



March 28, 2017
RC-17-0037

Document Control Desk
U. S. Nuclear Regulatory Commission
Washington, DC 20555

Dear Sir / Madam:

Subject: VIRGIL C. SUMMER NUCLEAR STATION
DOCKET NO. 50-395
OPERATING LICENSE NO. NPF-12
REPORT OF STATUS OF DECOMMISSIONING FUNDING

South Carolina Electric and Gas Company (SCE&G) and the South Carolina Public Service Authority (Santee Cooper) have undivided ownership interests of two-thirds and one-third respectively in the V. C. Summer Nuclear Station (VCSNS). As provided in 10 CFR 50.75(f)(1), SCE&G is required to report to the Nuclear Regulatory Commission (NRC), by March 31, 1999, and every two years thereafter, on the status of its decommissioning funding for its two thirds share of ownership of VCSNS. Santee Cooper discloses the required information relative to its one-third ownership share in a separate submittal.

The following information is submitted pursuant to the requirement of 10 CFR 50.75(f)(1):

The amount of decommissioning funds estimated to be required pursuant to 10 CFR 50.75 (b) and (c);

The amount of decommissioning funds estimated to be required pursuant to 10 CFR 50.75 (b) and (c) for SCE&G's two-thirds ownership of VCSNS is \$286,884,080 (2016 dollars). Please see Attachment I for the calculation of this amount.

The amount accumulated at the end of the calendar year preceding the date of the report;

Note: SCE&G does not maintain separate trusts for funds designated to cover radiological decommissioning costs and funds to cover other decommissioning costs. Of the accumulated funds in the trust, approximately 88.69% are considered to be related to funding costs included in the NRC's definition of decommissioning pursuant to 10 CFR 50.75 (b) and (c), while the remaining 11.31% are considered to be related to other decommissioning costs. The 88.69% is the ratio of the total radiological decommissioning cost estimate in a 1991 site specific cost study prepared for VCSNS to the total amount that served as the basis for collections through electric rates in an electric rate order issued by the Public Service Commission of South Carolina (SCPSC) in 1993. The calculation is as follows:

Site-specific study (1991) estimate of decommissioning costs pursuant to NRC definition (two-thirds portion)	\$118,256,667
Customer collection basis (two-thirds portion)	133,333,333
Percent of costs/collections related to items included in NRC definition of decommissioning	88.69%

As such, 88.69% of the decommissioning fund balance, after-tax collections and program costs are presented in The Financial Assurance Model in Attachment II.

The total trust fund balance at December 31, 2016, was \$177,570,059 after tax. This balance includes cash and the cash surrender values of life insurance policies. Advances of \$54,890,000 from SCE&G to fund premium payments have not been deducted in arriving at this amount.

The portion of the above trust fund balance considered to be related to radiological decommissioning requirements addressed in the NRC's financial assurance formula was \$157,486,885 after tax at December 31, 2016. This balance includes cash and the cash surrender values of life insurance policies. Advances of \$48,681,941 from SCE&G to fund premium payments that are considered to be applicable to this portion of the fund have not been deducted in arriving at the balance. These amounts reflect 88.69% of total balances, as described above.

The portion of the trust fund considered to be related to other decommissioning costs was \$20,083,174 after tax at December 31, 2016. This balance includes cash and the cash surrender values of life insurance policies. As above, advances of \$6,208,059 from SCE&G to fund premium payments that are considered to be applicable to this portion of the fund have not been deducted in arriving at this balance. These amounts reflect 11.31% of total balances, as described above.

SCE&G's use of decommissioning funds does not require prior approval from the SCPSC. Moreover, SCE&G is unaware of any SCPSC requirement prohibiting the Company from using any portion of its decommissioning funds for radiological decommissioning costs. SCE&G will continue to assess the adequacy of annual collections and request rate relief as appropriate based upon results of models incorporating site specific cost study estimates.

