santee cooper®

March 18, 2019

Michael R. Crosby
Senior Vice President
Nuclear Energy
(843) 761-4126
fax: (843) 761-7037
mrcrosby@santeecooper.com

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

Subject: Virgil C. Summer Nuclear Station Unit 1
Docket No. 50/395
Operating License No. NPF-12
Report of Status of Decommissioning Funding

Ladies and Gentlemen:

The South Carolina Public Service Authority (Authority) and South Carolina Electric & Gas Company (SCE&G) have ownership interests of one-third and two-thirds, respectively, in the Virgil C. Summer Nuclear Station, Unit 1. Due to the merger of Dominion Energy, Inc. and SCANA, SCE&G is now a subsidiary of Dominion Energy. As provided in 10 CFR § 50.75 (f)(1), each power reactor licensee is required to report to the Nuclear Regulatory Commission (NRC) on a calendar year basis, beginning March 31, 1999, and every two years thereafter, the status of its decommissioning funding for each reactor or share of reactor it owns. SCE&G has advised the Authority that it will disclose the required information relative to its two-thirds ownership share in a separate submittal.

The Authority's one-third share using the NRC formula for the minimum funding required for license termination is approximately $153 million as of December 31, 2018. This one-third liability is funded by payments to an external sinking fund as provided for in 10 CFR § 50.75. The escalated one-third liability for license termination costs is expected to total $316 million, stated in dollars of the year of expenditure. The market value of the external fund was approximately $131 million as of December 31, 2018. (Please see Attachment 1.)

A site-specific decommissioning study completed in 2016 identified the total decommissioning costs for the site. Total site decommissioning includes license termination, spent fuel management and site restoration. The total costs identified by the study are in excess of NRC formula for minimum funding requirements. Further, as the result of a 2006 settlement with the Department of Energy (DOE), the Authority expects to receive reimbursement for spent fuel management costs incurred that would have been avoided had the DOE met its contractual obligation to store spent fuel. The one-third liability in excess of the NRC minimum funding requirements less DOE reimbursements is estimated by the Authority to be approximately $182 million as of December 31, 2018. The escalated one-third liability is expected to be approximately $1.769 billion, stated in dollars of the year of expenditure. The market value of the Authority's internal fund, designated for spent fuel management and site restoration, was approximately $78 million as of December 31, 2018. (Please see Attachment 1.)

If there are any questions concerning this report, please contact me at (843) 761-4126.

Sincerely,

Michael R. Crosby
Senior Vice President
Nuclear Energy

MRC:trw

Attachment

A001
NRR

cc: Catherine Haney
Shawn A. Williams
NRC Resident Inspector

1(a). The minimum decommissioning fund estimate, pursuant to 10 CFR § 50.75 (b) and (c). $153,024,947

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

Estimated Cost (Year X)	=	(1986 $ Base Cost) ($AL_x + BE_x + CB_x$)
	=	($100,520,000) {(.65 x 2.624) + (.13 x 2.365) + (.22 x 11.607)}
	=	$459,074,840

Authority's one-third share of 2016 Estimated Cost = $153,024,947

Where:

A	=	.65	10 CFR § 50.75 (c)(2)
B	=	.13	10 CFR § 50.75 (c)(2)
C	=	.22	10 CFR § 50.75 (c)(2)
L_x	=	2.624	(Computed Below)
E_x	=	2.365	(Computed Below)
P_x	=	2.103	(Computed Below)
F_x	=	2.727	(Computed Below)
B_x	=	11.607	(NUREG 1307 Rev. 17)

1986 $ Base Cost	=	($75,000,000 + .0088Pmillion)
	=	($75,000,000 + 25,520,000)
	=	$100,520,000

P	=	2,900 MWt
L_x	=	Base L_x (Dec 2005) x ECI(Qtr 4 2018) / 100
	=	1.98 x 132.5 / 100
	=	2.624
P_x	=	December 2018 Value / January 1986 Value
	=	240.2 / 114.2
	=	2.103
F_x	=	December 2018 Value / January 1986 Value
	=	223.6 / 82.0
	=	2.727
E_x	=	$\{(.58P_x) + (.42F_x)\}$
	=	{(.58 x 2.103) + (.42 x 2.727)}
	=	(1.220 + 1.145)
	=	2.365

Fourth Quarter 2018 / December 2018 values in the following Bureau of Labor Statistics indices were used to compute NRC minimum requirements:

Employment Cost Index – Total compensation, private industry, South region
Series ID: CIU2010000000220I

Producer Price Index – Commodities (Industrial electric power)
Series ID: wpu0543

Producer Price Index – Commodities (Light fuel oils)
Series ID: wpu0573

1(b). Escalation of the Authority's one-third share of the minimum funding requirement through the end of decommissioning.

Cost categories Labor, Equipment & Materials, Burial, and Other were estimated in a site-specific decommissioning study. These costs were escalated through the end of the decommissioning period based on various indices and estimates. Ultimate decommissioning costs to be funded from the external trust are estimated at $315,828,342 in escalated dollars.

