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August 20, 2015  
RC-15-0126

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

Dear Sir / Madam:

Subject: VIRGIL C. SUMMER NUCLEAR STATION (VCSNS), UNIT 1  
DOCKET NO. 50-395  
OPERATING LICENSE NO. NPF-12  
FIFTH 6-MONTH STATUS REPORT IN RESPONSE TO MARCH 12, 2012,  
COMMISSION ORDER MODIFYING LICENSES WITH REGARD TO RELIABLE  
SPENT FUEL POOL INSTRUMENTATION (ORDER EA-12-051)

- References:
1. Nuclear Regulatory Commission Order Number EA-12-051, *Issuance of Order to Modify Licenses with Regard to Reliable Spent Fuel Pool Instrumentation*, dated March 12, 2012, Agencywide Documents Access and Management System (ADAMS) Accession Number ML12054A679
  2. SCE&G Letter, *Virgil C. Summer Nuclear Station (VCSNS) Unit 1- Integrated Plan with Regard to Requirements for Reliable Spent Fuel Pool Instrumentation (Order Number EA-12-051)*, dated February 28, 2013, ADAMS Accession No. ML13063A099

On March 12, 2012, the Nuclear Regulatory Commission issued Order EA-12-051 (i.e., Reference 1) to South Carolina Electric & Gas Company (SCE&G). Reference 1 was immediately effective and directs SCE&G to have a reliable indication of the water level in associated spent fuel storage pools. Specific requirements are outlined in Attachment 2 of Reference 1.

In response to Reference 1, SCE&G developed an Overall Integrated Plan (i.e., Reference 2) for Virgil C. Summer Nuclear Station, Unit 1, documenting the requirements to install reliable spent fuel pool level instrumentation. Reference 1 requires submission of status reports at 6-month intervals following submittal of the Overall Integrated Plan. The purpose of this letter is to provide the fifth 6-month status report pursuant to Section IV, Condition C.2, of Reference 1, that delineates the progress made in implementing the requirements. The attached report provides an update on milestone accomplishments since the last status report and identifies changes to the compliance method, schedule, or need for relief/relaxation, if any.

This letter contains no new regulatory commitments. If you have any questions regarding this report, please contact Bruce L. Thompson at (803) 931-5042.

A001  
NRR

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

8/20/15  
Executed on

  
Thomas D. Gatlin

PF/TDG/ts

Enclosure:

Virgil C. Summer Nuclear Station (VCSNS) Unit 1- Fifth 6-Month Status Report in Response to NRC Order Modifying Licenses with Regard to Reliable Spent Fuel Pool Instrumentation (Order EA-12-051)

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PRSF (RC-15-0126)

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**VIRGIL C. SUMMER NUCLEAR STATION (VCSNS) UNIT 1**

**ENCLOSURE**

**FIFTH 6-MONTH STATUS REPORT IN RESPONSE TO NRC ORDER MODIFYING  
LICENSES WITH REGARD TO RELIABLE SPENT FUEL POOL INSTRUMENTATION  
(ORDER EA-12-051)**

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**1. Introduction**

SCE&G developed an Overall Integrated Plan (i.e., Reference 2 in Section 8) for Virgil C. Summer Nuclear Station (VCSNS), Unit 1, documenting the requirements to install reliable spent fuel pool level instrumentation (SFPLI), in response to NRC Order EA-12-051 (i.e., Reference 1 in Section 8). Subsequently, SCE&G provided the first, second, third, and fourth 6-month status reports (i.e., References 4, 5, 8, and 10 in Section 8, respectively) to the NRC. This report provides an update of milestone accomplishments since submittal of the last status report, including any changes to the compliance method, schedule, or need for relief/relaxation and the basis, if any, that occurred during the period from February 19, 2015, to August 10, 2015 (hereafter referred to as the update period).

**2. Milestone Accomplishments**

The following milestone(s) in Section 3 have been completed during this update period.

- Submit 6-month Update
- Develop Training Plan
- Commence Implementation

**3. Milestone Schedule Status**

The following provides an update to the milestone schedule to support the Overall Integrated Plan. This section provides the activity status of each item and the expected completion date. The target completion dates are planning dates subject to change as design and implementation details are developed.