A schedule of the annual amounts remaining to be collected;

Please see Attachment II.
The after-tax annual collection amount is currently \$1,991,388, which was based on a 1991 site specific study. Annual amounts collected through rates have not changed since 1993. The after-tax collection amounts shown in the Financial Assurance Model in Attachment II represent 88.69% of the \$1,991,388, or \$1,766,162.

The assumptions used regarding escalation in decommissioning cost, rates of earnings on decommissioning funds, and rates of other factors used in funding projections;

Please see Attachment II.

Any contracts upon which the licensee is relying pursuant to paragraph (e)(1)(v) of this section;

None

Any modifications occurring to a licensee's current method of providing financial assurance since the last submitted report;

None

Any material changes to trust agreements.

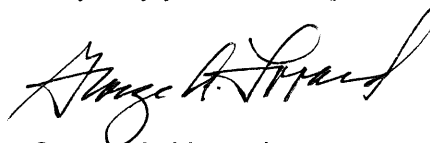
None

Site specific cost estimates for license termination, spent fuel management and site restoration

The most recent site specific decommissioning cost study for VCSNS was completed in 2016. The cost estimates taken from that study (in 2016 dollars) were \$419,425,340 for license termination, \$275,344,000 for spent fuel management and \$44,407,330 for site restoration. These estimates represent SCE&G's two-thirds ownership share of costs estimated for the DECON decommissioning alternative.

If you have any questions, please call Mr. Bruce Thompson at (803) 931-5042.

Very truly yours,



George A. Lippard
Vice President
Nuclear Operations, SCE&G



Kevin R. Kochems
Director
Nuclear Financial Administration, SCE&G

SBR/GAL/KRK/ts
Attachments

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**ATTACHMENT I
 CALCULATION OF AMOUNT OF DECOMMISSIONING
 FUNDS ESTIMATED TO BE REQUIRED
 PURSUANT TO 10 CFR 50.75 (b) AND (c)**

Base Amount for PWR between 1,200 MWt and 3,400 MWt

$$\begin{aligned} \text{1986 Base Cost} &= \$(75 + 0.0088p) \text{ million} \\ &= \$(75 + 0.0088 \times 2900) \text{ million} \\ &= \$100,520,000 \end{aligned}$$

$$\begin{aligned} \text{Estimated Cost (Year X)} &= (\text{1986 \$ Base Cost}) (A L_X + B E_X + C B_X) \\ \text{Estimated Cost 2016} &= (\$100,520,000) ((.65 \times 2.499) + (.13 \times 1.871) + (.22 \times 10.971)) \\ &= (\$100,520,000) (1.624 + 0.243 + 2.414) \\ &= \$430,326,120 \end{aligned}$$

SCE&G's two-thirds ownership share of 2016 Estimated Cost = **\$286,884,080**

Where:

$$\begin{aligned} p &= 2,900 \text{ MWt} \\ A &= .65 \quad (\text{NUREG 1307 Rev. 16}) \\ B &= .13 \quad (\text{NUREG 1307 Rev. 16}) \\ C &= .22 \quad (\text{NUREG 1307 Rev. 16}) \\ L_X &= 2.499 \quad (\text{Computed Below}) \\ E_X &= 1.871 \quad (\text{Computed Below}) \\ P_X &= 1.883 \quad (\text{Computed Below}) \\ F_X &= 1.854 \quad (\text{Computed Below}) \\ B_X &= 10.971 \quad (\text{NUREG 1307 Rev. 16}) \\ \\ L_X &= (1.98)_{\text{Base 2005}} \times (126.2) \text{ ECI} / (100) \\ &= 2.499 \\ \\ P_X &= \text{December 2016 Value} / \text{January 1986 Value} \\ &= 215.0 / 114.2 \\ &= 1.883 \\ \\ F_X &= \text{December 2016 Value} / \text{January 1986 Value} \\ &= 152.0 / 82.0 \\ &= 1.854 \\ \\ E_X &= ((.58P_X) + (.42F_X)) \\ &= ((.58 \times 1.883) + (.42 \times 1.854)) \\ &= (1.092 + 0.779) \\ &= 1.871 \end{aligned}$$

The values for the labor adjustment factor (south region), the energy adjustment factor, and the waste burial adjustment factor (Atlantic Compact, direct disposal with vendors) were taken from NUREG 1307, Revision 16.

