



**Ronald B. Clary**  
Vice President  
New Nuclear Deployment

March 30, 2011  
NND-11-0062

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

ATTN: Document Control Desk

Subject: Virgil C. Summer Nuclear Station (VCSNS) Units 2 and 3 Combined License Application (COLA) - Docket Numbers 52-027 and 52-028  
SCE&G Endorsement of Reference COLA (R-COLA) Supplemental Information Provided in Support of 10 CFR Part 30 Byproduct Material and Part 40 Source Material License

- References:
1. Letter from Ronald B. Clary (SCE&G) to Document Control Desk (NRC), February 7, 2011 Submittal of the VCSNS COL Application, dated February 7, 2011.
  2. Southern Nuclear Operating Company Vogtle Electric Generating Plant Units 3 and 4 Combined License Application Supplemental Information in Support of 10 CFR Part 30 Byproduct Material and 10 CFR Part 40 Source Material License, dated March 16, 2011 (ND-11-0435).

The enclosures to this letter provide the South Carolina Electric & Gas Company (SCE&G) response to the items contained in Reference 2. The COLA changes identified in this response will be incorporated in Revision 5 of the COLA.

Should you have any questions, please contact Mr. Alfred M. Paglia by telephone at (803) 345-4191, or by email at [apaglia@scana.com](mailto:apaglia@scana.com).

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

Executed on this 30<sup>th</sup> day of March, 2011.

Sincerely,

Ronald B. Clary  
Vice President  
New Nuclear Deployment

1083  
NRO

JIG/RBC/jg

c: Victor M. McCree  
Joseph M. Sebrosky  
David Misenhimer  
John Zeiler  
Stephen A. Byrne  
Jeffrey B. Archie  
Ronald B. Clary  
Bill McCall  
William M. Cherry  
Alvis J. Bynum  
Kathryn M. Sutton  
David Lavigne  
Amy M. Monroe  
Joe I. Gillespie, III  
Daniel Patton  
Joel Hjelseth  
William E. Hutchins  
William A. Fox, III  
Ron Wittschen  
[VCSummer2&3ProjectMail@Shawgrp.com](mailto:VCSummer2&3ProjectMail@Shawgrp.com)  
[vcsummer2&3project@westinghouse.com](mailto:vcsummer2&3project@westinghouse.com)  
[DCRM-EDMS@SCANA.COM](mailto:DCRM-EDMS@SCANA.COM)

## **NRC Question**

Combined License (COL) application Part 1, Section 1.1.4. Requested Licenses and Authorized Uses: Describe specific types of source and byproduct material, the chemical or physical form, and the maximum amount at any one time for the requested material licenses under 10 CFR Parts 30 and 40. Provide specific material information in accordance with requirements for 10 CFR 30.32 and 10 CFR 40.31.

Regulatory Basis: The regulatory requirements for issuing byproduct and source material licenses are described in 10 CFR Parts 30 and 40. In COL application Part 1, Section 1.1.4, the applicant stated that "...[i]n addition, this application is for the necessary licenses issued under 10 CFR Part 30, 10 CFR Part 40, and 10 CFR Part 70 to receive, possess, and use byproduct, source and special nuclear material." In order to receive, possess, and use byproduct and source material, the applicant is required to provide specific descriptions of the nuclear materials to include the types, chemical or physical form, and the maximum quantities, in accordance with the applicable requirements of 10 CFR Parts 30 and 40, for the requested material licenses. 10 CFR 30.32 and 10 CFR 40.31, for license of byproduct and source material, requires the applicant to include specific information of nuclear material requested and their use or purpose.

## **VCSNS Response:**

South Carolina Electric and Gas (SCE&G) will develop and implement radioactive source control practices and procedures to meet the requirements of 10 CFR Parts 20, 30, and 40. The COL application describes the Radiation Protection Program, including the activities associated with radioactive source control. Enclosure 2 to this letter identifies the activities related to radioactive source control and the applicable FSAR section.

This response is expected to be STANDARD for each S-COLA.

## **Associated VCSNS COL Application Revision:**

1. COLA Part 1, General and Administrative Information, Section 1.1, Purpose of a Combined License Application, Paragraphs 4 and 6 will be revised as follows:

It is requested that the term of the license be for a period of 40 years, and contain provisions, as needed, to possess and use at any time such quantities of source, byproduct, and special nuclear material as needed to construct and operate the utilization facility. Special nuclear material in the form of reactor fuel and spent fuel, shall be in accordance with limitations for storage and amounts required for reactor operation, as described in Part 2 of this application. Byproduct, source, and special nuclear material shall be in the form of sealed neutron sources for reactor startup and sealed sources for reactor instrumentation, radiation monitoring equipment, calibration, and fission detectors in amounts as required. In preparation for the initial fuel loading, limitations on byproduct material and Part 40 specifically licensed

source material will be as described in this application. Following the 52.103(g) finding, byproduct, source, and special nuclear material in amounts as required, without restriction to chemical or physical form, shall be for sample analysis, instrument and equipment calibration, or associated with radioactive apparatus or components.

