

Jeffrey B. Archie
Vice President, Nuclear Operations
803.345.4214

June 1, 2006



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
REPLY TO A NOTICE OF VIOLATION: EA-06-046
NRC INSPECTION REPORT 2006011

South Carolina Electric & Gas Company (SCE&G) acknowledges the receipt of the notice of violation dated May 5, 2006, for a finding involving V. C. Summer Nuclear Station's (VCSNS) shipment of radioactive material on May 26, 2005. SCE&G has reviewed the description of the subject violation and will not contest the characterization of the finding as White in the Public Radiation Safety cornerstone. As requested, a reply to the notice of violation is attached.

If you have any questions, please contact Mr. Robert G. Sweet at (803) 345-4080.

Very truly yours,

A handwritten signature in black ink, appearing to read "Jeffrey B. Archie", is written over a printed name.

Jeffrey B. Archie

SBR/JBA/sr
Attachment

c: K. B. Marsh
S. A. Byrne
N. S. Cams
J. H. Hamilton
R. J. White
W. D. Travers
R. E. Martin

K. M. Sutton
NRC Resident Inspector
NSRC
RTS (C-06-0868)
File (815.01)
DMS (RC-06-0111)

IEO1

**Reply to Notice of Violation EA-06-046, VIO 0500395/2006011-01
White Finding Involving Failure to Properly Prepare a
Radioactive Material Package for Shipment**

During an NRC inspection completed on March 1, 2006, the following violation of NRC requirements was identified.

"10 CFR 71.5 requires that NRC licensees ship radioactive materials in accordance with the applicable provisions of the Department of Transportation regulations found in 49 CFR 100-177.

49 CFR 173.441(a) requires that each package of radioactive material offered for transport must be designed and prepared for shipment so that under conditions normally incident to transportation, the radiation level does not exceed 200 millirem per hour at any point on the external surface of the package.

Contrary to the above, the licensee failed to properly design and prepare for shipment a package of radioactive material that was transported from the licensee's facility to an offsite waste processing vendor. Specifically, a package was shipped by V. C. Summer on May 26, 2005, and arrived at a waste processing vendor facility in Oak Ridge, Tennessee, on May 27, 2005, with contact radiation levels of 600 millirem per hour on the side external surface of the package approximately 10 feet from the ground.

This violation is associated with a White Significance Determination Process finding for Unit 1 in the public radiation safety cornerstone."

(1) Reason for the violation

An Apparent Cause Evaluation (ACE) initiated on May 31, 2005, and concluded on July 6, 2005, found the specific cause for the violation to be indeterminate but concluded that there were two possible means for the event to have occurred.

- The hot spot on the side of the SeaLand container was missed during the pre-shipment surveys at VCSNS.
- The item shifted during transport.

A Root Cause Analysis (RCA) commissioned on April 3, 2006, and concluded on May 25, 2006, determined the event was a result of three causal factors:

- Industry operating experience was not properly used to avoid or prevent the transportation event. Several opportunities were missed when similar industry operating experience events were reviewed and did not result in changes to VCSNS policies/procedures which could have prevented this violation.
- Survey of the bag contents failed to detect the 800 mR/hr dose rate. The initial survey of the bag was conducted inside the reactor building using an ion chamber.
- A second survey of the bag performed some time prior to loading into the SeaLand container also failed to detect the discrete radioactive particle. This survey was conducted with a Geiger-Mueller (GM) detector, but it did not have an audible response indication.

(2) Corrective steps that have been taken and the results achieved

The Apparent Cause Evaluation (ACE) resulted in seven corrective actions which are summarized below and documented in CER C-05-2289.

The procedure for shipping radioactive material (HPP-0703) has been changed to implement the following requirements:

- A GM survey instrument with audible indication will be used for performing surveys of radioactive shipments that do not clear through a small article monitor. This requirement ensures VCSNS is using instruments similar to the processor's, reduces any potential for disparity, and improves detection capability.
- An independent survey will be performed prior to shipping radioactive material shipments that do not clear through a small article monitor. Independent surveys have provided a method of confirming the adequacy of the initial survey and provide added assurance of finding any unconfirmed results.
- An attachment was developed to provide guidance on loading shipping containers. The attachment sets limitations for:
 - which individuals may perform this activity,
 - dose rates of the materials to be loaded,
 - types of materials that may be loaded,
 - when shoring/bracing must be used, and
 - when management approval must be obtained.

This attachment will provide more consistency in loading/packaging, will ensure high-level waste is properly shored to prevent shifting during transport, and ensures management's involvement with potentially high-risk shipments.

- Training was provided to Health Physics personnel and to long-term contractor Decontamination Technicians on this event and similar industry operating experience events. The training emphasized the severity of the event (i.e., impact to the public), discussed the programmatic weaknesses, addressed the need for improvement in survey practices (i.e., use of instruments with audible response features, the need for detailed, accurate surveys of bags), and need for independent surveys of shipments.
- VCSNS compared calibration practices/procedures against those of Duratek and two other nuclear power plants (Surry and Robinson) and found no significant differences. All calibrations and instrument response checks yielded fairly similar results. VCSNS did find that acquiring instrumentation with audible indication would significantly improve detection capability.
- VCSNS changed HPP-0703 to better define the method for obtaining contact dose rates. This change will reflect actual practice and preclude any potential misunderstanding of the actual requirements.

(3) The corrective steps that will be taken to avoid further violations

The following corrective actions identified in the Root Cause are meant to prevent recurrence:

The operating experience (OE) items associated with HP surveys and radioactive waste shipping were received prior to significant changes to the OE program at VCSNS that occurred in March and April 2004 as a result of a previous Root Cause for an unrelated event. These actions were determined to be sufficient to address the causal factor of industry OE not used properly.

Revise HPP-0703 (Shipping Radioactive Material) to include the following requirements per VCSNS Procedure Commitment Accountability Program (SAP-0630):

- All bags must be surveyed with a GM detector prior to loading in the SeaLand container.
- An independent survey will be conducted with a GM detector on individual bags.

- A GM detector with audible indication must be used for all shipping containers.
- Require an independent survey of the shipping container.
- Any trash from a discrete radioactive particle area will be excluded from shipping in a SeaLand container.
- Bags that are greater than 150 mR/hr must be shored when loaded into a SeaLand container.

The following were additional corrective actions resulting from the Root Cause.

Revise HPP-0703 (Shipping Radioactive Material) to also include the following requirements:

- Require a documented survey for all sides of the shipping container.
- Require a Radioactive Waste Specialist to inspect all shipping containers prior to sealing for shipment.
- Develop a material accountability log to account for material loaded into shipping containers and who loaded the material.
- Require prior Radiation Protection Manager approval for shipments containing material in excess of 75% of the DOT limit.

Conduct training to reinforce proper survey of materials and the impact of incorrect surveys. This will also be included in contractor training.

Place locks on dry active waste (DAW) SeaLand containers to limit access to only Radioactive Waste personnel.

Perform benchmarking to determine industry standards for surveys of radioactive materials and containers for shipment and revise HPP-0703 accordingly to best industry practices. Place commitments on the revision per the station Procedure Commitment Accountability Program (SAP-0630).

(4) The date when full compliance will be achieved

Based on the corrective actions that have been taken to date, VCSNS is confident that waste shipments are in compliance with all applicable regulations. All corrective actions are expected to be complete by August 15, 2006.