ATTACHMENT II
EXPLANATION OF FINANCIAL ASSURANCE
MECHANISM AND AMOUNTS
REMAINING TO BE COLLECTED

Financial Assurance Mechanism

SCE&G and Santee Cooper are joint owners of undivided interests in VCSNS. Under the joint ownership arrangement, SCE&G is the operator of VCSNS and shares the ownership, operating costs and energy output of the plant with Santee Cooper in the proportions of two-thirds and one-third, respectively. Under the plan used by SCE&G to fund its share of the costs of decommissioning VCSNS, funds collected through rates are invested in life insurance policies on key company personnel who, in return for participating in the plan, may receive a two-year salary continuation benefit from SCE&G. SCE&G has established a decommissioning trust fund (trust fund) with U.S. Bank, N.A. as Trustee. SCE&G and the trust fund are beneficiaries of the life insurance policies. Lynch & Associates is the servicing agent for the life insurance policies. Through the purchase of life insurance contracts, SCE&G and the trust fund are able to take advantage of income tax provisions that allow SCE&G to accrue earnings on the life insurance contracts on a tax deferred basis. In a letter dated July 13, 1989, the NRC indicated that the program satisfies the investment criteria of its financial assurance regulations. Further, this funding methodology has been approved by the SCPSC.

Gains and losses related to policy cash surrender values are tax-deferred. Upon the death of the insured, the policy proceeds are remitted tax-free. With regard to general account policies, the trust fund receives the cash surrender value (CSV) and SCE&G receives the death benefit component (minus any CSV paid; plus any interest due from the date of death) in order to recover its term premium and salary continuation payments, if applicable. With regard to separate account policies, SCE&G is currently reinvesting death benefits back into those policies. Designated amounts collected through electric rates, insurance proceeds, and interest on proceeds, less after-tax expenses of the program, are transferred by SCE&G to the trust fund.

As noted earlier in this report, SCE&G does not maintain separate trusts for radiological and non-radiological segments of the decommissioning process. However, based upon rate treatment received in our 1993 electric rate order, 88.69% of after-tax collections (and also 88.69% of the trust fund balances) are considered to relate to items included in the NRC's definition of radiological decommissioning.

In SCE&G's June 1993 electric rate case, the SCPSC approved gross annual collections for decommissioning in the amount of \$3,224,920, based upon cost estimates contained in a 1991 site-specific study. In subsequent rate orders, including a rate order issued in December 2012, the PSC has not changed this amount. SCE&G reassesses the adequacy of annual collections on a periodic basis as site-specific decommissioning cost studies are completed. As noted earlier, \$2,860,181 (88.69% of \$3,224,920) or \$1,766,162 after-tax, is considered to relate to items included in the NRC's definition of radiological decommissioning.

The Financial Assurance Model on the following page incorporates the 2017 beginning trust fund balance (gross of advances) and projections of annual amounts (after tax) collected through electric rates, program costs (after tax), investment earnings, and payments of amounts of decommissioning funds estimated to be required pursuant to 10 CFR 50.75 (b) and (c). Relevant assumptions used in the Financial Assurance Model are discussed on page 3 of 3.