2. COLA Part 2, FSAR, Chapter 12, Section 12.2.1.1.10, Miscellaneous Sources, seventh paragraph, Item b, will be revised as follows:

b) ~~The source material to be received, possessed, or used does not involve uranium hexafluoride in excess of 50 kilograms in a single container or 1000 kilograms total.~~ No 10 CFR Part 40 specifically licensed source material, including natural uranium, depleted uranium and uranium hexafluoride will be received, possessed, or used during this period.

The following radioactive sources will be used for the Radiation Monitoring System and laboratory/portable monitoring instrumentation:<sup>1</sup>

<u>Radioactive Licensee Material (Element and Mass Number)</u> <sup>1</sup>	<u>Chemical and/or Physical Form</u> <sup>1</sup>	<u>Maximum quantity that licensee may possess at any one time</u> <sup>1</sup>
<ul style="list-style-type: none"> <li><u>Any byproduct material with atomic numbers 1 through 93 inclusive</u></li> </ul>	<u>Sealed Sources</u> <sup>2</sup>	<u>No single source to exceed 100 millicuries</u> <u>5 Curies total</u>
<ul style="list-style-type: none"> <li><u>Americium-241</u></li> </ul>	<u>Sealed Sources</u> <sup>2</sup>	<u>No single source to exceed 300 millicuries</u> <u>500 millicuries total</u>

**Notes:**

1. This information remains in effect between the issuance of the COL and the Commission's 52.103(g) finding for each unit, and will be designated historical information after that time.
2. Includes calibration and reference sources.

## **Enclosure 2**

### **VCSNS Units 2 and 3 COL Application**

#### **Supplemental Information Provided**

#### **in Support of 10 CFR Part 30 Byproduct Material License**

**This enclosure is a 5-page stand-alone document.**

## **Radioactive Source Control**

### **1. Scope**

The Radiation Protection Program requirements applicable to the radioactive source control following the issuance of the combined license (COL) and prior to the Commission's 10 CFR 52.103(g) finding is required to be implemented prior to the receipt of byproduct, source or special nuclear material at South Carolina Electric & Gas Company (SCE&G) V.C. Summer Nuclear Station (VCSNS) Units 2 and 3.

The implementation milestone is identified in FSAR Table 13.4-201, Item 10, with a summary of the applicable radiation protection programs that will be implemented prior to initial receipt of radioactive materials. In addition, FSAR Appendix 12AA incorporates by reference NEI 07-03A, Generic FSAR Template Guidance for Radiation Protection Program Description, which includes additional information on the implementation stages of the operational radiation protection program.

The information provided in this document is based on and supports the following VCSNS Units 2 and 3 licensing basis documents for controlling radioactive materials possessed under this license prior to the 10 CFR 52.103(g) finding:

- Information related to miscellaneous sources is provided in FSAR Section 12.2.
- Information related to administrative controls for Radiological Protection is provided in FSAR Section 12.5 and Appendix 12AA.
- Information related to the organizational structure of the applicant, including those responsible for radioactive source control, radiation monitoring and surveys, is provided in FSAR Section 13.1.
- Information related to training of personnel, including those responsible for radiological protection, is provided in FSAR Section 13.2.
- Information related to implementation of this Radiation Protection Program Radioactive Source Control is provided in FSAR Table 13.4-201.
- Information related to the Radiation Protection Supervisor function position (ANSI/ANS-3.1-1993) and the site-specific position is provided in FSAR Table 13.1-201.
- Information related to plant Radiation Protection procedures, is provided in FSAR Section 13.5.

### **2. Radioactive Materials to be Possessed**

The following radioactive sources will be used for the Radiation Monitoring System and laboratory/portable monitoring instrumentation:

<b>Radioactive Licensee Material (Element and Mass Number)</b>	<b>Chemical and/or Physical Form</b>	<b>Maximum quantity that licensee may possess at any one time</b>
Any radioactive material with atomic numbers 1 through 93 inclusive	Sealed Sources <sup>1</sup>	No single source to exceed 100 millicuries 5 Curies total
Americium -241	Sealed Sources <sup>1</sup>	No single source to exceed 300 millicuries 500 millicuries total

**Note 1**-Includes calibration and reference sources

The manufacturing vendor is in the process of providing examples of typical source certificate and/or product information for the above calibration and reference sources that exceed

1. 100µCi or 10 times the quantity specified in 10 CFR 30.71, Schedule B, whichever is greater, for beta and/or gamma emitting material, or
2. 10 µCi, for alpha emitting material.