The revised milestone target completion dates do not impact the order implementation date.

| Milestone  | Target Completion Date | Activity Status | Revised Target Completion Date |
|--|------------------------|-----------------|--------------------------------|
| Submit 60 Day Status Report                        | Oct 2012               | Complete        |                                |
| Submit Overall Integrated Plan                     | Feb 2013               | Complete        |                                |
| Submit Response to RAIs on Overall Integrated Plan | Aug 2013               | Complete        |                                |
| Submit Response to RAIs on Overall Integrated Plan | Oct 2014               | Complete        |                                |
|  |                        |                 |                                |
| <b>Submit 6 Month Updates:</b>                     |                        |                 |                                |
| Update 1   | Aug 2013               | Complete        |                                |
| Update 2   | Feb 2014               | Complete        |                                |
| Update 3   | Aug 2014               | Complete        |                                |
| Update 4   | Feb 2015               | Complete        |                                |
| Update 5   | Aug 2015               | Complete        |                                |
| Update 6   | Feb 2016               | Not Started     |                                |
|  |                        |                 |                                |
| <b>Modifications:</b>                              |                        |                 |                                |
| Modification Development                           | Jan 2014               | Complete        | January 2015                   |
| Complete Procurement of Instrumentation Package    | Jun 2013               | Complete        |                                |
| Complete Engineering and Design                    | Jul 2014               | Complete        | January 2015                   |
| Commence Implementation                            | Oct 2014               | Complete        | April 2015                     |
| Unit 1 Implementation Outage                       | Oct 2015               | Not Started     |                                |
|  |                        |                 |                                |
| <b>Procedures:</b>                                 |                        |                 |                                |
| Complete Procedures Development                    | Feb 2015               | In Progress     | October 2015                   |
|  |                        |                 |                                |

| Milestone             | Target Completion Date | Activity Status | Revised Target Completion Date |
|-----------------------|------------------------|-----------------|--------------------------------|
| <b>Training:</b>      |                        |                 |                                |
| Develop Training Plan | Feb 2015               | Complete        | June 2015                      |
| Training Complete     | Aug 2015               | In Progress     |                                |

#### 4. Changes to Compliance Method

VCSNS has elected to use an alternate compliance method regarding the design of the backup SFPLI channel. Part of the backup channel is located on the exterior of the Spent Fuel Pool, just outside the Auxiliary Building. The backup channel waveguide pipe exits the Fuel Handling Building at the west wall and is routed to a transmitter located outside. The remote transmitter, display, panels, and associated conduit for the backup channel are mounted on the outside of the Fuel Handling Building. These components are protected from all hazards except for the high winds hazard. This design differs from the guidelines in Section 3, *Instrumentation Design Features*, of Nuclear Energy Institute (NEI) 12-02.

Justification for use of an alternate method includes the following:

- The primary SFPLI channel display is located in the Auxiliary Building, a structure which is protected from all applicable external hazards. The primary channel display can be accessed from the Control Room via a path through safety related structures.
- NEI guidance specifies that the primary or backup SFPLI channel can be out of service for up to 90 days provided the other channel is functional. The allowable outage time for VCSNS's primary SFPLI channel will be reduced from 90 days to 45 days.
- The backup SFPLI channel is seismically qualified and located on a seismically qualified wall of the Fuel Handling Building. The panel and display locations are elevated above the maximum water level of 18 inches, so the channel is protected from the flooding hazard.
- Although the backup SFPLI channel is not protected from tornados, and may undergo damage as a result of high winds and/or missiles, the number of potential missiles is minimized by VCSNS's Station Housekeeping Program, SAP-142, and the Natural Emergency Procedure, EPP-015.
- VCSNS has two narrow range SFPLI channels with indication in the Control Room. These channels should remain available following a tornado. The level in the Spent Fuel Pool is kept within the range of these narrow range instruments through use of the FLEX procedure for providing SFP makeup, *Alternate SFP Makeup and Cooling*, FSP 11.0.
- The backup SFPLI channel display is located near the staging area of FLEX pumps which will be used to deliver makeup to the Spent Fuel Pool.

## **5. Need for Relief/Relaxation and Basis for the Relief/Relaxation**

SCE&G expects to comply with the order implementation date and no relief/relaxation is required at this time.

## **6. Open Items from Overall Integrated Plan and Draft Safety Evaluation**

There are no open items documented in the OIP or in the Interim Staff Evaluation (ISE). The ISE (Reference 7 in Section 8) included a Request for Additional Information (RAI). Reference 11 in Section 8 instructs that responses to the RAI do not need to be formally submitted on the docket but instead to place the response in the e-Portal. An updated response to the RAI has been placed on the VCSNS e-Portal. This response reflects the information provided to the NRC during the on-site audit which was conducted the week of July 13<sup>th</sup>, 2015.