Financial Assurance Model

<i>Year</i>	<i>External Trust, Beginning Balance</i>	<i>Schedule of Annual Collection Amounts, Net of Tax</i>	<i>Program Costs, After Tax</i>	<i>Decommissioning Payments</i>	<i>Investment Earnings</i>	<i>External Trust, Ending Balance</i>
2016						157,486,885
2017	157,486,885	1,766,162	197,971		3,181,102	162,236,178
2018	162,236,178	1,766,162	156,896		3,276,909	167,122,353
2019	167,122,353	1,766,162	156,896		3,374,632	172,106,251
2020	172,106,251	1,766,162	166,481		3,474,119	177,180,051
2021	177,180,051	1,766,162	226,269		3,574,399	182,294,343
2022	182,294,343	1,766,162	156,896		3,678,072	187,581,681
2023	187,581,681	1,766,162	156,896		3,783,819	192,974,766
2024	192,974,766	1,766,162	156,896		3,891,681	198,475,713
2025	198,475,713	1,766,162	201,623		4,000,805	204,041,057
2026	204,041,057	1,766,162	181,541		4,112,514	209,738,192
2027	209,738,192	1,766,162	156,896		4,226,949	215,574,407
2028	215,574,407	1,766,162	156,896		4,343,673	221,527,346
2029	221,527,346	1,766,162	156,896		4,462,732	227,599,344
2030	227,599,344	1,766,162	211,208		4,583,086	233,737,384
2031	233,737,384	1,766,162	181,541		4,706,440	240,028,445
2032	240,028,445	1,766,162	156,896		4,832,754	246,470,465
2033	246,470,465	1,766,162	156,896		4,961,595	253,041,326
2034	253,041,326	1,766,162	201,623		5,092,117	259,697,982
2035	259,697,982	1,766,162	156,896		5,226,145	266,533,393
2036	266,533,393	1,766,162	181,541		5,362,360	273,480,374
2037	273,480,374	1,766,162	156,896		5,501,793	280,591,433
2038	280,591,433	1,766,162	156,896		5,644,014	287,844,713
2039	287,844,713	1,766,162	201,623		5,788,185	295,197,437
2040	295,197,437	1,766,162	156,896		5,936,134	302,742,837
2041	302,742,837	1,766,162	156,896		6,087,042	310,439,145
2042	310,439,145	1,766,162	156,896	13,661,147	5,967,745	304,355,009
2043	304,355,009		156,896	40,983,440	5,264,293	268,478,966
2044	268,478,966		156,896	40,983,440	4,546,773	231,885,403
2045	231,885,403		156,896	40,983,440	3,814,901	194,559,968
2046	194,559,968		156,896	40,983,440	3,068,393	156,488,025
2047	156,488,025		156,896	40,983,440	2,306,954	117,654,643
2048	117,654,643		156,896	40,983,440	1,530,286	78,044,593
2049	78,044,593		156,896	27,322,293	1,011,308	51,576,712
Total	157,486,885	45,920,212	5,560,029	286,884,080	140,613,724	51,576,712

Relevant assumptions used in the model to project decommissioning funds through 2049 are as follows:

- Estimated program costs (after tax) that are paid by SCE&G or the trust include salary continuation payments to beneficiaries of the insured and administrative costs. These costs are shown in the model at 88.69% of total estimated program costs.
- Repayment of advances of \$54,890,000 from SCE&G to fund premium payments have not been reflected in the model. Advances of \$48,681,941, or 88.69%, are considered to be applicable to the fund balance shown in the model.
- The assumed real rate of return on invested funds is 2% based on the provisions of 10 CFR 50.75(e)(1)(ii) which allows "up to a 2 percent annual real rate of return" for licensees that provide decommissioning cost estimates according to the NRC formulas under 10 CFR 50.75(c).
- This 2% earnings credit is taken through the presumed dismantlement period, as allowed for licensees that use the NRC formula under 10 CFR 50.75(c) to derive decommissioning cost estimates.
- Amounts totaling \$286,884,080 in 2016 dollars estimated to be required pursuant to 10 CFR 50.75 (b) and (c) based upon the DECON method are expended evenly over the dismantlement period 2042-2049.

It should be noted that the above does not consider the effects of presumed income tax deductibility of decommissioning payments in the years in which such payments are made. Additionally, the above Financial Assurance Model incorporates the NRC formula-based cost estimates and the DECON (immediate decommissioning) methodology. In contrast, SCE&G currently intends to utilize a deferred decommissioning (SAFSTOR) methodology. Under the SAFSTOR methodology, the site will be placed and maintained for an extended period in a condition that allows for subsequent decontamination to levels that permit release for unrestricted use in 2104.