The above values are based on the guidance provided for sealed sources requiring registration in NUREG-1556, Volume 3, Section 5.1.1, Revision 1.

### 3. Purpose for Which Licensed Material Will Be Used

These radioactive sources identified above will be used as follows:

- The check sources will be installed into the radiation monitoring systems at the factory prior to shipment to the site. These check sources will be housed in lead shielding as part of the radiation monitor.
- The calibration sources will be used to calibrate the fixed area radiation monitors.
- The check sources for laboratory and portable monitoring instrumentation will be used for response check of licensee's instruments.

Note: Required calibrations will be performed under an authorized license for that activity.

#### **4. Individual(s) Responsible For Radiation Safety Program and Their Training and Experience**

##### **4.1. Responsible Individual(s)**

After the issuance of the COL and prior to the Commission's 10 CFR 52.103(g) finding, the Radiation Safety Officer shall be the designated radiation protection supervisor. The identified radiation sources will be used by or under the supervision of the radiation protection supervisor implementing the program. A radiation protection supervisor will be assigned prior to initial receipt of byproduct, source, or special nuclear materials as indicated in the FSAR Table 13.4-201. The radiation protection supervisors' position is identified in FSAR Section 13.1.

##### **4.2. Training and Experience**

The radiation protection supervisor will be selected, trained and qualified consistent with the guidance in Regulatory Guide 1.8 as stated in FSAR Section 13.1 and FSAR Appendix 12AA, Radiation Protection Program Description, which incorporates by reference NEI 07-03A.

##### **4.3. Training Provided to Other Users**

FSAR Appendix 12AA (NEI 07-3A) states that initial and periodic training will be provided to individuals responsible for the receipt, control or use of radioactive sources possessed under this license and as necessary to assure compliance with 10 CFR 19.11 and 19.12 and the applicable portions of 10 CFR Part 20.

#### **5. Facilities and Equipment**

A facility or facilities is provided to support the receipt, storage and control of radioactive sources in accordance with 10 CFR 20.1801 and 20.1802. Positive control is established over licensed radioactive material so that unnecessary or inadvertent exposures do not occur and such material is not released into uncontrolled areas in a manner that is not authorized by regulation or the license, as described FSAR Appendix 12AA (NEI 07-03A).

As stated in FSAR Appendix 12AA (NEI 07-03A), the types and quantities of instrumentation and equipment will be selected, maintained, and used to provide the appropriate detection capabilities, ranges, sensitivities, and accuracies to conduct radiation surveys and monitoring for the types and levels of radiation sources possessed under this license in accordance with 10 CFR 20.1501 and 20.1502.

#### **6. Radiation Safety Program**

##### **6.1. Audit Program**

FSAR Appendix 12AA (NEI 07-03A) indicates that the radiation protection program content and effectiveness of implementation will be reviewed at least annually pursuant to plant procedures and 10 CFR 20.1101.

## **6.2. Radiation Detection Instruments**

Radiation monitoring instruments used for radiation measurements are calibrated periodically for radiation measurement to meet 10 CFR 20.1501 and 10 CFR 20.2103(a). The radiation monitoring instrumentation and equipment used will provide the appropriate detection capabilities, ranges, sensitivities, and accuracies as described in FSAR Appendix 12AA (specifically NEI 07-03A, Section 12.5.3.2). The calibration of instruments requiring sources exceeding the limits in Section 2 above will not be performed under this license until the portions of the program required prior to initial fuel load are implemented.

## **6.3. Material Receipt and Accountability**

FSAR Section 12.2 includes the requirements for written procedures that address receipt, inventory, labeling, leak testing, surveillance, control, transfer, disposal, storage, issuance and use of radioactive sources.

## **6.4. Personnel Monitoring Equipment**

FSAR Appendix 12AA (NEI 07-03A) includes the requirements for individual personnel dosimeters to measure the expected levels and types of radiation consistent with 10 CFR 20.1502. Calibration of personnel dosimeters will be performed under an authorized license for this activity during this period.

## **6.5. Leak-Testing**

FSAR Section 12.2 includes the requirements for written procedures that address leak-testing of radioactive sources.

## **6.6. Minimization of Contamination**

FSAR Appendix 12AA (NEI 07-03A) includes the requirement for contamination control procedures to help assure compliance with 10 CFR 20.1406. The performance of leak-testing of radioactive sources will minimize contamination of the facility used for storage and the environment.

## **7. Waste Management**

FSAR Section 12.2 includes the requirements for written procedures that address transfer of and/or disposal of licensed material to an authorized recipient.