One RAI remained open following the NRC Audit. This item is listed below.

### **SFPI RAI-1**

Please provide additional information describing how the design of shielding for the SFP level instrumentation meets the requirement of the Order to arrange the instruments in a manner that provides reasonable protection of the level indication function against missiles that may result from damage to the structure over the SFP. Also, describe plans for protecting any equipment mounted outside the buildings from the effects of tornado-driven missiles, freezing, elevated temperature, humidity, flooding, and other Beyond Design Basis conditions.

## **7. Potential Draft Safety Evaluation Impacts**

No potential impacts to the Draft Safety Evaluation have been identified.

## **8. References**

The following references support the information contained within this enclosure.

1. NRC Order Number EA-12-051, *Issuance of Order to Modify Licenses with Regard to Reliable Spent Fuel Pool Instrumentation*, dated March 12, 2012, ADAMS Accession No. ML12054A679
2. SCE&G Letter, *Virgil C. Summer Nuclear Station (VCSNS) Unit 1- Integrated Plan with Regard to Requirements for Reliable Spent Fuel Pool Instrumentation (Order Number EA-12-051)*, dated February 28, 2013, ADAMS Accession No. ML13063A099
3. NRC Letter, *Virgil C. Summer Nuclear Station, Unit 1- Request for Additional Information Regarding Overall Integrated Plan for Reliable Spent Fuel Pool Instrumentation (Order Number EA-12-051) (TAC NO. MF1173)*, dated July 29, 2013, ADAMS Accession No. ML13203A180
4. SCE&G Letter, *Virgil C. Summer Nuclear Station (VCSNS) Unit 1- 6-Month Status Report of Order EA-12-051, Order Modifying Licenses with Regard to Requirements for Reliable*

*Spent Fuel Pool Instrumentation*, dated August 28, 2013, ADAMS Accession No. ML13242A272

5. SCE&G Letter, *Virgil C. Summer Nuclear Station (VCSNS) Unit 1- Second 6-Month Status Report of Order EA-12-051, Order Modifying Licenses with Regard to Requirements for Reliable Spent Fuel Pool Instrumentation*, dated February 27, 2014, ADAMS Accession No. ML14063A201
6. SCE&G Letter, *Virgil C. Summer Nuclear Station (VCSNS) Unit 1- Response to Request for Additional Information - Overall Integrated Plan in Response to Commission Order Modifying License Requirements for Reliable Spent Fuel Pool Instrumentation (Order Number EA-12-051)*, dated August 28, 2013, ADAMS Accession No. ML13247A338
7. NRC Letter, *Virgil C. Summer Nuclear Station, Unit 1- Interim Staff Evaluation and Request for Additional Information Regarding the Overall Integrated Plan for Implementation of Order EA-12-051, Reliable Spent Fuel Pool Instrumentation (TAC NO. MF1173)*, dated December 5, 2013, ADAMS Accession No. ML13305A100
8. SCE&G Letter, *Virgil C. Summer Nuclear Station (VCSNS) Unit 1- Third 6-Month Status Report of Order EA-12-051, Order Modifying Licenses with Regard to Requirements for Reliable Spent Fuel Pool Instrumentation*, dated August 28, 2014, ADAMS Accession No. ML14245A404
9. SCE&G Letter, *Virgil C. Summer Nuclear Station (VCSNS) Unit 1- Response to Request for Additional Information – Overall Integrated Plan in Response to Commission Order Modifying License Requirements for Reliable Spent Fuel Pool Instrumentation (Order No. EA-12-051)*, dated October 29, 2014, ADAMS Accession No. ML14304A538
10. SCE&G Letter, *Virgil C. Summer Nuclear Station (VCSNS) Unit 1- Fourth 6-Month Status Report of Order EA-12-051, Order Modifying Licenses with Regard to Requirements for Reliable Spent Fuel Pool Instrumentation*, dated February 27, 2015, ADAMS Accession No. ML15062A008
11. NRC Letter, *Nuclear Regulatory Commission Audits of Licensee Responses to Reliable Spent Fuel Pool Instrumentation Order EA-12-051*, Dated March 26, 2014, ADAMS Accession No. ML14083A620