As noted earlier, SCE&G will continue to assess the adequacy of annual collections and request rate relief as appropriate, based upon results of models incorporating site specific study cost estimates and a SAFSTOR method of decommissioning.

Lastly, similar to that filed and accepted in connection with our 2014 report of status, we have enclosed current certificates of insurance evidencing our coverage for premature decontamination and decommissioning liabilities.

ATTACHMENT III

NEIL CERTIFICATE OF INSURANCE

POLICY NO. X16-052 Decontamination Liability, Decommissioning Liability, and Excess Property Insurance

POLICY NO. P16-082 Primary Property and Decontamination Liability Insurance

CERTIFICATE OF INSURANCE

ISSUED TO: United States NRC
ADDRESS: Washington, DC 20555
Attn: William Dean
Director of Nuclear Reactor Regulation

THIS IS TO CERTIFY that insurance has been effected with NUCLEAR ELECTRIC INSURANCE LIMITED, 1201 N. Market Street, Suite 1100, Wilmington, Delaware 19801, under Policy No. X16-052 as follows:

MEMBER INSURED: SOUTH CAROLINA ELECTRIC AND GAS COMPANY
ADDRESS: P.O. Box 764
Columbia, SC 29218
PROPERTY INSURED: Summer Nuclear Station
COVERAGE: Decontamination Liability, Decommissioning Liability, and Excess Property Insurance
AMOUNT OF INSURANCE: A. Except as provided in Item 6.B, the Insurer's maximum Limit of Liability resulting from any one Accident will not exceed \$0.
B. The Insurer's maximum Limit of Liability resulting from any one Accident that involves coverage under paragraph I.1(a), subsection I.2 or Section II will not exceed \$1,250,000,000; provided, however, that not more than \$0 of such Limit of Liability may be used for losses that are covered under Policy provisions other than paragraph I.1(a), subsection I.2 or Section II.
INSUREDS: South Carolina Electric & Gas Company and South Carolina Public Service Authority.
POLICY TERM: 12:01 a.m. on April 1, 2016 to 12:01 a.m. on April 1, 2017
Standard time in Hamilton, Bermuda.

LOSS PAYEE CLAUSE:

- A. Expenses covered under the Nuclear Liability Coverage (subsection I.A.1(a)) shall be adjusted with the Member Insured and payable to:

South Carolina Electric & Gas Company

The Member Insured may, by written notice to the Insurer, designate other payees.

- B. The expenses covered under the Debris Removal and Decontamination Coverage (subsection I.1(b)), the losses covered under the Property Damage Coverage (subsection I.1(c)), and the losses covered under the Functional Total Loss Coverage (subsection I.2) shall be adjusted with the Member Insured and payable to:

South Carolina Electric & Gas Company

The Member Insured may, by written notice to the Insurer, designate other payees.

- C. Expenses covered under the Decommissioning Liability Coverage (subsection II.1) shall be adjusted with the Member Insured and payable to:

South Carolina Electric & Gas Nuclear Decommissioning Trust and South Carolina Public Service Authority Nuclear Decommissioning Internal Fund.

The Member Insured may, by written notice to the Insurer, designate other payees.

This Certificate is not transferable and may be canceled by NUCLEAR ELECTRIC INSURANCE COMPANY by giving 60 days written notice to the party to whom this Certificate is issued prior to cancellation of the insurance described herein, unless specifically provided for otherwise under the Terms, Conditions and Exceptions of the Policy.

THIS CERTIFICATE is for information only; it is not a contract of insurance but attests that a policy as numbered herein, and as it stands at the date of this Certificate, has been issued by the Company. Said policy is subject to change by endorsement and cancellation in accordance with its terms.

EFFECTIVE DATE OF THIS CERTIFICATE: April 1, 2016

CERTIFICATE EXPIRES: April 1, 2017, unless canceled sooner.

