Decommissioning is 4.14%.

5) The after-tax composite investment rate of return for the San Onofre Unit 1 Decommissioning is 3.92%. The composite investment rate of return (3.92%) less the composite escalation rate (4.14%) yields a composite real earnings rate less than the 2.0% real rate of return allowed under 10 CFR 50.75(e)(1)(ii).

6) None of the owners of San Onofre Unit 1 are relying on any contracts for the purposes of providing decommissioning funding pursuant to 10 CFR 50.75(e)(1)(v). There have been no modifications to the method of providing financial assurance and no material changes to the trust agreements since the March 29, 2010 Decommissioning Funding Report for San Onofre Unit 1.

Notes: (1) The NRC formulas in 10 CFR 50.75(c) include only those decommissioning costs incurred by licensees to remove a facility or site safely from service and reduce residual radioactivity to levels that permit: (1) release of the property for unrestricted use and termination of the license; or (2) release of the property under restricted conditions and termination of the license. The costs for dismantling or demolishing non-radiological systems and structures, and the costs of managing and storing used fuel onsite until it is transferred to the Department of Energy are not included in the NRC decommissioning cost formulas.

(2) The site-specific decommissioning cost estimate for San Onofre Unit 1 that was provided to the California Public Utilities Commission (CPUC) on April 3, 2009, includes the remaining radiological costs associated with terminating the site license; non-radiological costs which include the costs to excavate and dispose of all remaining structures, appurtenances, and foundations from the onshore site, and to perform site restoration, as required under the current site lease contract(s) with the U.S. Department of the Navy, and to disposition the Unit 1 offshore circulating water conduits as required under the current amendment to the easement-lease granted by the California State Lands Commission, and spent fuel storage costs. The CPUC approved the Unit 1 decommissioning cost estimate on July 29, 2010.

(3) SCE is submitting information with respect to its co-owner, SDG&E. SDG&E is responsible for the completeness and accuracy of their information.

CERTIFICATE OF SERVICE

I hereby certify that, pursuant to the Commission's Rules of Practice and Procedure, I have this day served a true copy of the documents stated below, on all parties identified on the attached service list(s) **A.09-04-007, A.09-04-009**. Service was effected by one or more means indicated below:

- **SCE-1: TESTIMONY ON SONGS 1 DECOMISSIONING WORK COMPLETED AND REMAINING WORK SCOPE**
- **SCE-2: TESTIMONY ON THE NUCLEAR DECOMMISSIONING OF SONGS 2 & 3 AND PALO VERDE**
- **UTILITIES 3: TESTIMONY IN SUPPORT OF 2012 NUCLEAR DECOMMISSIONING COST TRIENNIAL JOINT APPLICATION**

☑ Transmitting the copies via e-mail to all parties who have provided an e-mail address.

☑ Placing the copies in sealed envelopes and causing such envelopes to be delivered by hand or by overnight courier to the offices of the Commissioner(s) or other addressee(s).

Timothy Alan Simon
Commissioner, CPUC
505 Van Ness Avenue
San Francisco, CA
94102

Melanie Darling
ALJ, CPUC
505 Van Ness Avenue
San Francisco, CA
94102

☑ Placing copies in properly addressed sealed envelopes and depositing such copies in the United States mail with first-class postage prepaid to all parties for those listed on the attached non-email list.

☐ Directing Prographics to place the copies in properly addressed sealed envelopes and to deposit such envelopes in the United States mail with first-class postage prepaid to all parties.

Executed this **December 21, 2012** at Rosemead, California.

/s/ Raquel Ippoliti
Raquel Ippoliti
Project Analyst
SOUTHERN CALIFORNIA EDISON COMPANY

2244 Walnut Grove Avenue
Post Office Box 800
Rosemead, California 91770

CPUC Home

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