2. Market value of the external trust fund at December 31, 2018 for items included in 10 CFR § 50.75. $130,713,506

3. Schedule of annual amounts remaining to be collected for items in 10 CFR § 50.75.

	2018 Dollars					
Year	Beginning Balance	Decommissioning Expenditures	Annual Deposits	Earnings	Ending Balance	Real Rates of Return
2019	130,713,506		0	1,151,433	131,864,939	0.0088
2020	131,864,939		115,260	1,146,632	133,126,831	0.0087
2021	133,126,831		115,260	1,163,657	134,405,748	0.0087
2022	134,405,748		115,260	1,086,344	135,607,351	0.0081
2023	135,607,351		115,260	1,083,797	136,806,408	0.0080
2024	136,806,408		115,260	1,016,705	137,938,373	0.0074
2025	137,938,373		115,260	994,358	139,047,991	0.0072
2026	139,047,991		115,260	1,006,760	140,170,011	0.0072
2027	140,170,011		115,260	985,280	141,270,551	0.0070
2028	141,270,551		115,260	894,903	142,280,714	0.0063
2029	142,280,714		115,260	901,302	143,297,275	0.0063
2030	143,297,275		115,260	907,741	144,320,276	0.0063
2031	144,320,276		115,260	899,790	145,335,326	0.0062
2032	145,335,326		115,260	906,118	146,356,704	0.0062
2033	146,356,704		115,260	912,486	147,384,450	0.0062
2034	147,384,450		115,260	918,894	148,418,604	0.0062
2035	148,418,604		115,260	910,499	149,444,363	0.0061
2036	149,444,363		115,260	916,792	150,476,415	0.0061
2037	150,476,415		115,260	923,123	151,514,799	0.0061
2038	151,514,799		115,260	914,342	152,544,401	0.0060
2039	152,544,401		115,260	920,555	153,580,216	0.0060
2040	153,580,216		115,260	926,806	154,622,282	0.0060
2041	154,622,282		115,260	917,633	155,655,175	0.0059
2042	155,655,175	9,108,627		869,706	147,416,254	0.0059
2043	147,416,254	21,860,707		745,131	126,300,677	0.0059
2044	126,300,677	21,860,707		619,817	105,059,787	0.0059
2045	105,059,787	21,860,707		485,439	83,684,520	0.0058
2046	83,684,520	21,860,707		360,722	62,184,534	0.0058
2047	62,184,534	21,860,707		235,276	40,559,104	0.0058
2048	40,559,104	21,860,707		107,229	18,805,626	0.0057
2049	18,805,626	12,752,078		34,715	6,088,263	0.0057
Total	130,713,506	153,024,947	2,535,720	25,863,984	6,088,263	

4. The assumptions used regarding escalation in decommissioning cost, rates of earnings on decommissioning funds, and rates of other factors used in funding projections follow:

- The previous schedule of annual amounts remaining to be collected is based on a DECON method of decommissioning. In contrast, the Authority currently intends to utilize a SAFSTOR method of decommissioning.

- Costs are escalated by four categories identified in the 2016 site-specific study using the following rates: labor (2.7%), equipment and materials (1.2%), waste burial (3.8%) and other (2.8%). These rates were proposed in an internal memorandum and approved on March 27, 2017 by the Senior Vice President of Nuclear Energy and represent the Authority's best estimate of future cost increases. The schedule below shows weighted average escalation rates reflecting the above cost categories weighted by individual category costs over the sum of the four categories.

- LLW will be disposed of using a combination of compact-affiliated and non-compact disposal facilities.

- The trust fund accrues earnings in accordance with estimated effective yield (approximately 3.3% as shown below). The Authority's Board of Directors approves all customer rates. As the rate-regulatory authority, the Board adopted on March 22, 1999 a resolution containing the following language: "Upon recommendation of management, the Board of Directors authorizes the use of the effective yield of the trust portfolio for purposes of determining future decommissioning funding needs."

	A	B	(A - B)
Year	Projected Earning Rates	Weighted Average Escalation Rates	Real Rates of Return
2019	0.0350	0.0262	0.0088
2020	0.0349	0.0262	0.0087
2021	0.0349	0.0262	0.0087
2022	0.0344	0.0263	0.0081
2023	0.0343	0.0263	0.0080
2024	0.0337	0.0263	0.0074
2025	0.0336	0.0264	0.0072
2026	0.0336	0.0264	0.0072
2027	0.0334	0.0264	0.0070
2028	0.0328	0.0265	0.0063
2029	0.0328	0.0265	0.0063
2030	0.0328	0.0265	0.0063
2031	0.0328	0.0266	0.0062
2032	0.0328	0.0266	0.0062
2033	0.0328	0.0266	0.0062
2034	0.0328	0.0266	0.0062
2035	0.0328	0.0267	0.0061
2036	0.0328	0.0267	0.0061
2037	0.0328	0.0267	0.0061
2038	0.0328	0.0268	0.0060
2039	0.0328	0.0268	0.0060
2040	0.0328	0.0268	0.0060
2041	0.0328	0.0269	0.0059

2042	0.0328	0.0269	0.0059
2043	0.0328	0.0269	0.0059
2044	0.0328	0.0269	0.0059
2045	0.0328	0.0270	0.0058
2046	0.0328	0.0270	0.0058
2047	0.0328	0.0270	0.0058
2048	0.0328	0.0271	0.0057
2049	0.0328	0.0271	0.0057

5. Contracts upon which the licensee is relaying pursuant to 10 CFR § 50.75 (e) (1) (v).

None.

6. Modifications to the current funding assurance methods.

None.

7. Material changes to Trust Agreements.

None.

8. Authority's one-third share of the 2016 Site-Specific Study (SAFSTOR method).

	2018 Dollars	Year of Expenditure Dollars
NRC Minimum Funding Requirements - License Termination (radiological decommissioning costs) (1)	153,024,947	315,828,342
Excess Site-Specific Study Costs (license termination, spent fuel management and site restoration costs) Net of Estimated DOE Reimbursements (spent fuel management costs) (2)	182,408,315	1,769,018,507
2016 Site-Specific Study Costs (license termination, spent fuel management and site restoration costs) Net of Estimated DOE Reimbursements (spent fuel management costs) (2)	335,433,262	2,084,846,849

(1) Expenditure years are 2042-2049
(2) Expenditure years are 2042-2104

9. Market value of the internal fund at December 31, 2018 for spent fuel management and site restoration $78,355,998