Signed by:
NUCLEAR ELECTRIC INSURANCE LIMITED

Jon Levis

Jon Levis
Underwriter II

CERTIFICATE OF INSURANCE

ISSUED TO: United States NRC
ADDRESS: Washington, DC 20555
Attention: William Dean
Director of Nuclear Reactor Regulation

THIS IS TO CERTIFY that insurance has been effected with NUCLEAR ELECTRIC INSURANCE LIMITED, 1201 N Market Street, Suite 1100, Wilmington, Delaware 19801, under Policy No. P16-082 as follows:

MEMBER INSURED: SOUTH CAROLINA ELECTRIC AND GAS COMPANY

ADDRESS: P.O. Box 764
Columbia, South Carolina 29218

PROPERTY INSURED: Summer Nuclear Station

COVERAGE: Primary Property and Decontamination Liability Insurance

AMOUNT OF INSURANCE: A. Except as provided in Item 6.B, the Insurer's maximum Limit of Liability resulting from any one Accident will not exceed \$1,500,000,000.

B. The Insurer's maximum Limit of Liability resulting from any one Accident that involves coverage under paragraph I.A.2, subsection I.F or Section I.G will not exceed \$1,500,000,000; provided, however, that not more than \$1,500,000,000 of such Limit of Liability may be used for losses that are covered under Policy provisions other than paragraph I.A.2, subsection I.F or Section I.G.

INSUREDS: South Carolina Electric and Gas Company and South Carolina Public Service Authority

POLICY TERM: 12:01 a.m. on April 1, 2016 to 12:01 a.m. on April 1, 2017,
Standard time in Hamilton, Bermuda

LOSS PAYEE CLAUSE:

A. Expenses covered under Section I.A.2 (Nuclear Liability Coverage) shall be adjusted with the Member Insured and payable to:

South Carolina Electric and Gas Company

- B. All other covered Losses, except for expenses covered under Section I.G. shall be adjusted with the Member Insured and payable to:

Loss, if any under this policy, except losses to Nuclear Fuel, and except as to materials and supplies and except as otherwise provided shall be adjusted with South Carolina Electric & Gas Company except as to any particular loss less than the greater of Ten Million Dollars (\$10,000,000) and three per centum (3%) of the sum of (x) the principal amount of Securities Outstanding on the date of such particular loss and (y) the principal amount of the Class A Bonds Outstanding on the date of such particular loss, other than Class A Bonds delivered to and held by the Trustee hereunder, to be made payable to The Bank of New York Mellon Trust Company, N.A., successor to Nations Bank of Georgia, National Association, as trustee as the interest of the Trustee may appear.

Payments, if any, under this policy with respect to loss or damage to the Nuclear Fuel covered under the Amended and Restated Nuclear Fuel Agreement dated October 25, 2012, between South Carolina Fuel Company, Inc. and Wells Fargo Bank, National Association, as Collateral Agent, shall be made to such Collateral Agent as its interest may appear.

- C. Expenses covered under Section I.G. (Decommissioning Liability Coverage) shall be adjusted with the Member Insured and payable to:

South Carolina Electric & Gas Nuclear Decommissioning Trust and South Carolina Public Service Authority Nuclear Decommissioning Internal Fund.

The Member Insured may, by written notice to the Insurer, designate other payees under Items 10 A, B or C.

This Certificate is not transferable and may be canceled by NUCLEAR ELECTRIC INSURANCE LIMITED by giving 60 days written notice to the party to whom this Certificate is issued prior to cancellation of the insurance described herein, unless specifically provided for otherwise under the Terms, Conditions and Exceptions of the Policy.

THIS CERTIFICATE is for information only; it is not a contract of insurance but attests that a policy as numbered herein, and as it stands at the date of this Certificate, has been issued by the Company. Said policy is subject to change by endorsement and cancellation in accordance with its terms.

EFFECTIVE DATE OF THIS CERTIFICATE: April 1, 2016

CERTIFICATE EXPIRES: April 1, 2017, unless canceled sooner.

Signed by:
NUCLEAR ELECTRIC INSURANCE LIMITED

Jon Levis

Jon Levis
Underwriter II